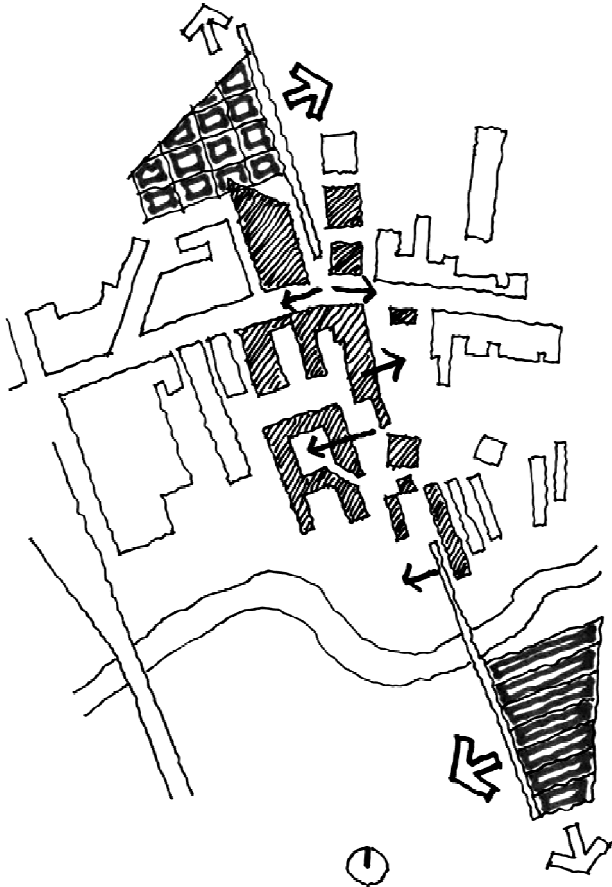


Architectural Drawing

A Grenfell-Baines Institute of Architecture Year One Guide



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Compiled, designed and edited by the author, James Dyson.
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Revised 2017

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Preston PR1 2HE.

About this book

This book is a primer for architectural drawing. It is tailored to smaller building projects likely to be encountered in the first year of a degree course in architecture. It is a rough guide how to do straightforward architectural representation.

It is not a design or design process guide; it assumes the design work has been done and needs to be communicated. The buildings drawn herein are emphatically simplistic to reinforce this point.

It is not a guide to technical or ergonomic studies; no responsibility is accepted for errors or omissions in respect of statutory or advisory guidance. It is not a substitute for standard reference works such as Ching, AJ Metric or Neufert, though it may be characterized as a mini version of either. The author would be most grateful to any reader who draws attention to omissions or factual mistakes.

It is not to scale; several “scales” of drawing sometimes appear on the same page. It is not a guide to processing drawings through digital media, however post-production using Photoshop for example is a very highly recommended technique to master.

It represents the opinions and preferences of the author, and therefore has the benefit of 30+ years in architectural practice at the ‘sharp end’.

Any feedback, be it on content, layout, printing and binding, would be most welcome.

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1. On architectural drawing

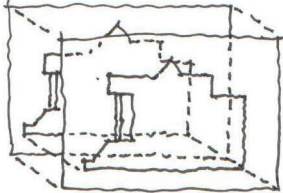
“Thought passes through the hand onto the sheet through successive approximations” Vittorio Gregotti.

Computer aided design, from simple 2d and 3d programs such as Sketchup to computational modelling and rendering, is ever widening the definition and scope of architectural drawing.

The drawings in this book rather are freehand; hand drawings can also be technically drawn using drawing equipment to create straight lines. Either offers a direct route between brain and paper missing from digital media, and it behoves all architects to master hand drawing, whether with straight lines or not.

“If you can't draw it, you can't flippin' Revit it” David Simister.

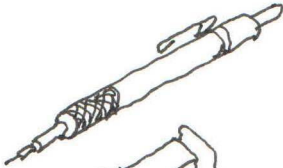
2. Equipment set-up



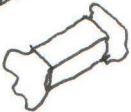
Paper: tracing paper enables accurate alignment, floor on floor or section on section. Good quality cartridge paper will take a watercolour wash.



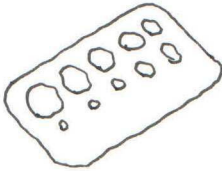
Use masking tape. Sellotape leaves a sticky residue which will attract dirt.



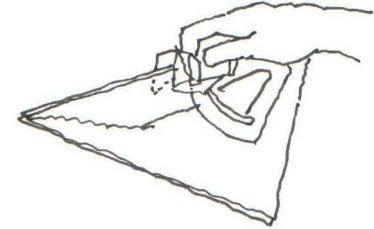
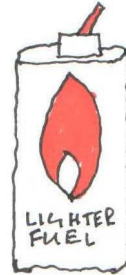
Use a propelling pencil for consistency of line and to save time continually sharpening.



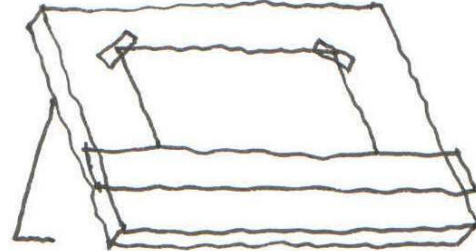
Use a putty rubber rather than a normal eraser.



Use templates for accurate and consistent drawing of circles, ovals, people and text.

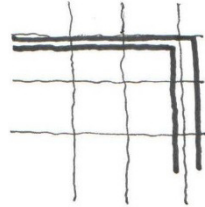
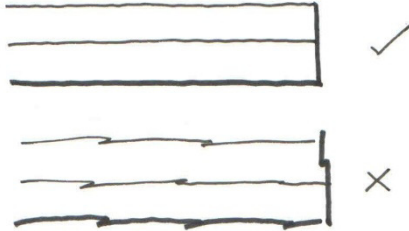


Clean drawing equipment edges (parallel motion and set squares) using lighter fuel and tissue.



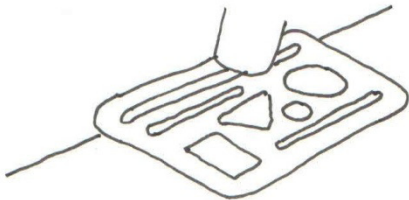
Rest paper on drawing board parallel motion and tape down from top so the paper is parallel to any drawn line.

3. How to draw lines

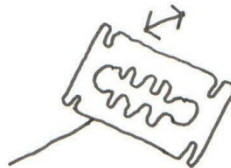


- Draw lines in a positive controlled single stroke
- Ends must meet (best) or slightly overlap
- Draw lines in draft feint, and go over heavy later
- Section cuts use heavier lines
- Elements in background use lighter lines

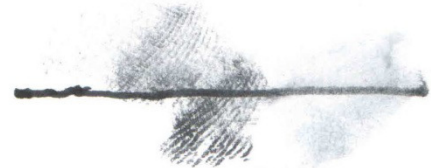
Successive turns of the set square can set up any angle and its perpendicular:



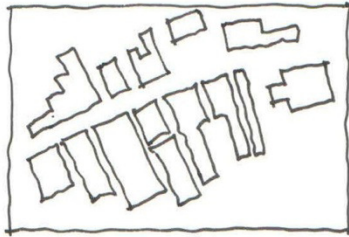
Use a metal eraser template to rub out cleanly without smudging surrounding work.



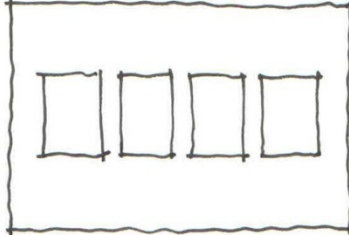
Use a razor blade to erase ink from tracing paper – lightly!



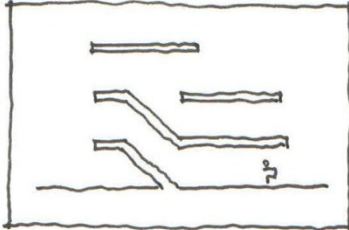
Do not present grubby work, unless as part of sketchbook development, or unless the grubbiness itself is somehow representational!



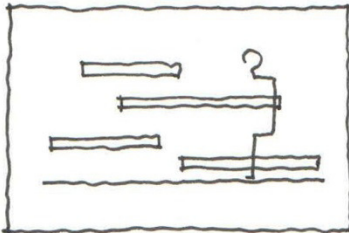
Site plan / context /
masterplan:
1:1000 / 1:500 /
1:200



Plans:
1:100 / 1:50 / 1:20



Sections / elevations:
1:100 / 1:50 / 1:20



Furniture / fittings /
detail:
1:50 / 1:20 / 1:10

4. Scale

Scale drawings are MEASURABLE.

Full size is 1:1 scale.

Good scales for small projects are shown left. Sections and elevations should ideally be to the same scale as plans to aid legibility.

A 20mm line on a drawing represents the following length at various scales:

- 20mm at 1:1
- 200mm at 1:10
- 1m at 1:50
- 2m at 1:100
- 4m at 1:200
- 10m at 1:500
- 20m at 1:1000

Architectural dimensions in the UK are usually shown as a function of metres (m) or millimetres (mm).

Drawing a scale bar helps the viewer understand the scale of the drawing and helps to confirm the scale of printed material.

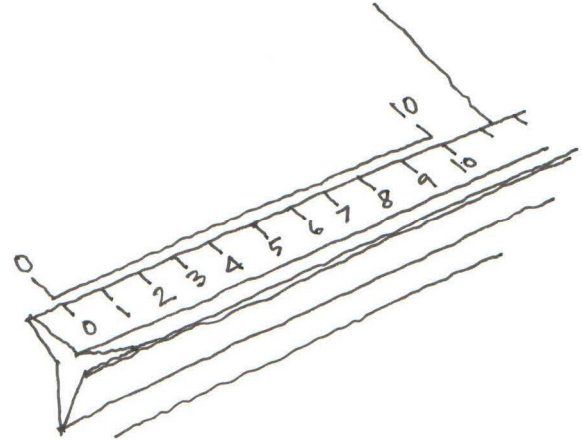
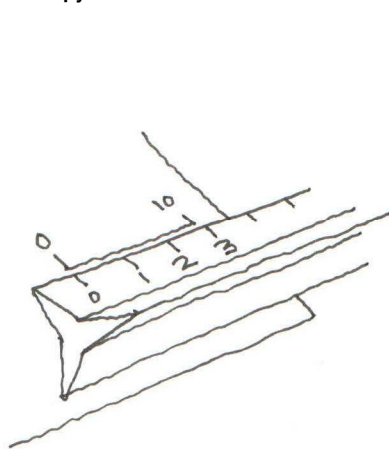
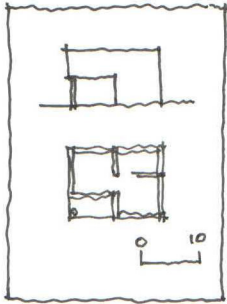


1.8m or 1800mm



5. Re-scaling prints

FACTOR = $\frac{\text{Known dimension on original}}{\text{Scaled dimension on copy}}$



Example:

If a known 10m scale on a print measures 2.8cm (28mm) at 1:100.....

.... then 10m at 1:100 scale is represented as 2.8m on the copy.

So....

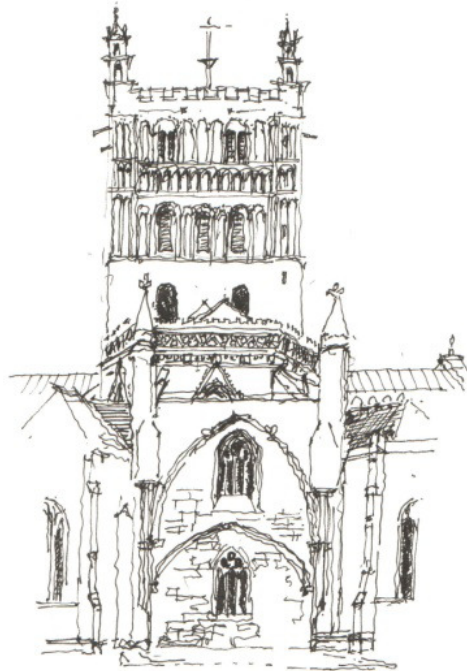
To obtain a correctly scaled drawing of this print, photocopy enlarge by:

$$\frac{10}{2.8} = 3.57$$

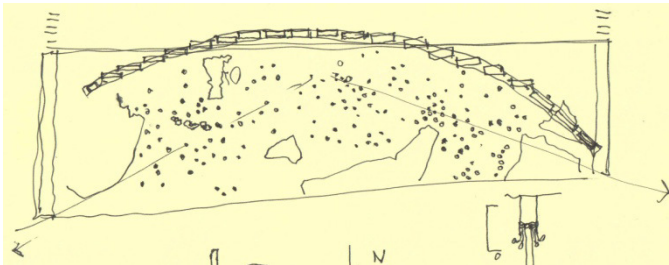
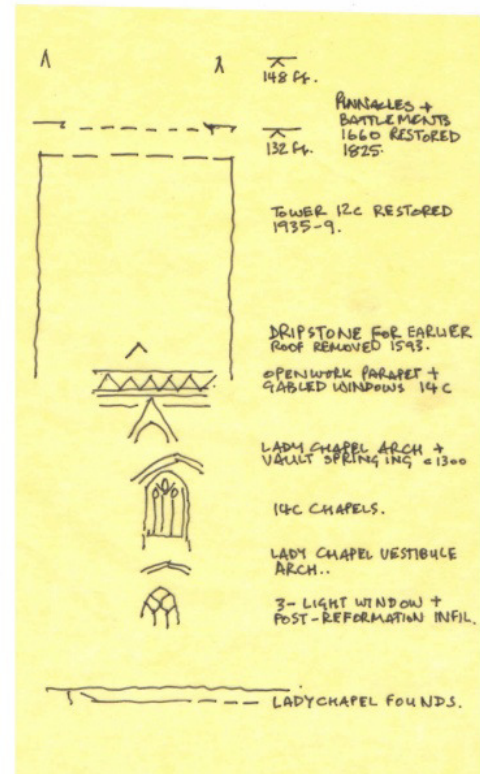
Note that other clues can be used, eg a double bed is usually 2m x 1.5m, a kitchen worktop usually 600mm wide.

Using 'enlarge' on copier.

Check the result: the 10m scale bar should scale 10m at 1:100.

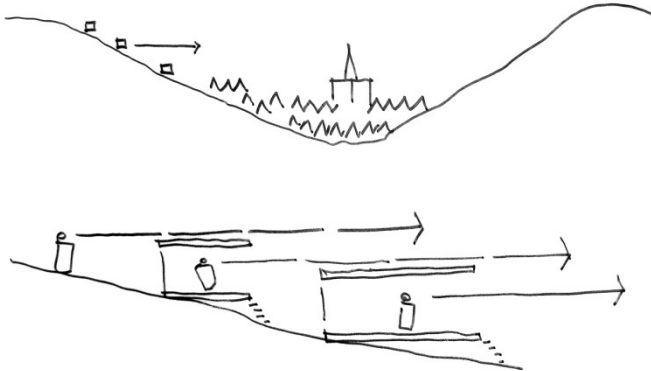
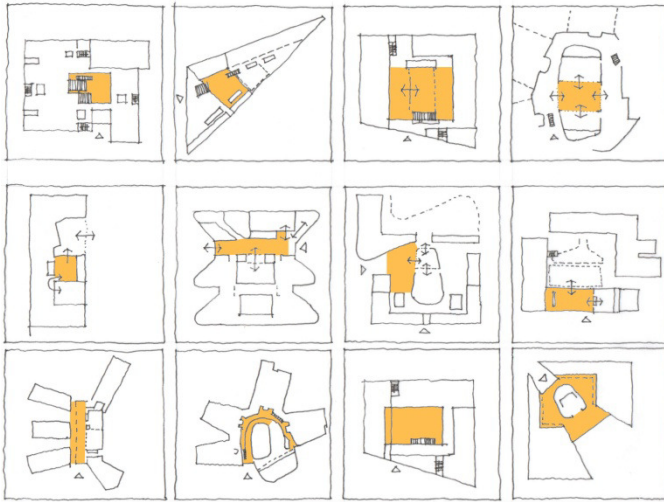


Tewkesbury Abbey from E. 16.3.2016.



6. Sketch

Develop a sketching technique to record places and spaces and be able to quickly explore and communicate design ideas.



7. Concept

"Any building should be described by three or four lines"
Stefan Behnisch.

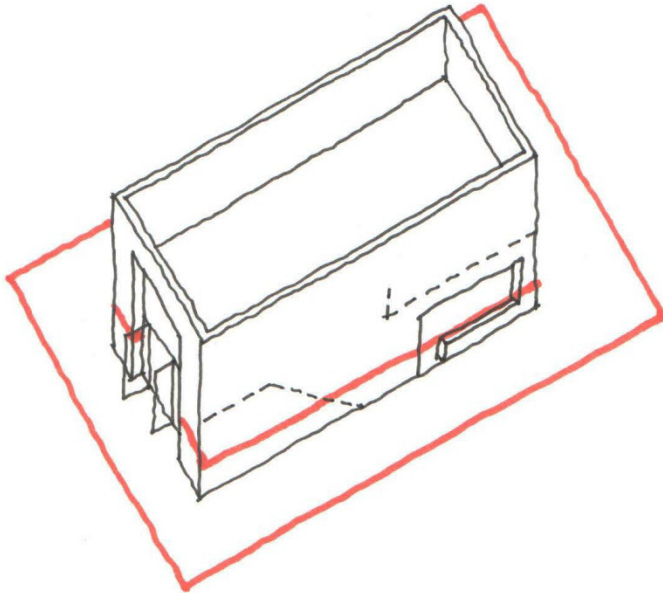
Concept and parti diagrams explain thinking and demonstrate process and are therefore essential for presentations and portfolios.

Keep scraps of working out – one of them may represent the key moment the design was cracked.

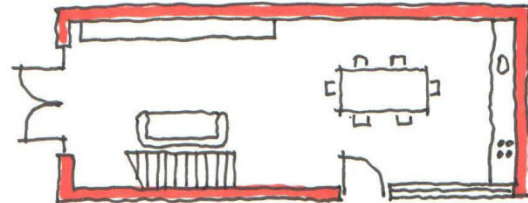
8. What is a plan?

A plan is a horizontal slice through a building. It is normally taken about 1m above floor level looking down on furniture and window openings.

The plan is often the starting point for all other drawings. *"The plan is the generator"* Le Corbusier, *Towards a New Architecture*.



=



9. Stacking plans

When drawing and presenting plans, the lowest floor goes at the bottom- this is the way its built!

ROOF PLAN

...sits on...

SECOND FLOOR

...sits on...

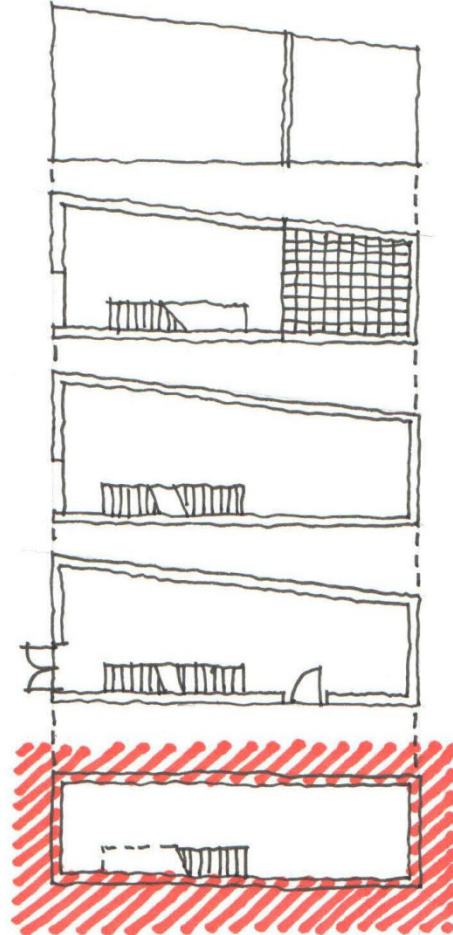
FIRST FLOOR

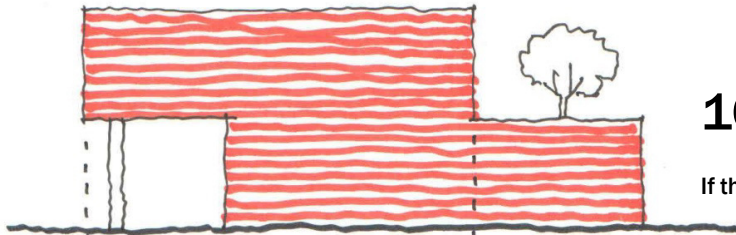
...sits on...

GROUND FLOOR

...sits on...

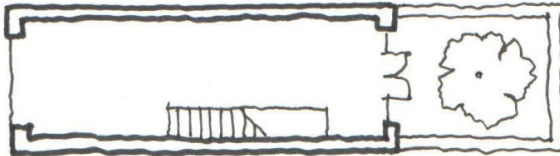
BASEMENT



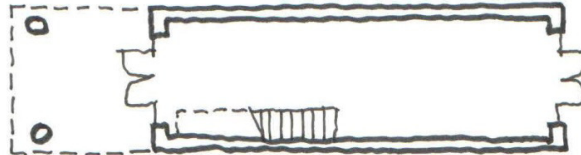


10. Above and below

If the building elevation looks like the drawing left, then:



First floor plan looks down on the stairs and the roof garden
IN LIGHT PEN



And the ground floor plan looks up (I know, a contradiction)
at important structure above IN DASHED LINE. In this case
the overhang offers shelter so has importance for the ground
floor; a rooflight bringing light into the building would be
similarly drawn.

NOTE:

THICK LINES = PLAN OR SECTION CUT

THIN LINES = VIEWED IN ELEVATION

DOTTED OR DASHED LINES = ABOVE OR IMPLIED

11. Urban design

Urban masterplans usually describe the space between buildings rather than the buildings themselves.

A series of connected propositions across a whole urban terrain can be highlighted by emphasis.

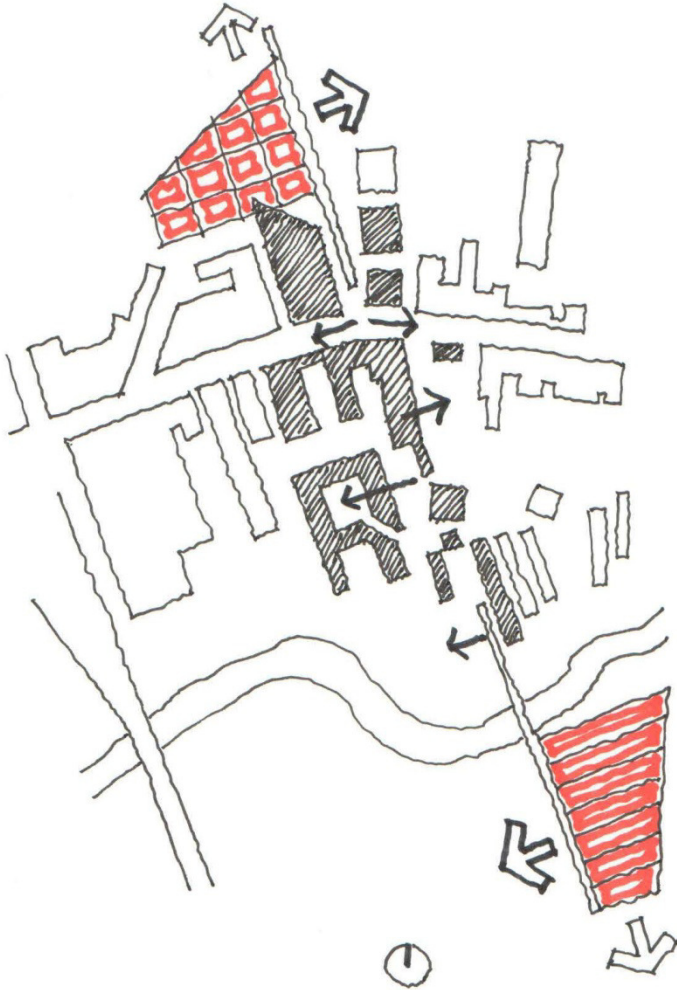
Hatch buildings to define solid and void, OR hatch ground surface to define landscape strategy. Hatching both seldom works.

Consider a “Nolli” approach of hatching ‘private’ buildings, leaving the interiors of public buildings white to clarify where public access exists.

Use arrows to describe permeability and connections to surroundings.

Use dotted or dashed lines to illustrate important axes.

Always draw a North point!



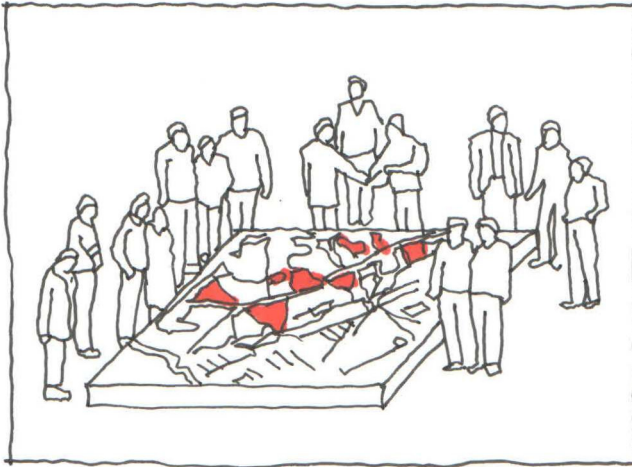
12. Participation

Often the end result (building) is less important to a client than the process which is mapped out to achieve it.

The architectural drawing in this instance communicates process, not product, and typically includes representations of client, end user and stakeholder engagement:

- Educational materials, discussions, presentations
- Collective meetings, workshops
- Resident participation
- Collective social actions
- End user manuals intent

These drawings can be correlated to a process mapping diagram or programme of work.



13. Site analysis

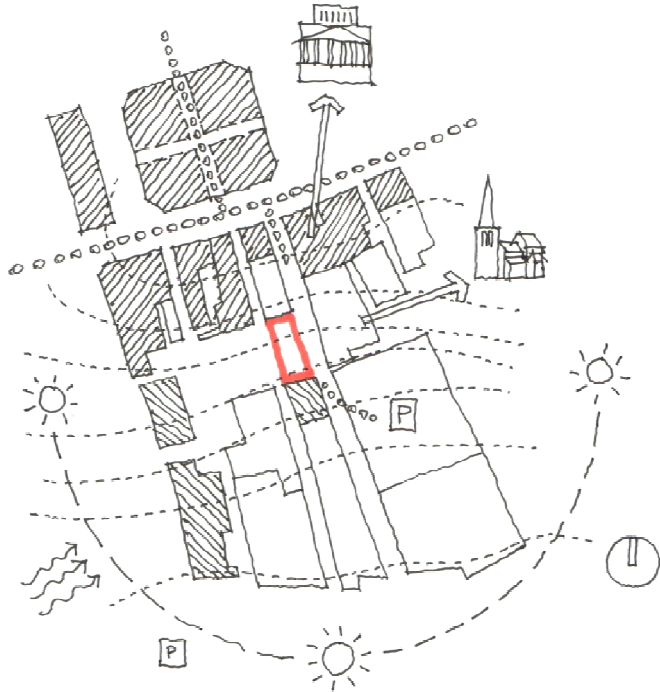
Use arrows and dashed lines to overlay views, access, etc.
Always add a North point.

This drawing is an essential part of a wider investigation into contextual studies.

A site analysis in section is equally important!

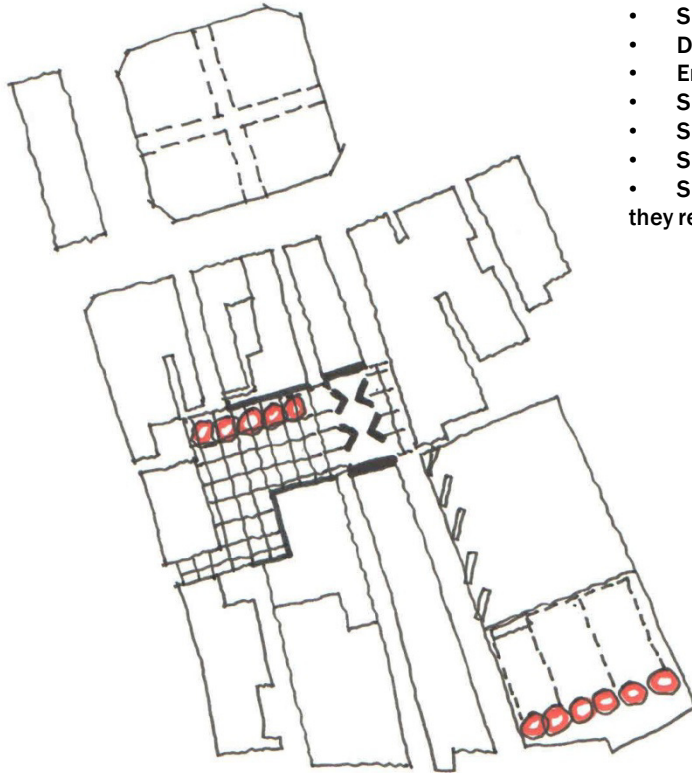
SITE ANALYSIS CHECKLIST:

- Location – clarify and show surrounding context
- Character – landscape and urban character, including extent of tree planting, building heights.
- Public spaces and key public buildings identify.
- Use – identify building functions. Identify redundant buildings / sites for redevelopment.
- Access – vehicles, parking, public transport, pedestrian movement.
- Environment – sun path and prevailing wind. (Keep these simple unless the consequence of solar elevation is understood. Pictures of melon slices are seldom useful.)
- View – out to focal points, and in, from surroundings.

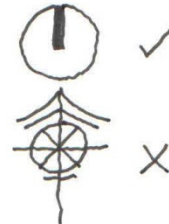


14. Site plan

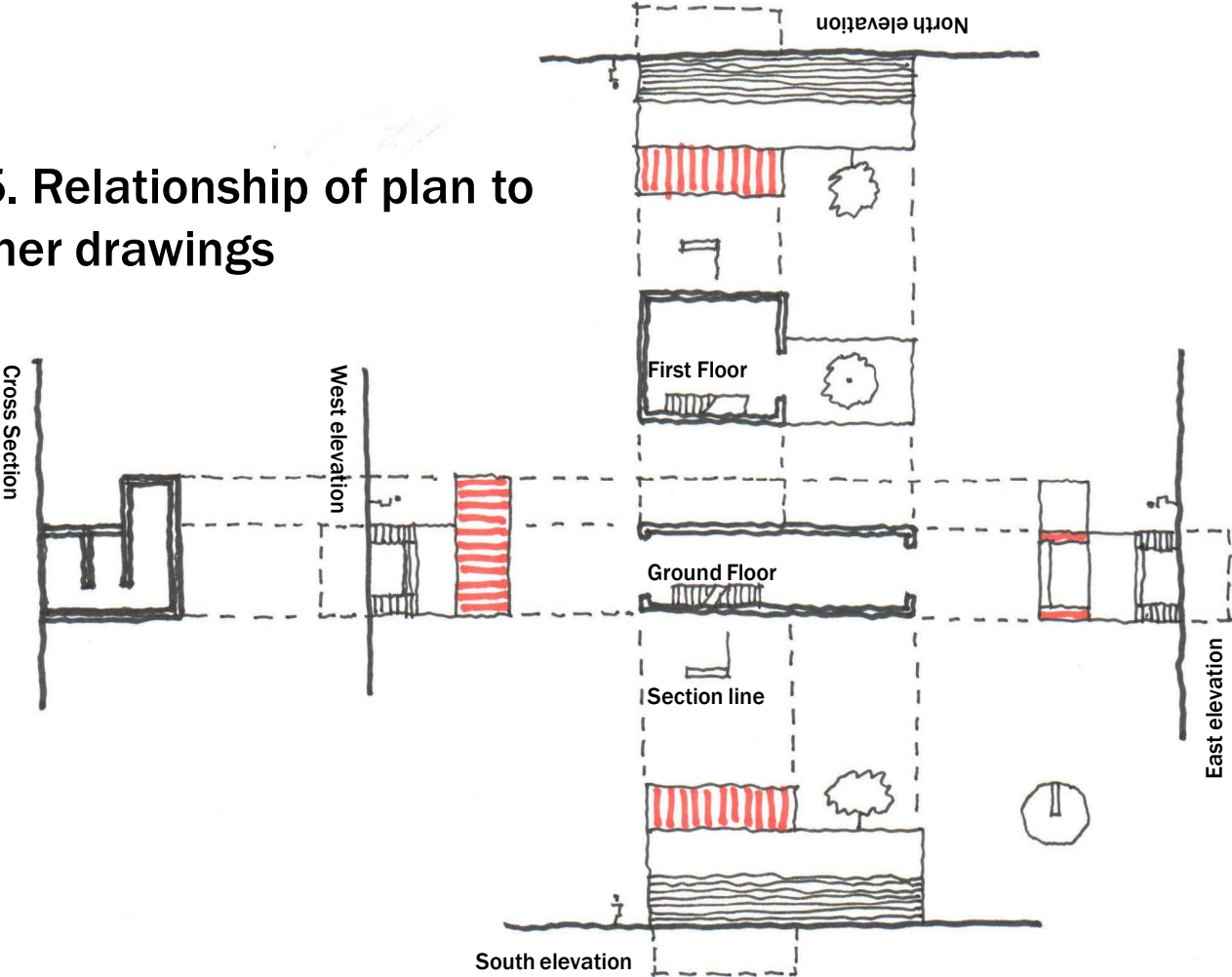
- Do not hatch buildings, unless purposeful and quick
- Show all relevant streets and buildings
- Do not waste time drawing pavement lines
- Emphasise your project in thicker lines
- Show urban interventions that make your project work
- Show related projects and their means of connection
- Show access and approach to entrances
- Show gardens and external spaces to demonstrate how they relate to interior space



Always draw a North point!
Make it simple, not florid:



15. Relationship of plan to other drawings



16. Section

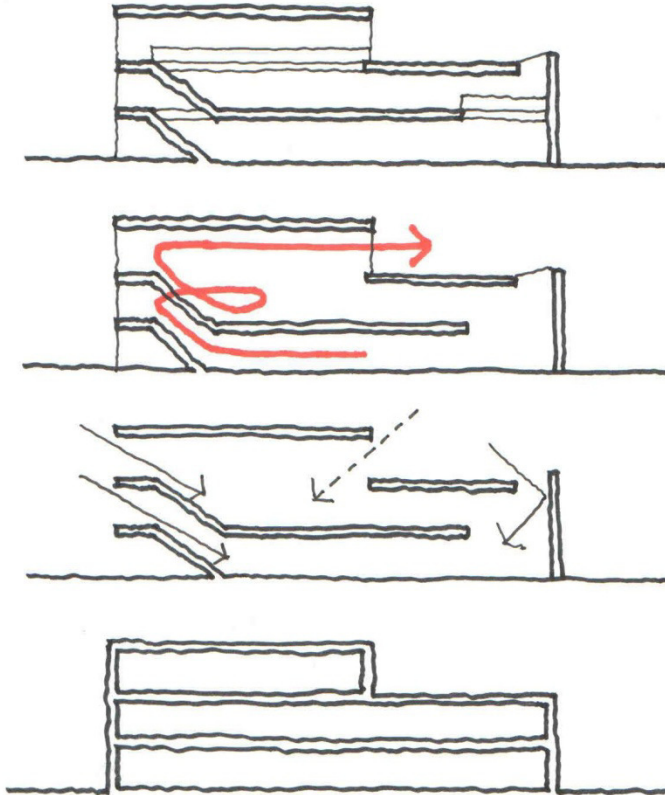
A section is a cut through the building, so it will show the thickness of construction material in bold line. Lighter lines are used for elements that are seen forward of the section cut, and for glazed elements.

A CROSS SECTION is a cut through the short axis of the building, a LONG SECTION is a cut through the long axis.

Take sections through interesting parts of the building, to show how you move up and through

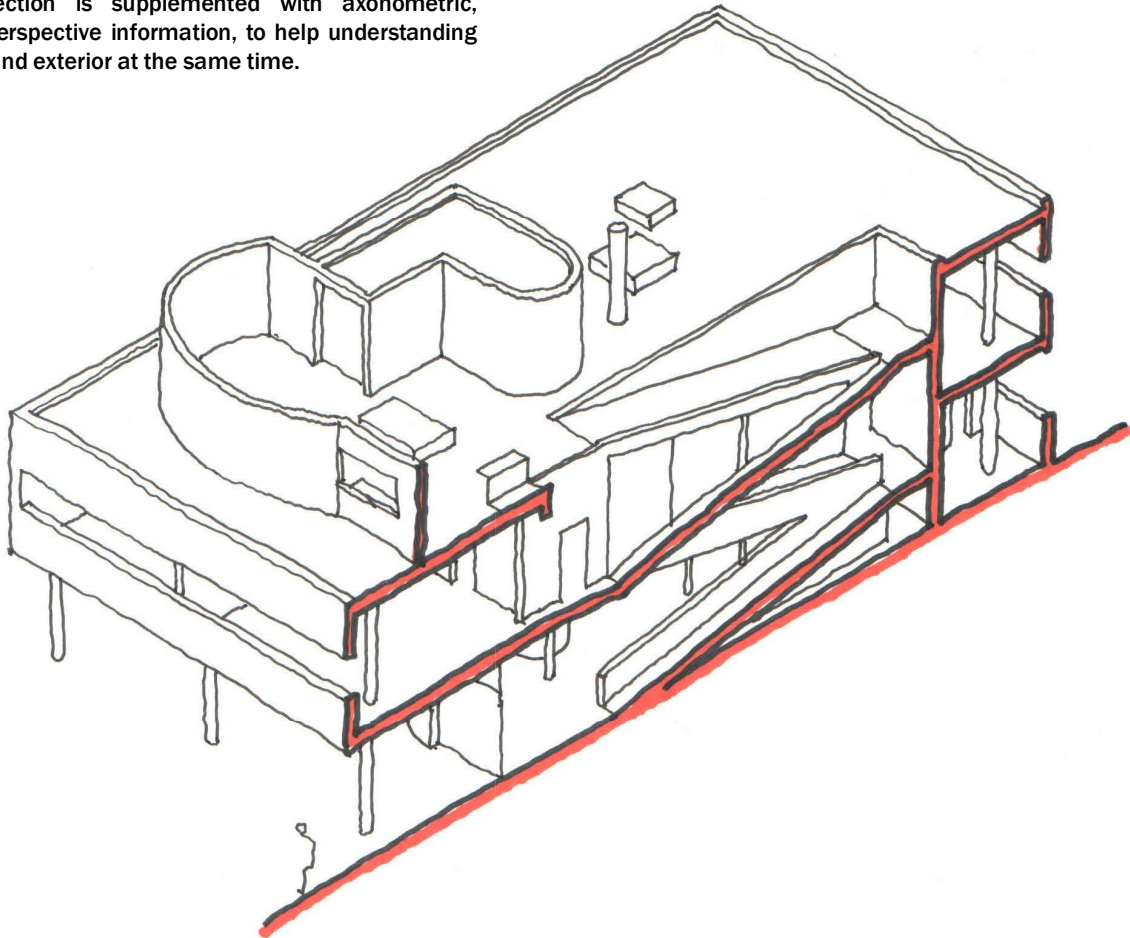
..... Or how light penetrates into the lower rooms in interesting ways.

A different section cut taken through the same building could tell the viewer very little about it!



17. Cutaway section

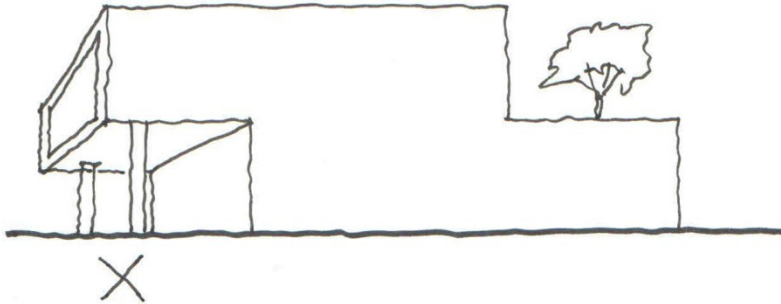
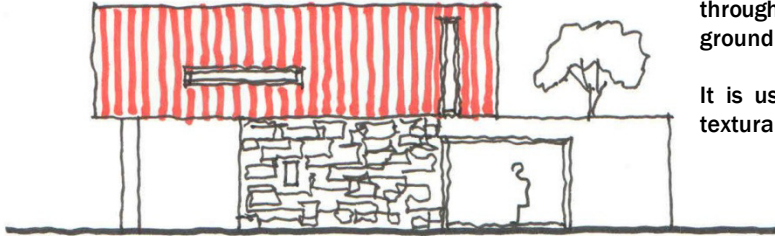
A cutaway section is supplemented with axonometric, isometric, or perspective information, to help understanding of the interior and exterior at the same time.



18. Elevation

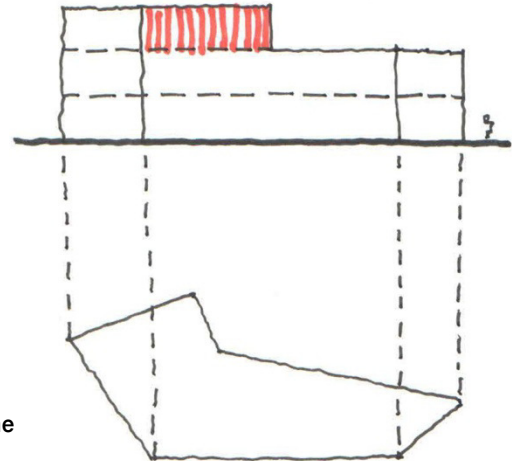
An elevation is a flat view of the side of a building, cut through the ground immediately in front of the building (the ground is drawn with a thick line).

It is usually the best drawing to explain material and the textural feel of the project.

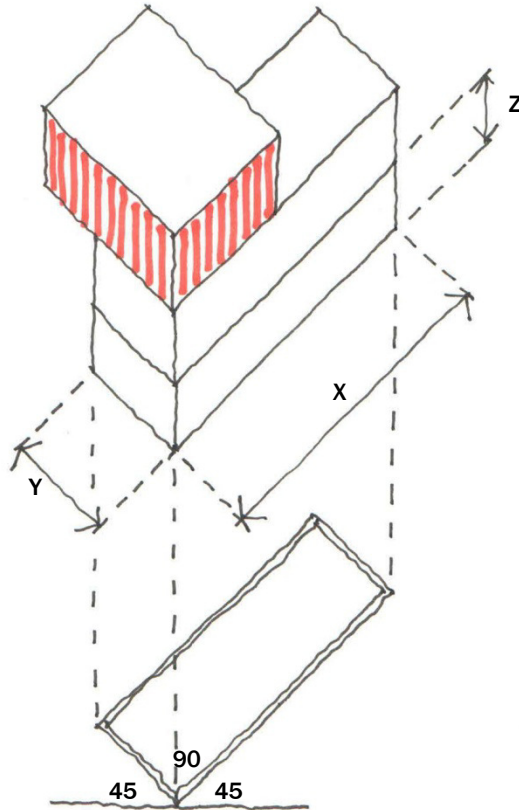


Elevations do not have perspective.....

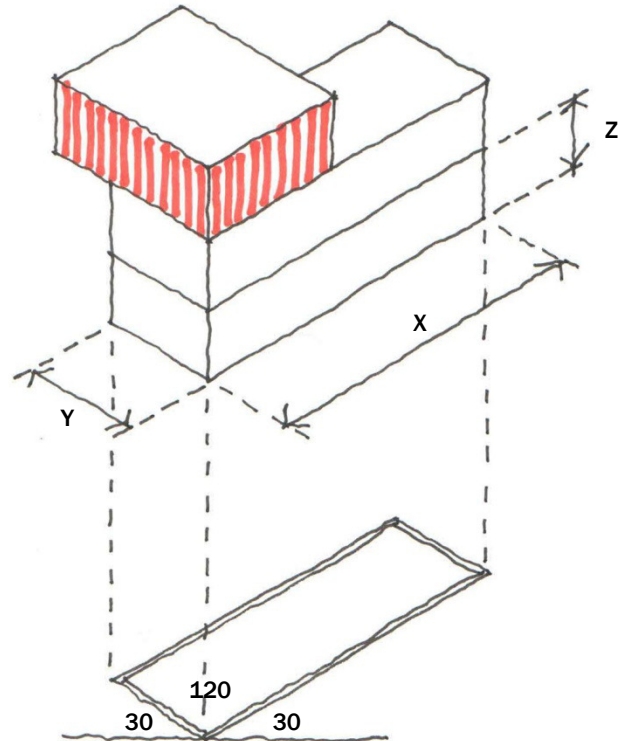
.....but do include oblique views of side elevations if the project has a non-orthogonal shape.



19. Axonometric/Isometric



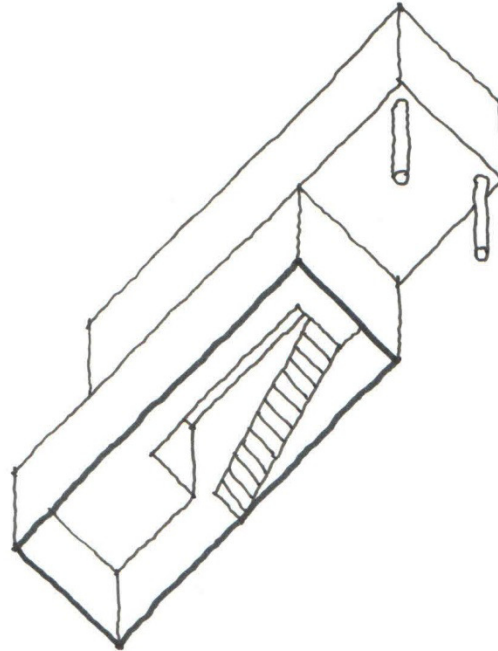
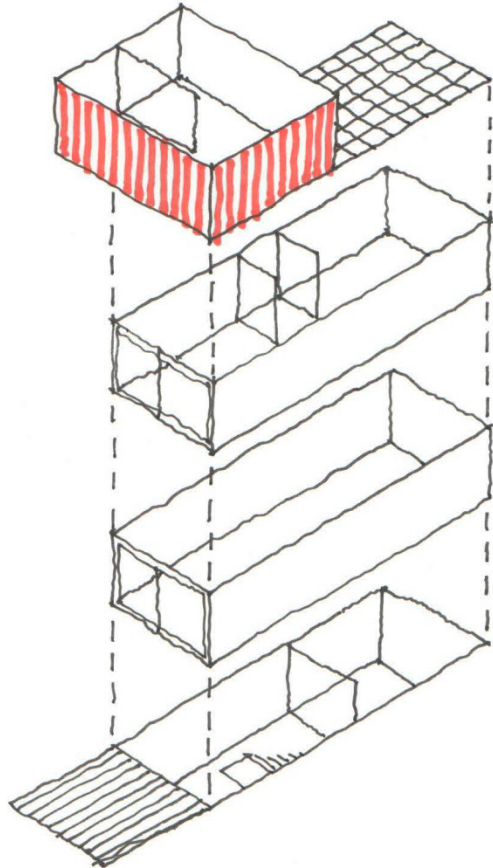
An axonometric is set up directly from the plan.
X, Y and Z (all dimensions) are to scale: the drawing is measurable.
Axonometrics are generally better for roof views.



An isometric is NOT set up directly from the plan; a separately constructed 30/30 degree plan must be drawn.
X, Y and Z (all dimensions) are to scale: the drawing is measurable.
Isometrics are generally better for facade views.

20. Exploded axo/isometric

Can show the whole project in one measurable drawing, therefore is a good 'killer image'



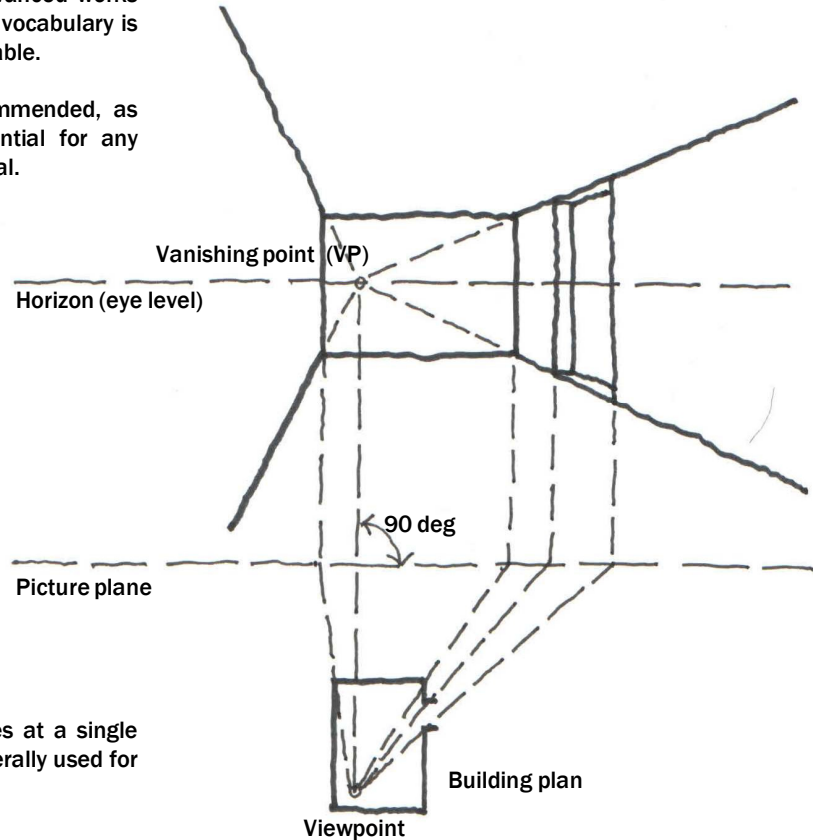
Worms eye

The building as if seen from underground, can help explain connected interior spaces. See the work of James Stirling.

21. Perspective

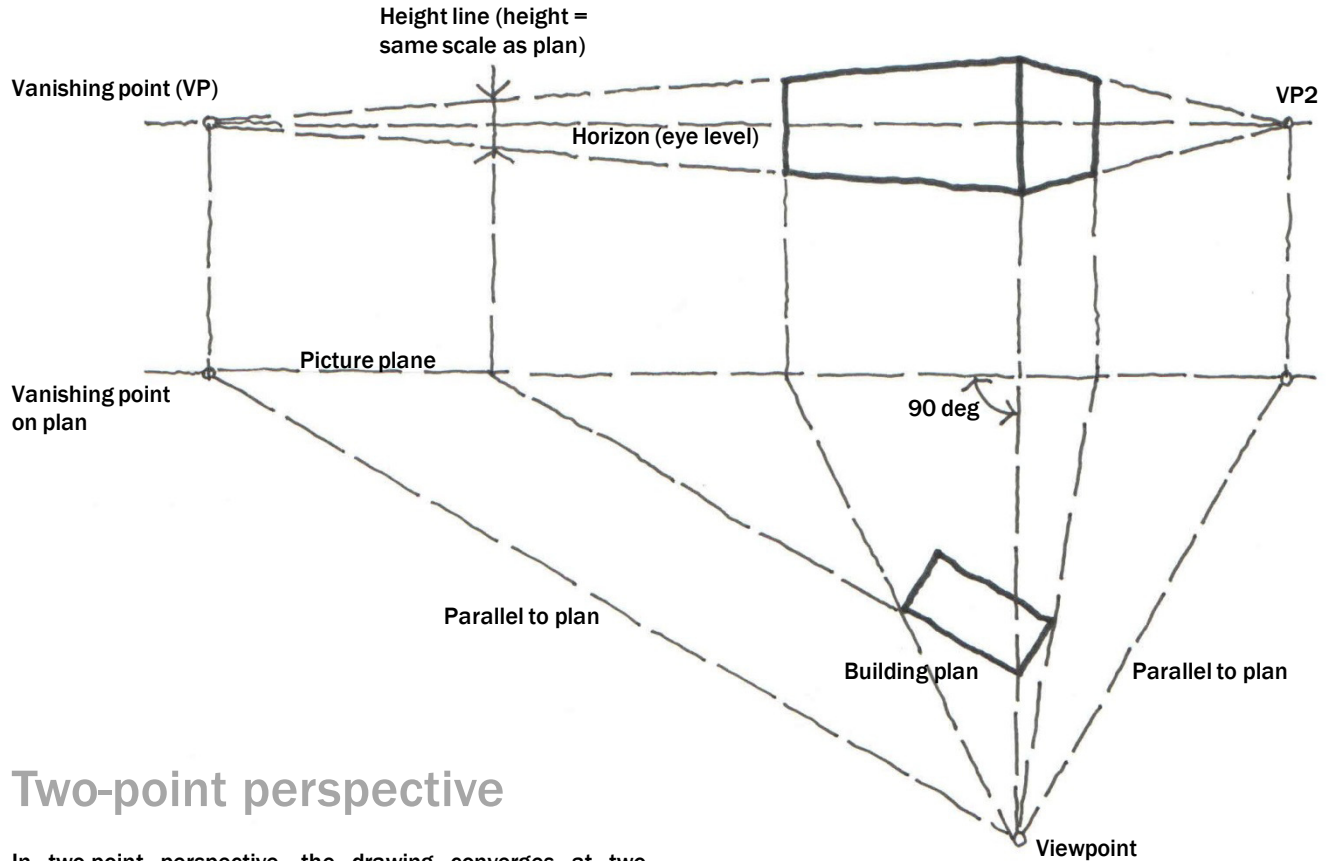
Perspective can be set up geometrically or by using perspective grids. The reader is referred to advanced works such as Ching for procedures, but the essential vocabulary is shown here. Perspectives are indirectly measurable.

Trials with these procedures are highly recommended, as knowledge of the principles involved is essential for any perspective work, whether sketch, detail or digital.



One-point perspective

In one-point perspective, the drawing converges at a single vanishing point. One-point perspectives are generally used for interiors and street views.



Two-point perspective

In two-point perspective, the drawing converges at two vanishing points. Two-point perspectives are generally used for building exteriors and urban design visualization.

Perspectives can be multiple-point, with vanishing points above or below the horizon line!



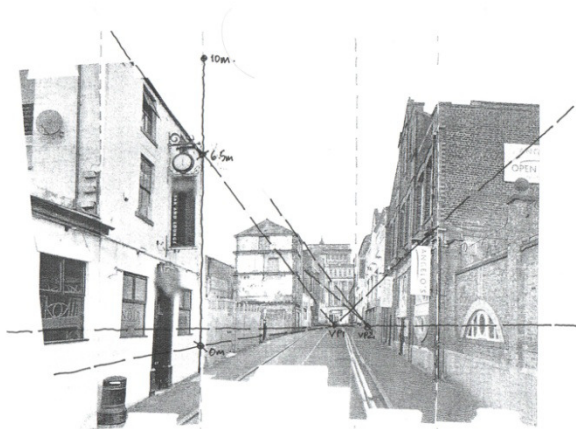
1. Rough-out a sketch of the view. Know what you want from the perspective.



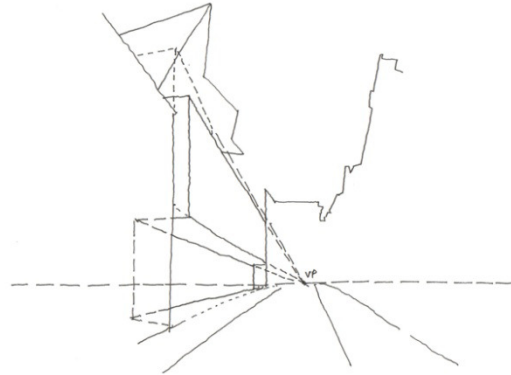
2. Use photos for context. Tear photos into strips in order to get verticals vertical.

22. Perspective from photos

How to set up a simple perspective based on site photography.



3. Photocopy with light tone, set scale, horizon and vanishing points.



4. Trace over, add the main lines of context and proposal outline.



5. Trace again, this time without horizon and VP, add more detail and context.

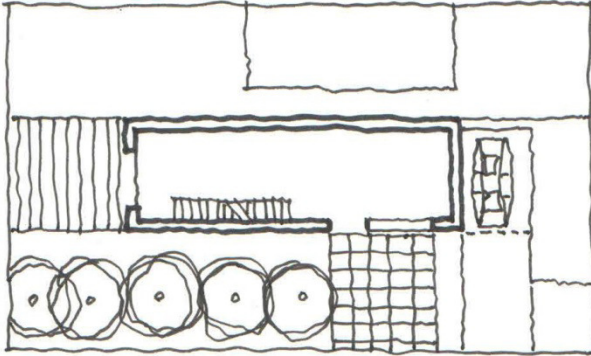


6. Add shade, thicken edge profiles, add material and colour.

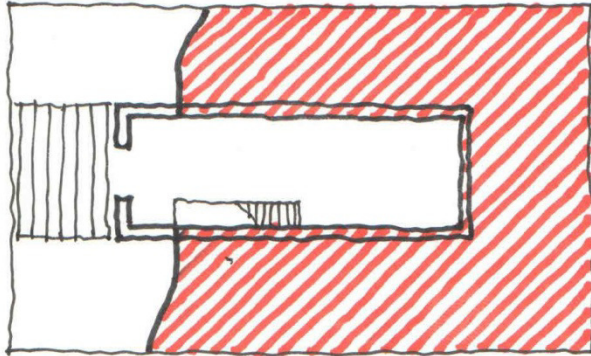
23. Context - Ground

Set your project **ON** the ground and **IN** the ground, the building is built off it!

Ground hatching on sections and basement plans can be solid black, or hatch, or texture, or coloured paper. If the drawing is otherwise heavily rendered, leaving the ground white can be effective.



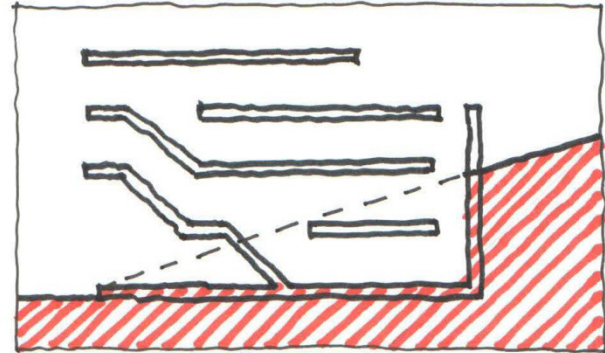
Ground floor:
Show approach / landscape / steps / adjacent buildings etc.



Basement:

A basement has solid earth around it.

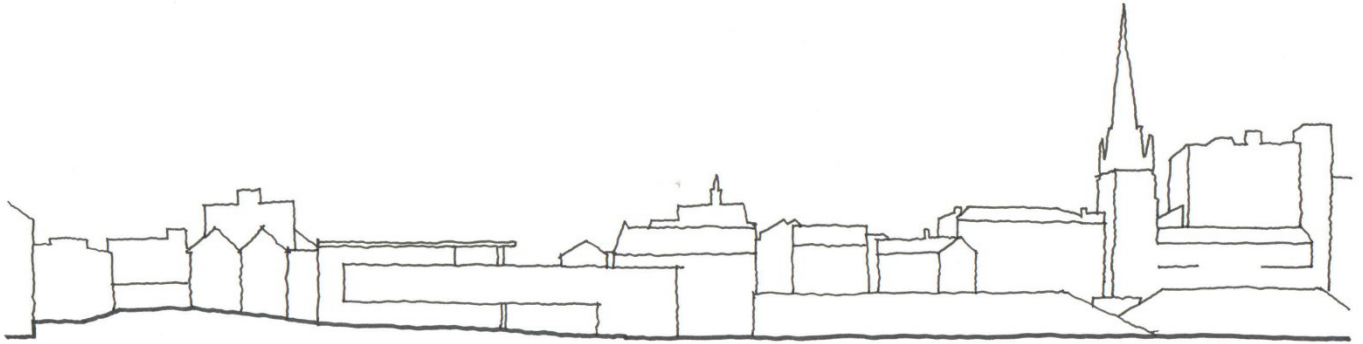
A cut line shows the point at which sloping ground becomes lower than 1m above basement floor level.



Section / elevation:

Is also a cut through the ground.

A dotted line would show the line of sloping ground behind the section cut.

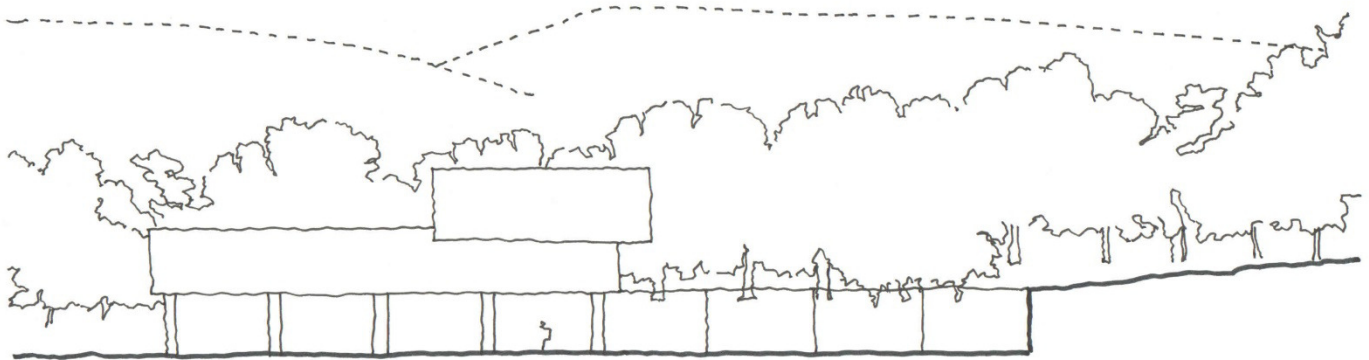


24. Urban context

Show surrounding context to help understanding how the project relates to its environment. Draw in lighter pen or collage photos / Photoshop.

25. Rural context

Show surrounding context to help understanding how the project relates to its environment. Draw in lighter pen or collage photos / Photoshop. Use autumnal trees rather than full green.

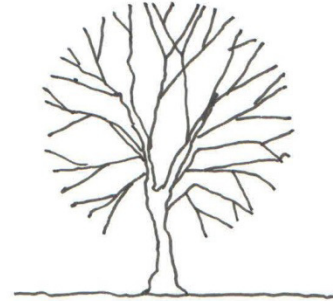
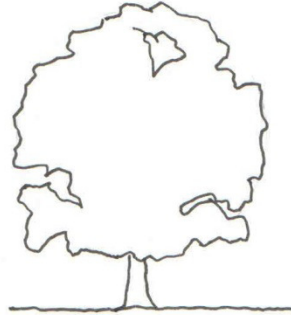
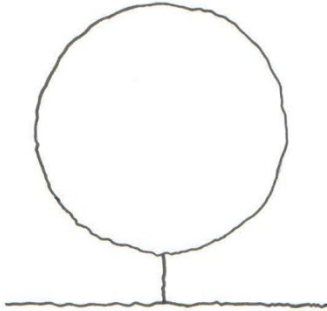


Simple

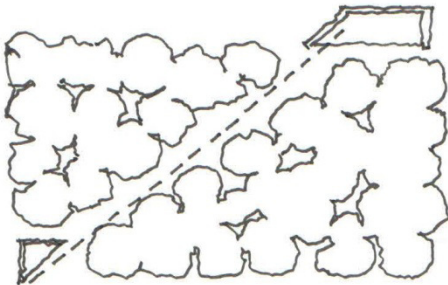
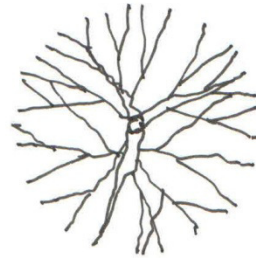
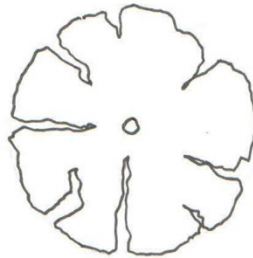
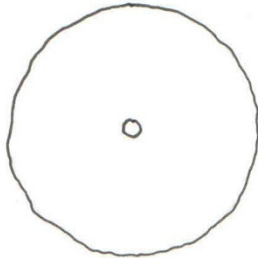
Summer

Winter

Section / elevation



Plan



26. Trees

Join banks of trees on site plans as a mass

27. Structure

Important, as buildings need to stand up.....

Showing a structural grid can add believability to plans and sections, conveying a confidence in the reality of the proposition, and can be used to set up eg stairs, columns, voids, windows, even furniture layouts.

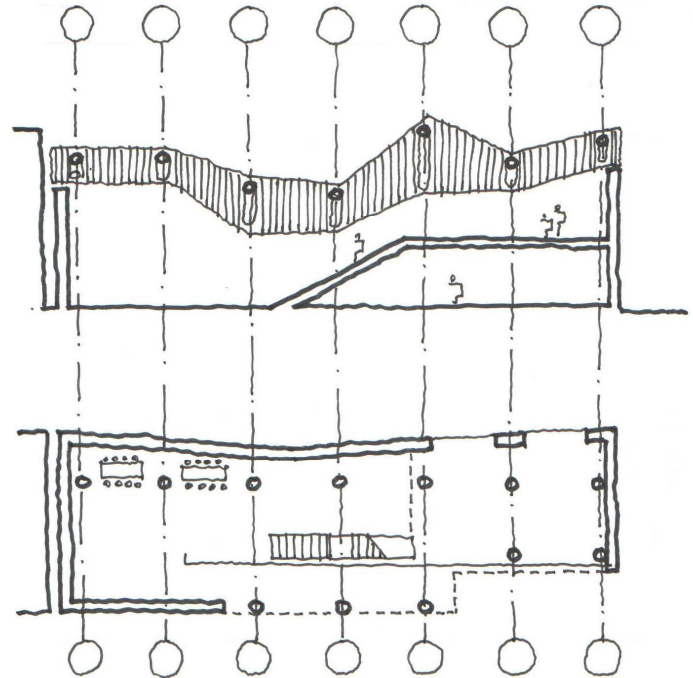
Try starting the drawing of plans with a structural grid and "build" around it - this is the way its built.

Make the main grid 4m - 6m.

Columns 200mm dia (steel), or 400mm dia (concrete).

Beam depth $1/20^{\text{th}}$ span

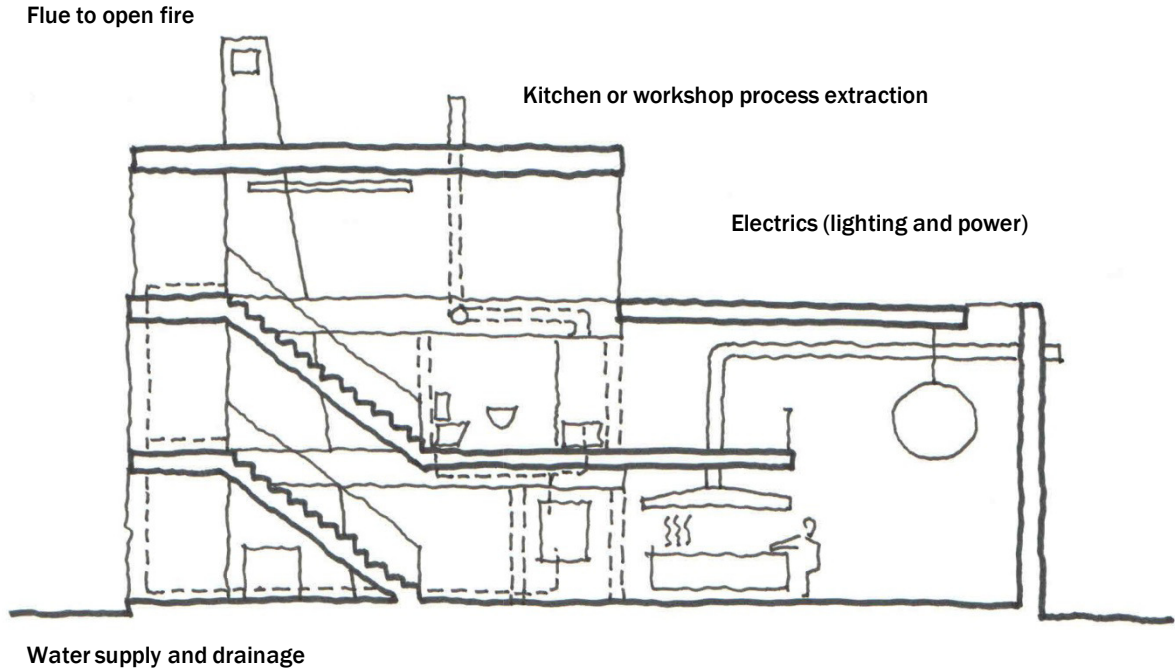
Structural grid on section



Structural grid on plan

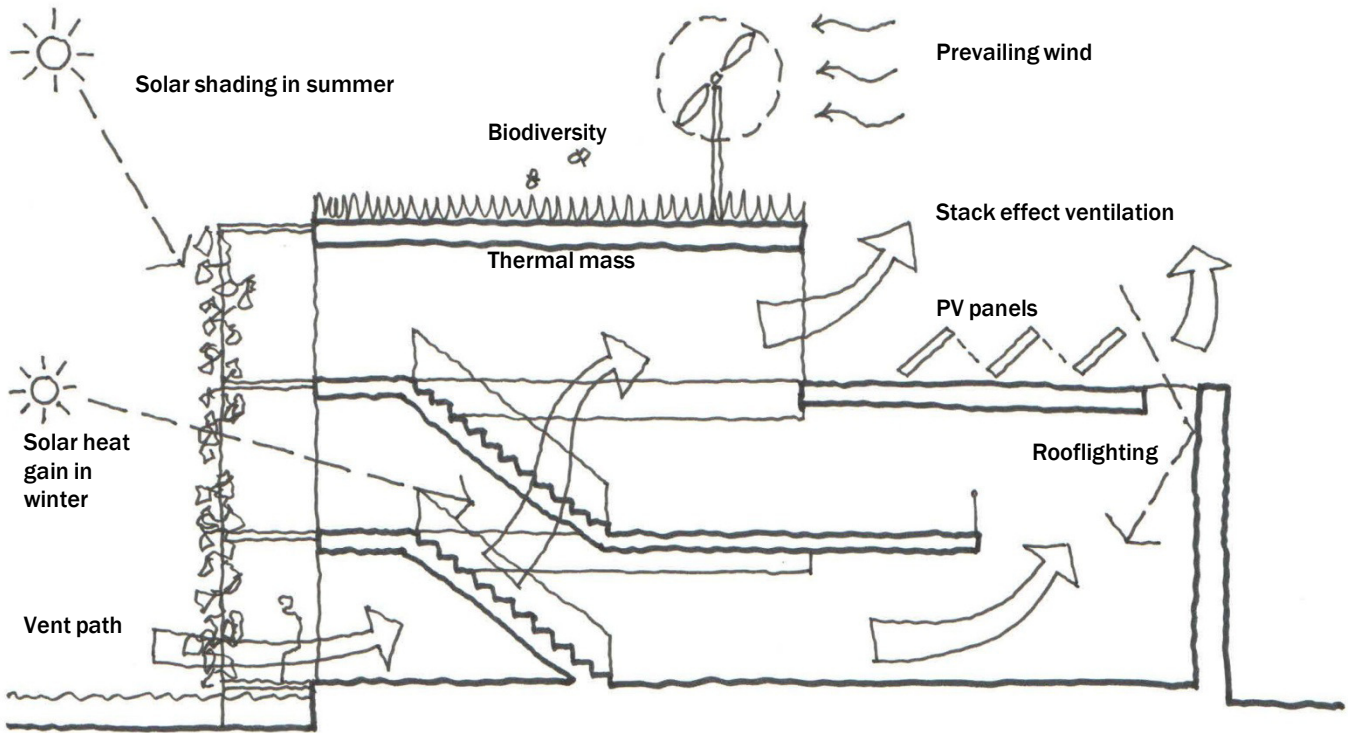
28. Services

Important, as your building needs to operate.....



Boiler or plant space:

- A house boiler will fit in the kitchen
- Larger buildings will require a plant room
- Much larger buildings will have several plant rooms



29. Sustainability

How does the project work with climate?

The most sustainable thing you can do in architecture is not build. The next is add insulation. So don't add too much "green bling", unless this fits a wider project concept.



Curvy bulbous vent path arrows mimic the flow of air.



Straight light path arrows mimic the path of light.

30. Material

Conventions:



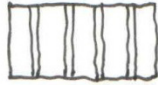
cladding



cladding/brick



concrete/render



standing seam



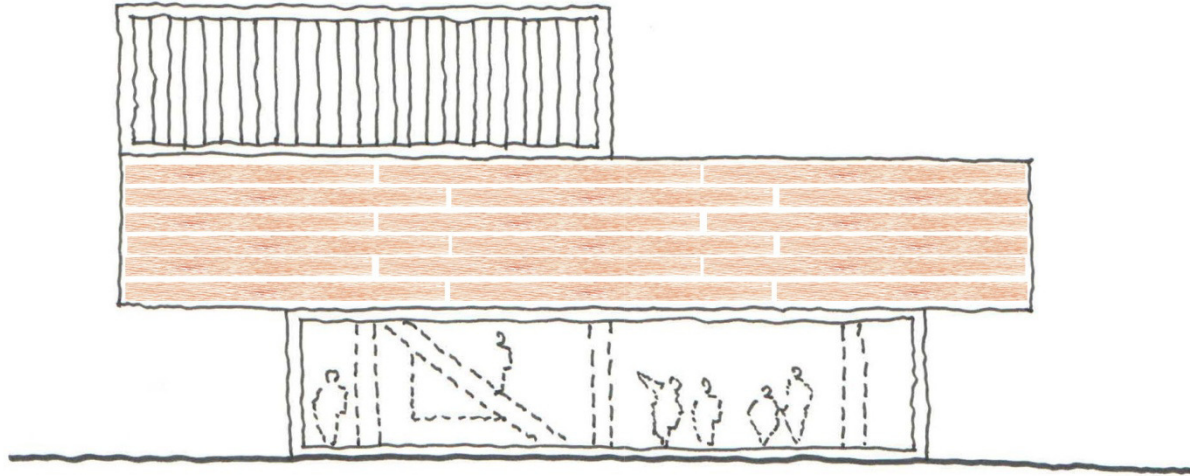
stone (rubble)



glazing



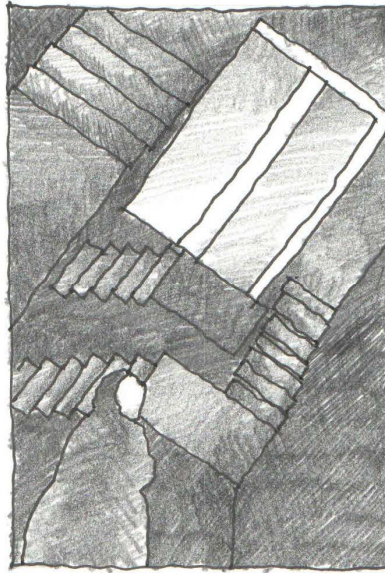
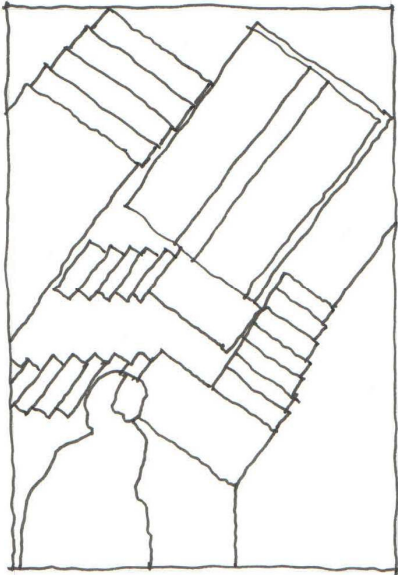
timber



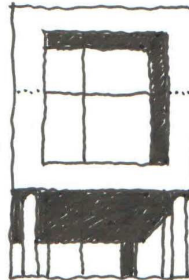
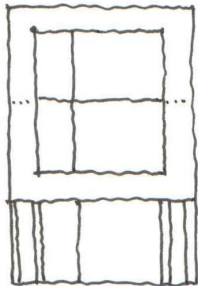
Materials can be suggested by wax rubbing a texture, eg wood or concrete, or by using Photoshop samples of real materials from site photography.

Lighter weight materials usually sit well on heavier bases, the exception being an open ground floor to encourage accessibility, over which the building "hovers".

31. Shadow



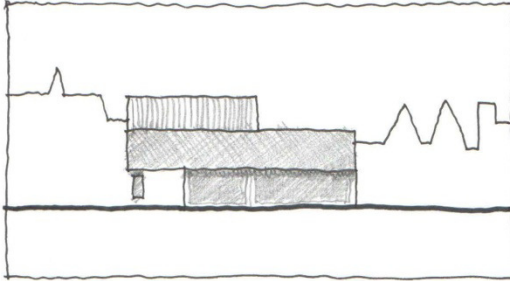
Shadow can be used to describe light. Shadow can also be used to convey emotion, eg of a vertigo-inducing staircase.



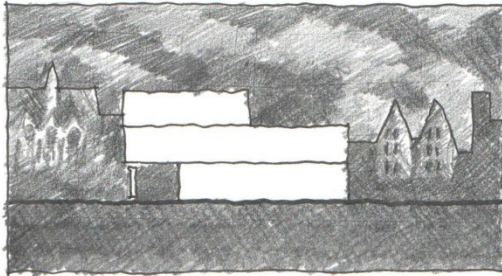
Shadow can be used to clarify form, recess or projection. The sun path is conventionally drawn from above right, or from a South orientation as appropriate.

32. Sky

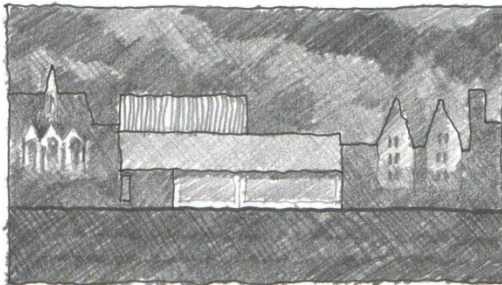
Sky can be drawn or added with Photoshop.



The sky is often best left blank. The material or detail of the building distinguishes it from the surroundings.



A heavily textured sky, context and ground can contrast with a (plain) building.
Avoid bright green for plants /trees and bright blue for sky/water.

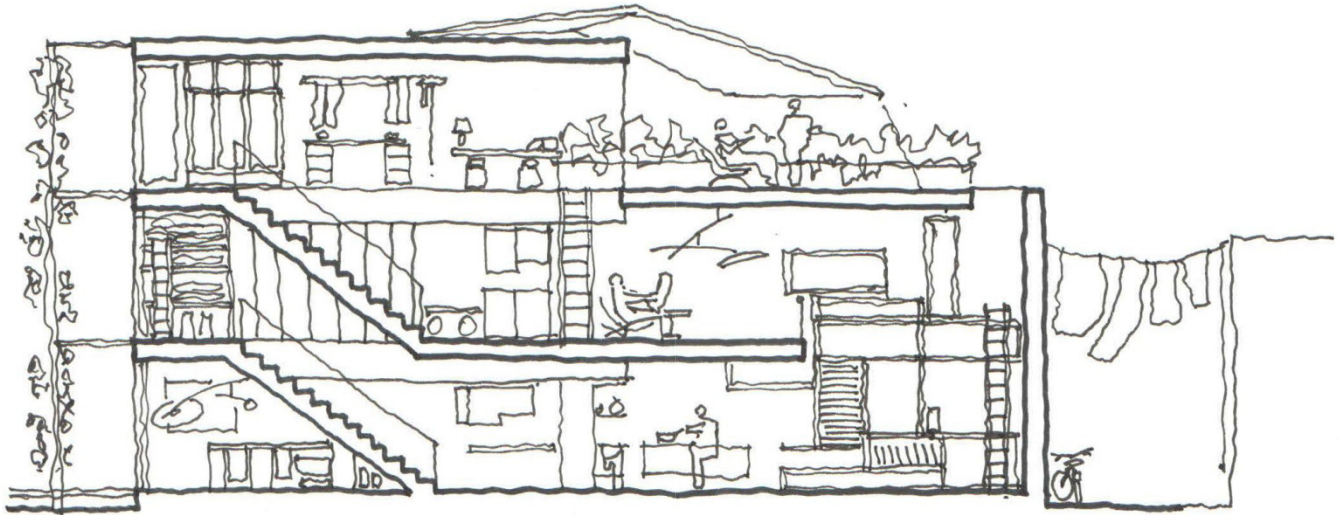


A textured sky, context and ground AND building can convey sympathy with surroundings, however it is important to be able to recognize the project within this.

33. Occupation

People and activities give scale, and show how the project can function.

Better to draw a cooker and saucepan than write "Kitchen"



34. People

Use figures to give scale and explain building use, and also give a perspective depth to flat elevations.



Keep a library of figures from various sources to avoid re-inventing them on every drawing. Or better, from personal observation in sketch books.

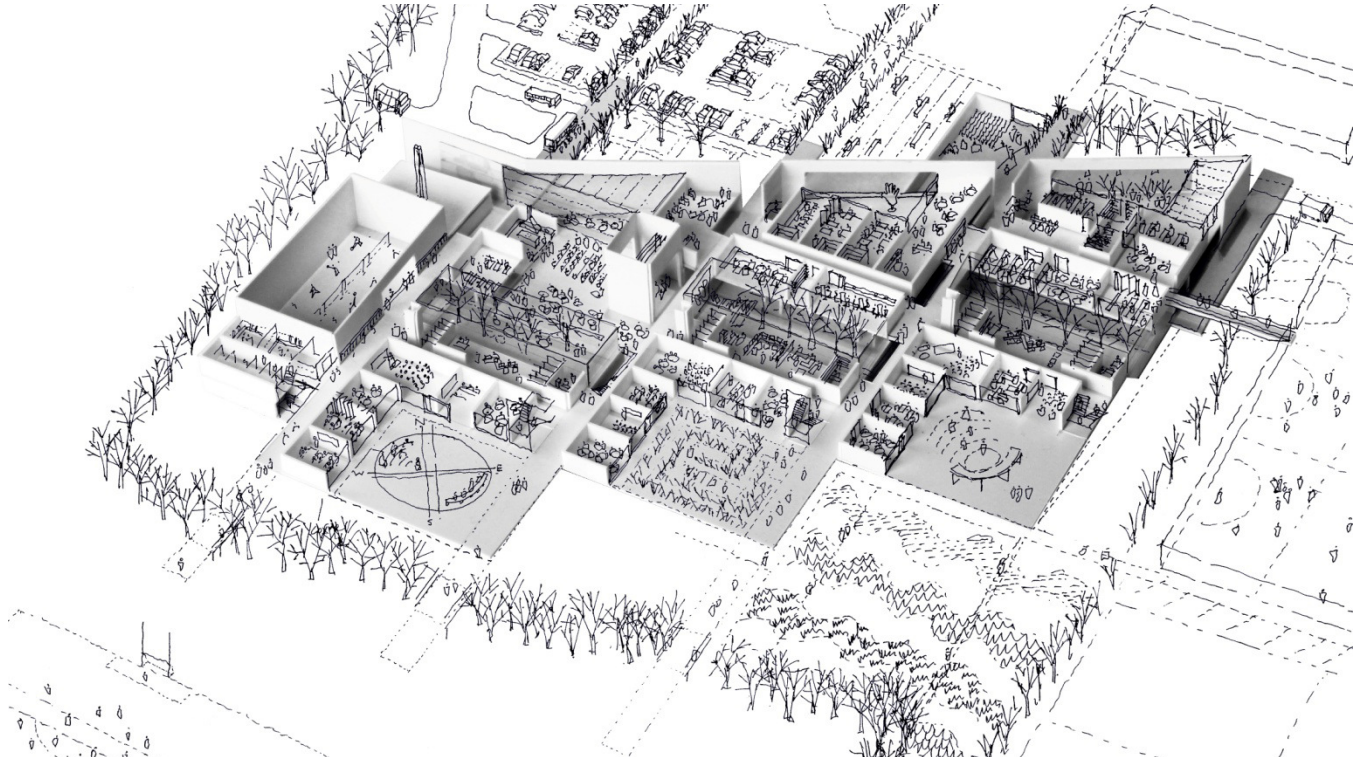


Draw, collage photos or use Photoshop.

35. Using models

Firstly, do design using models. Also:

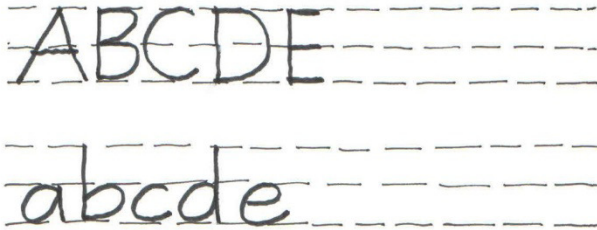
- Photograph all process and final models for portfolio
- Use models to assist in drawing complex shapes – literally draw over them.
- Use models as a basis for activity drawings. See the work of Sou Fujimoto.



36. Text

Reduce the amount of text by adding context instead. Clear text is a challenge, especially if drawings are to be reduced for publication, so less is more. Avoid paragraph text on drawings, unless it is one paragraph only.

Where descriptive text is unavoidable on drawings, for example plans of multi-roomed buildings, it is usually better to provide an abc or 123 key, which must be located on the same drawing.



Think of text as being 'drawn' like any other part of the drawing, rather than 'written'. Use guidelines in light pencil.

Don't rub these guidelines out.

Make sure the strokes meet up or overlap

Make curved strokes 'full', not a shortcut to the end!

For larger text use stencils, they come in many forms.

..... Do use the drawing board to align letters

..... And budget time for using them

Check spelling.

LE CORBUSIER

PLAN LIBRE

scale 1:1

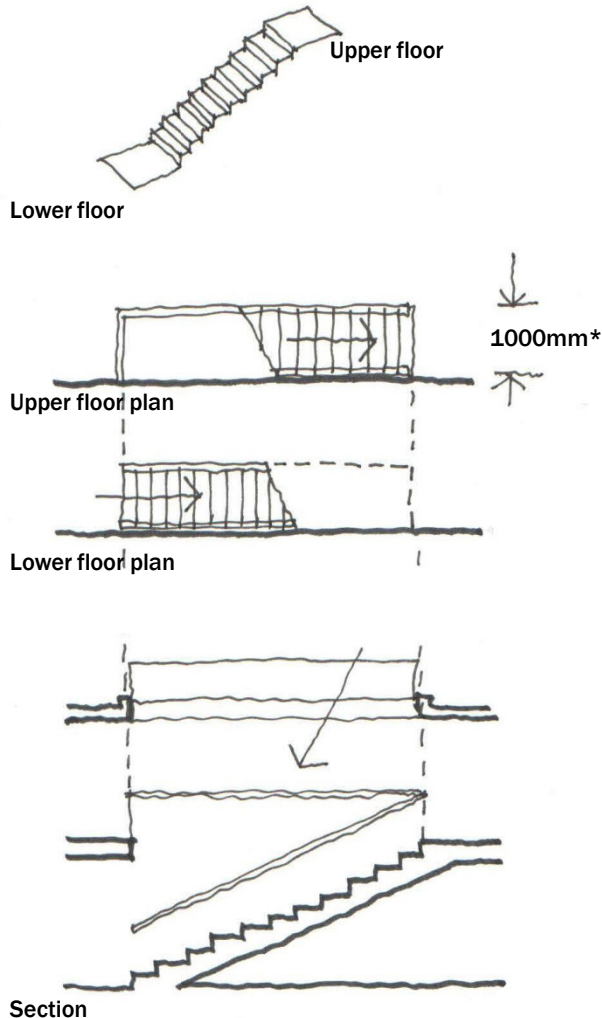
37. Stairs: straight flight

Straight flight is simplest and best!

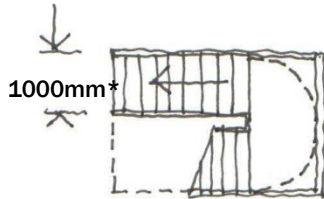
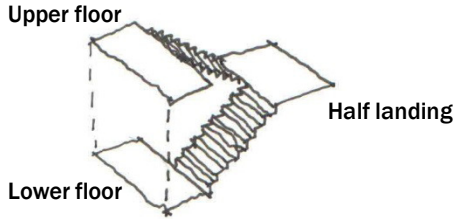
Arrow on plan always points UP.

* 1000mm is a good design width for domestic buildings. Publicly accessible buildings need 1500mm minimum (this width enables two trained people to carry a disabled person down in the event of a fire).

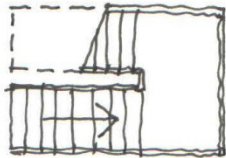
Any stair wider than 1800mm must be divided by an intermediate handrail



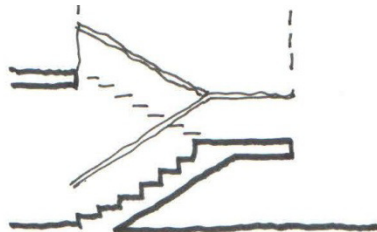
A rooflight above a straight flight stair is a good way to bring daylight down to lower floors.



Upper floor plan



Lower floor plan



Section

38. Stairs: double flight

Arrow on plan always points UP.

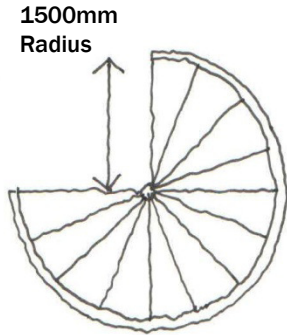
* 1000mm is a good design width for domestic buildings. Publicly accessible buildings need 1500mm minimum (this width enables two trained people to carry a disabled person down in the event of a fire).

Any stair wider than 1800mm must be divided by an intermediate handrail

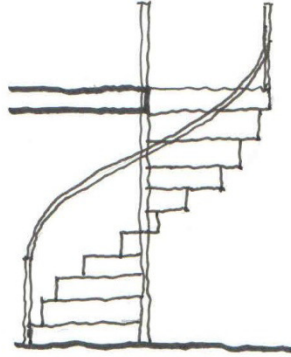
Width of half landing needs to be equal to or greater than width of stair, and so is often drawn with an arc describing clear circulation space.

39. Stairs: spiral

Not necessarily space saving, which is often the idea.



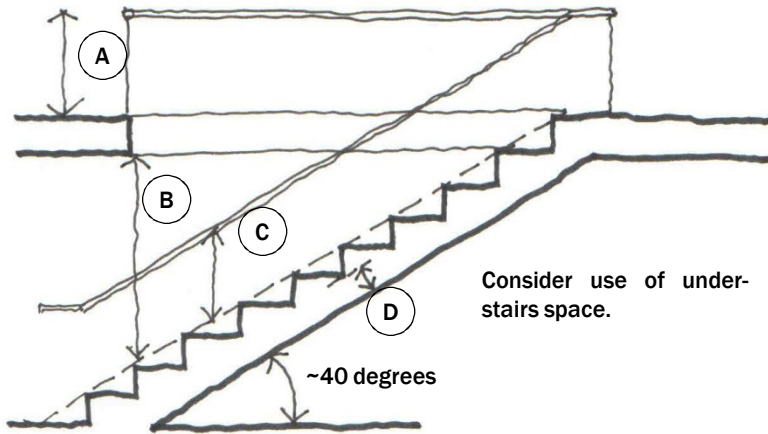
Plan



Section

Stairs: helical

Ask yourself why.



- (A) Void balustrade to stop you falling off; 1100mm high.
- (B) Soffit clearance to stop you banging your head; 2m above nosing line.
- (C) Stair handrail for holding on; 900mm above nosing line.
- (D) Waist (construction thickness). Normally ~200mm.

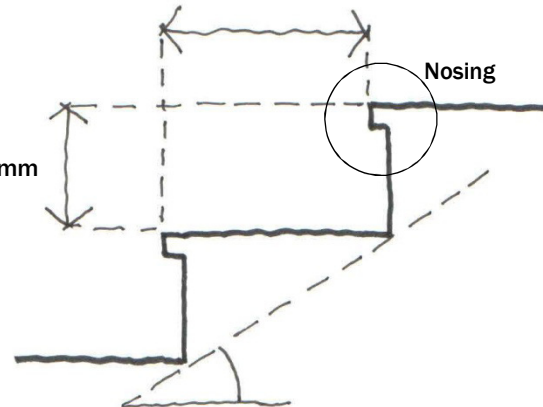
Note the handrail has a level overrun at top and bottom of about 300mm.

Consider use of under-stairs space.

~40 degrees

Going = 250 - 300mm

Rise = 150 - 200mm

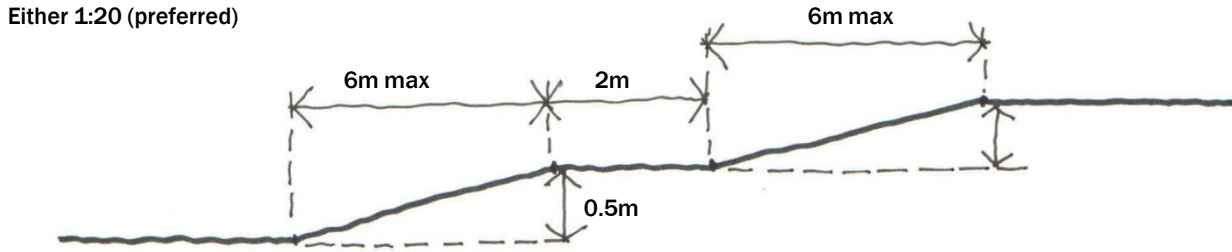
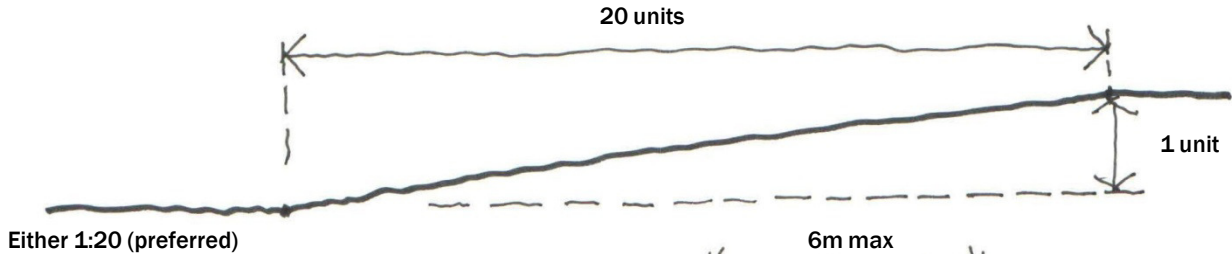


40. Stair details

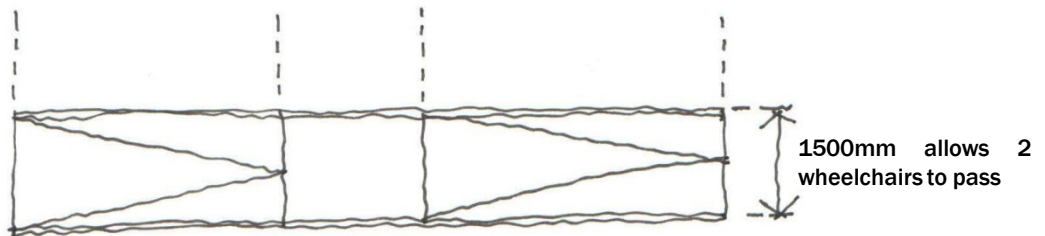
All the goings and risers on stairs must be equal.

41. Ramps

1:20+ is preferred because at this pitch the ground is deemed "flat" and therefore does not need intermediate handrails and landings.



Or 1:12 limited to 6m lengths with intermediate landings . Requires handrailing.

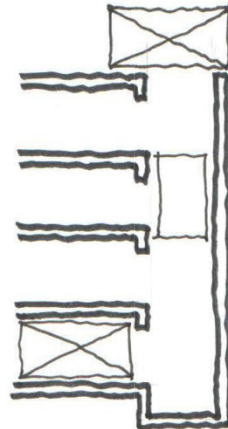
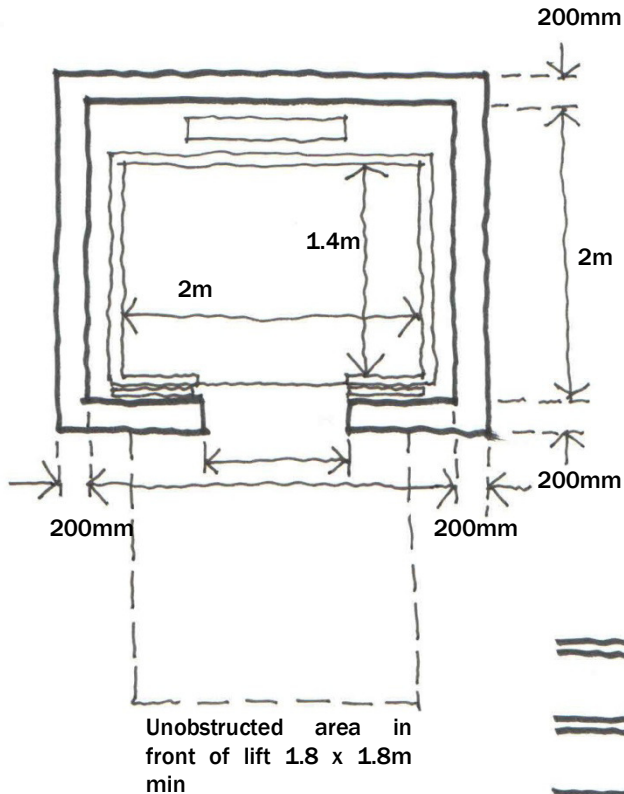


Plan
Arrow represents direction UP

42. Lifts

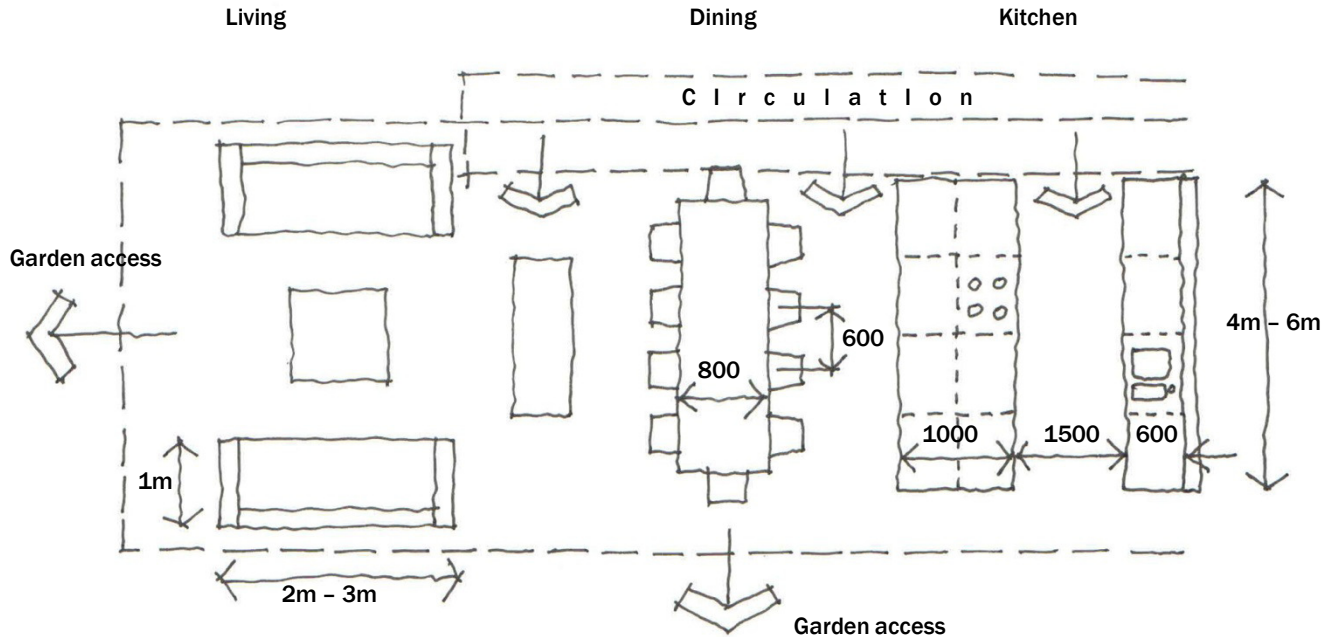
Lift shafts are usually concrete structure, good for providing shear walls in building structures to resist lateral loading, eg wind, earthquake.

Alternatively lift shaft and car walls can be glazed, with a view.



Lift motor room either at top or to the side of base of lift shaft.

Lift pit, ~1m.



43. Living-dining-kitchen

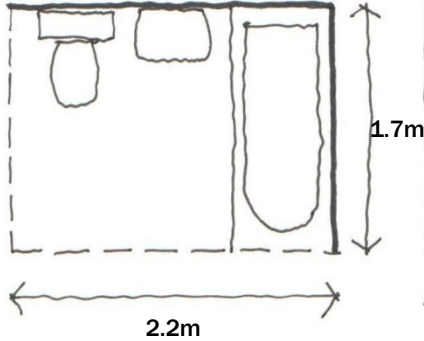
A compact arrangement shown in enfilade here.

Note: anyone who can afford an architect-designed house will probably use dining as a mechanism for entertaining friends and clients, so do provide a table big enough for this.

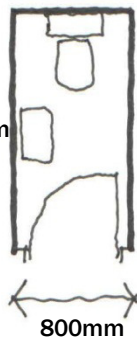
They might also possibly engage in conversation rather than watch tv all evening, so allow for this also. Understand your client is the message.

44. Bathrooms and toilets

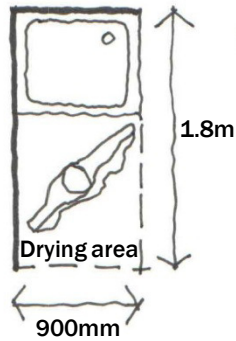
Minimum domestic bathroom



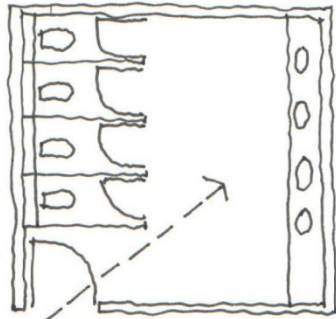
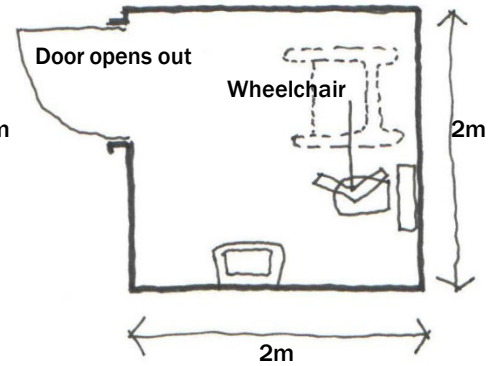
Toilet



Shower

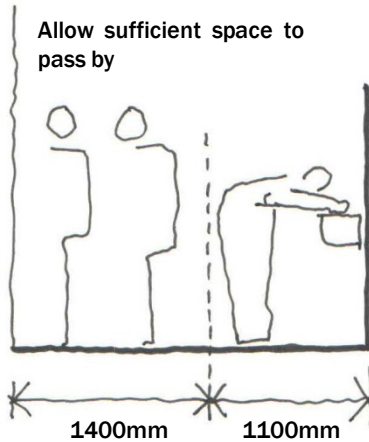


Disabled wc

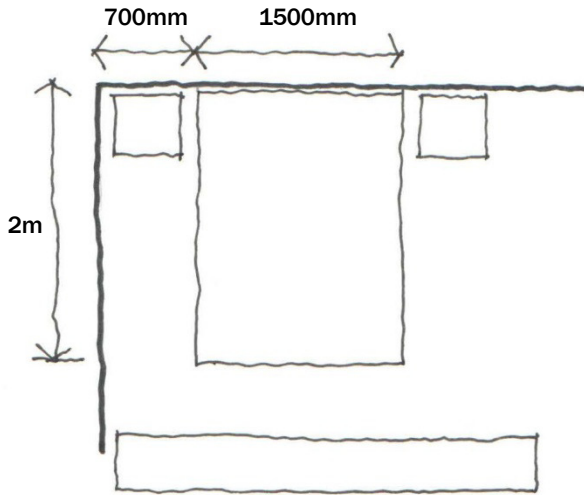


No direct view of toilets

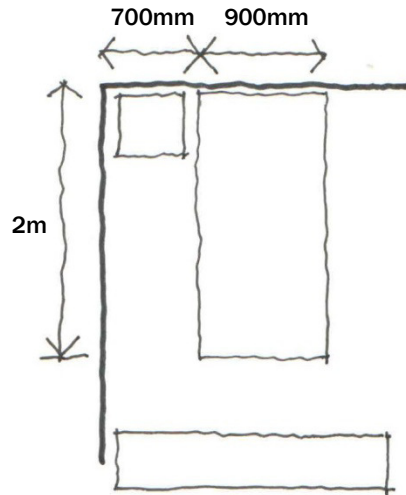
Allow sufficient space to pass by



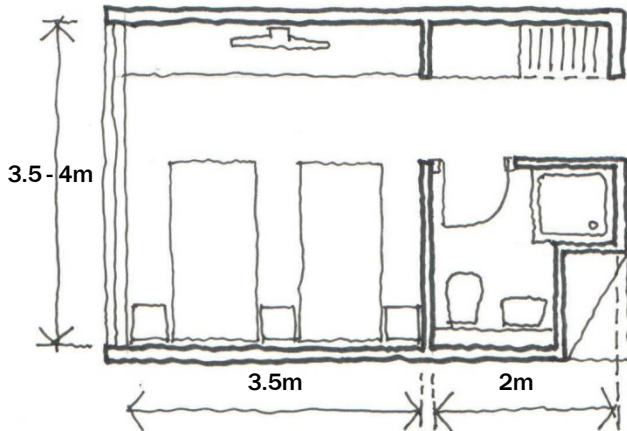
Cubicles (cubicle size 1700 x 700mm)



Double bed space



Single bed space

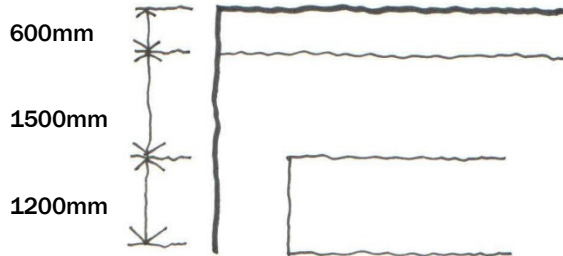


Typical small hotel bedroom

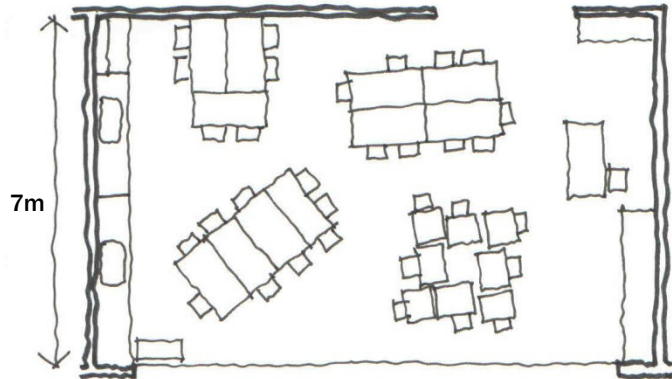
45. Bedrooms

46. Workspaces

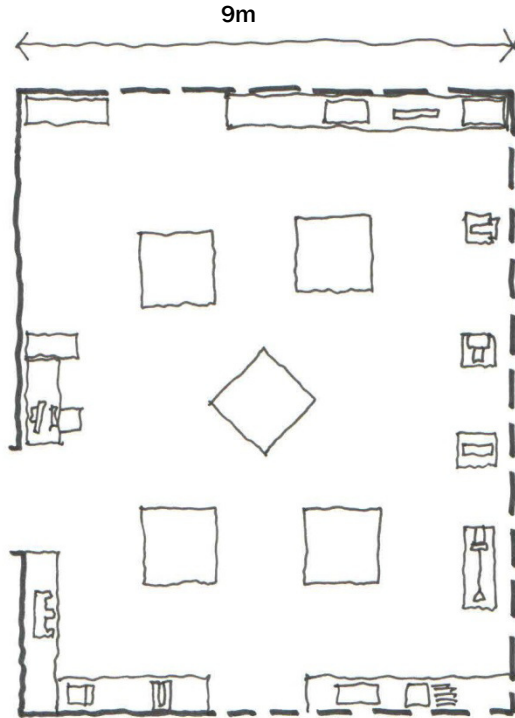
Workspaces will also need space for deliveries, refuse and storage.



Working space

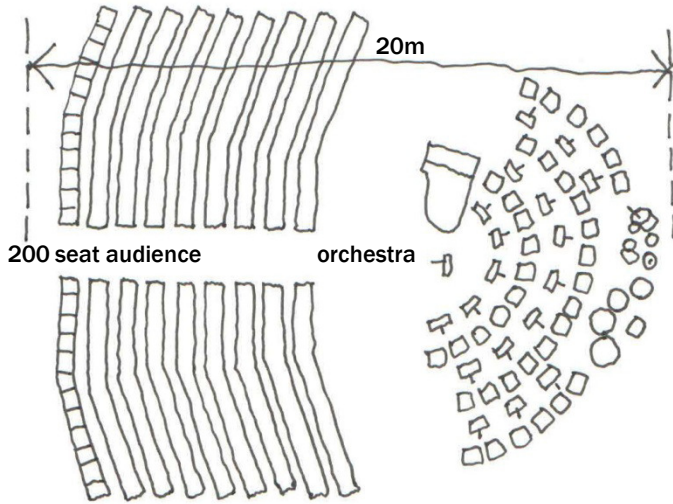


Art room for 20-30 working at tables

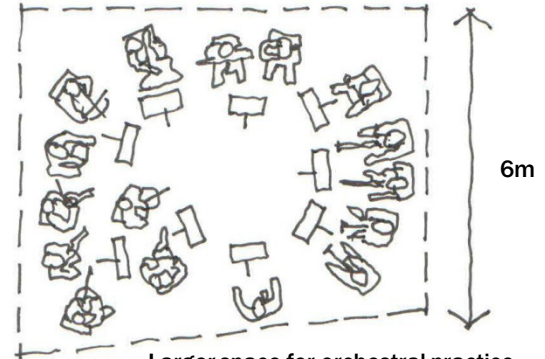
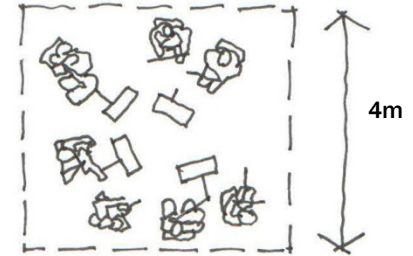


Workshop for 10-20 working at benches

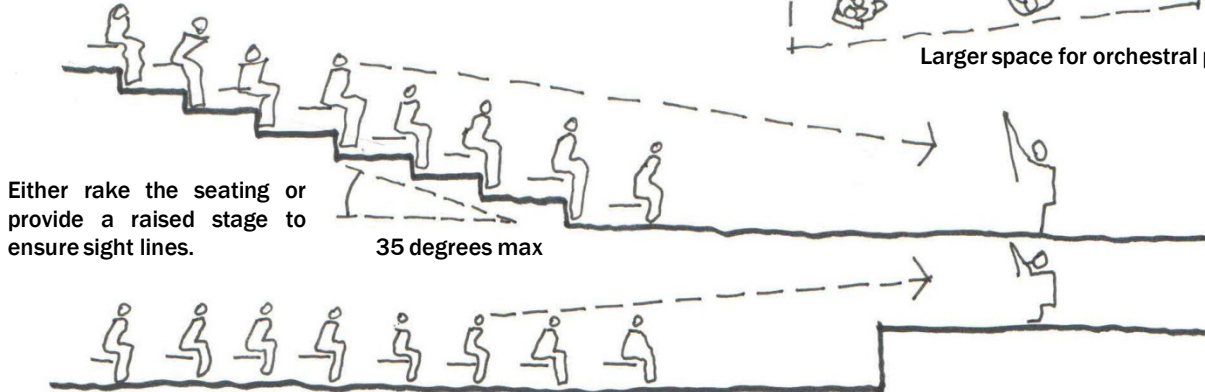
47. Performance spaces



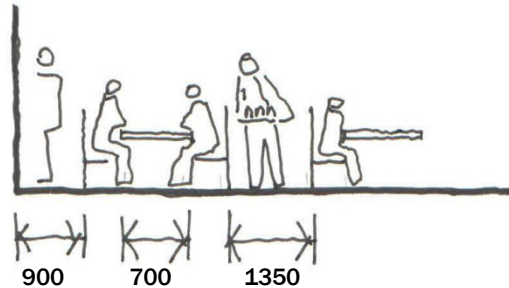
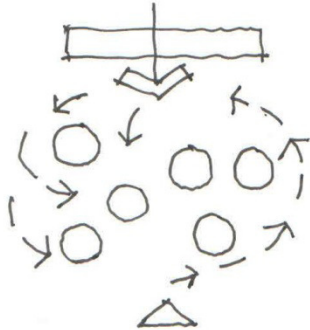
Small practice space for strings



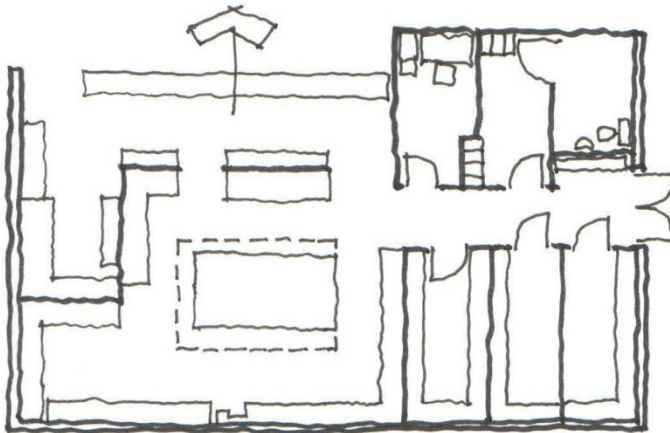
Larger space for orchestral practice



48. Restaurants and cafes



Consider café layout as a process, from entry to leaving

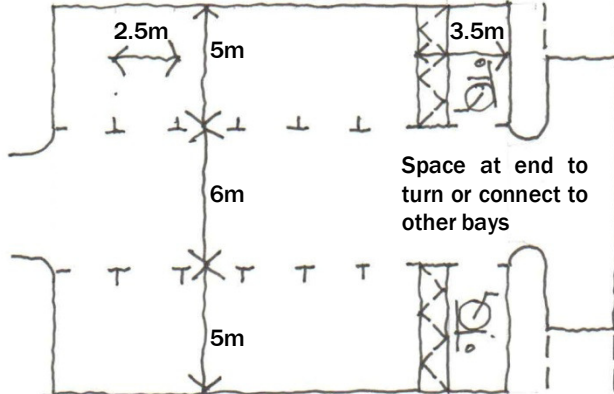


Example larger restaurant kitchen layout, note:

- Separate store rooms for different types and temperatures of goods
- Staff office, cloakroom and (disabled) toilet
- Servery
- Plate return and wash up zones
- Perimeter wet services
- Central island cookers with vent extract over
- There will also be space outside for bins

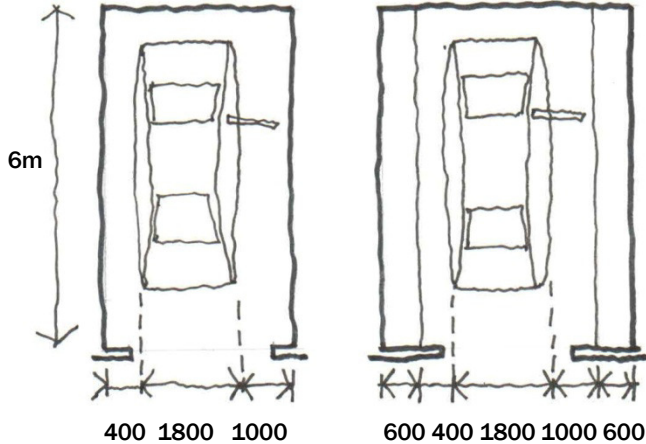
Visit a café / restaurant similar to your project and understand how it works

Parking

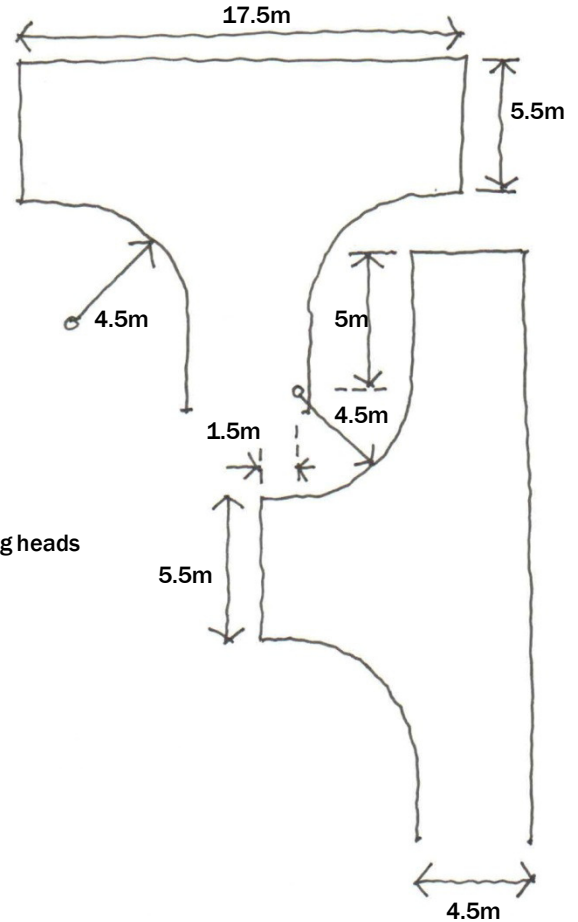


Disabled bays = 5% of provision, nearest to building entrance

Garages

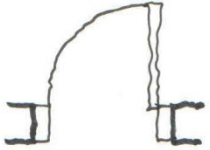


Turning heads



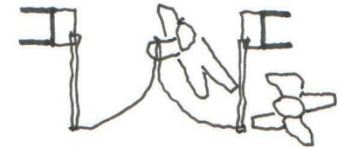
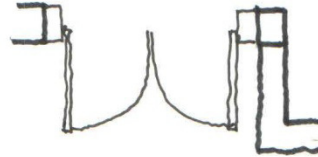
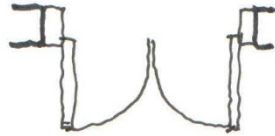
49. Vehicles

50. Entrances



Simple projects can have a single door opening in

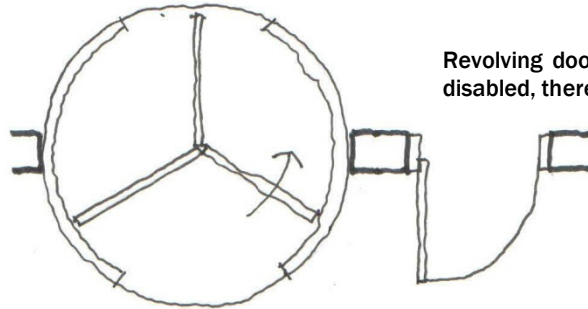
Larger buildings have double doors opening out



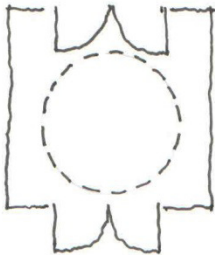
Automatic sliding doors



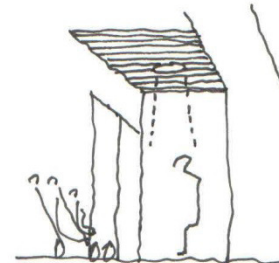
Protect passers-by from doors opening into their path!



Revolving doors are good for heat retention, but no use for disabled, therefore an accessible door must be adjacent.



A draught lobby helps retain heat in the building. Ensure sufficient space to turn a wheelchair (2m circle)



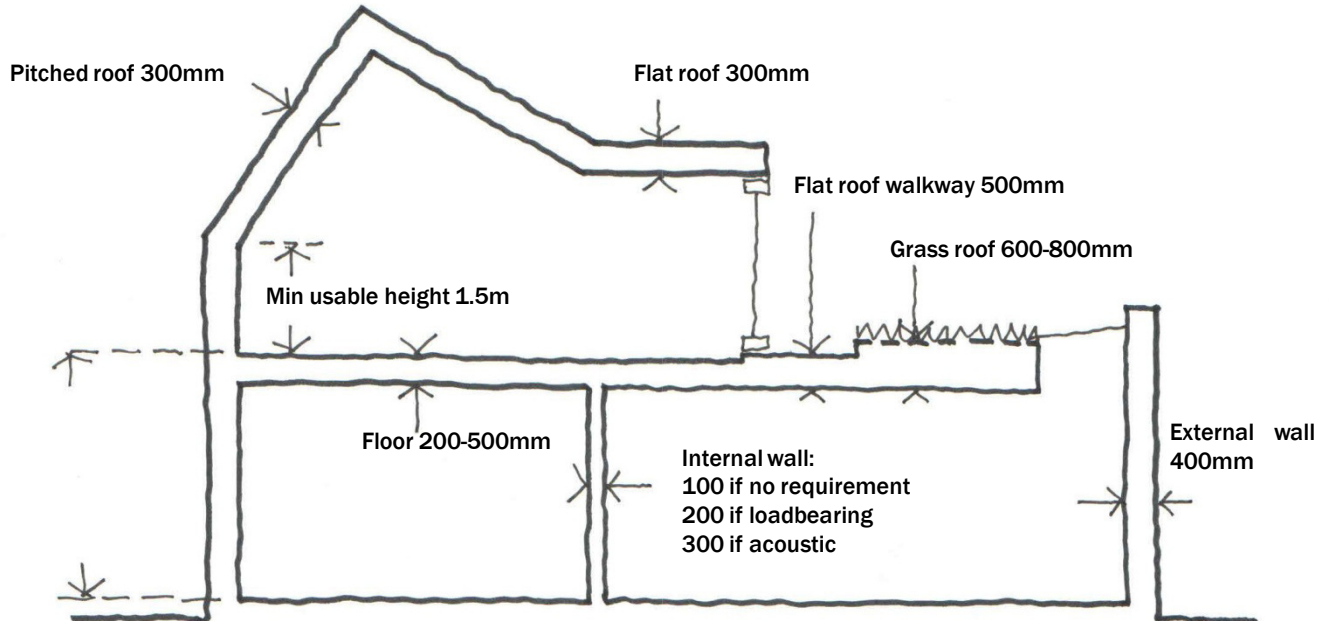
Provide shelter and light at the front door

51. Corridors

Avoid

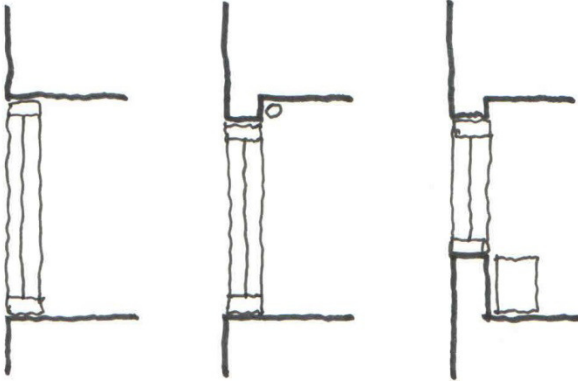
52. Construction thickness

Some starting thicknesses and sectional heights to show on 1:100 and 1:50 scale drawings; what's most important here is that walls, floors and roofs are drawn with more than a single line!

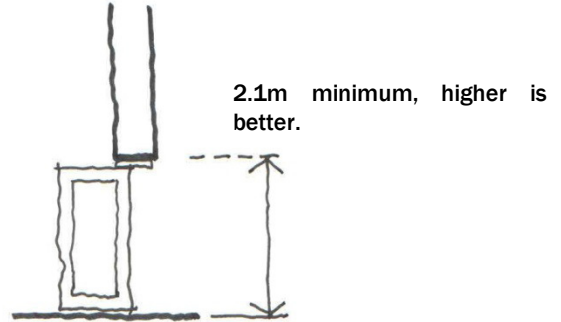


Floor to floor:
3m min domestic
3.5 - 4m commercial / educational
4m - 5m gallery / workshop etc

Window sections



Door section



Window plan

Door plan

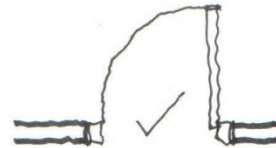


53. Windows and doors

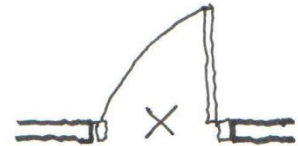
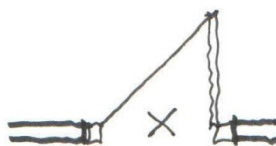
See also "Entrances"

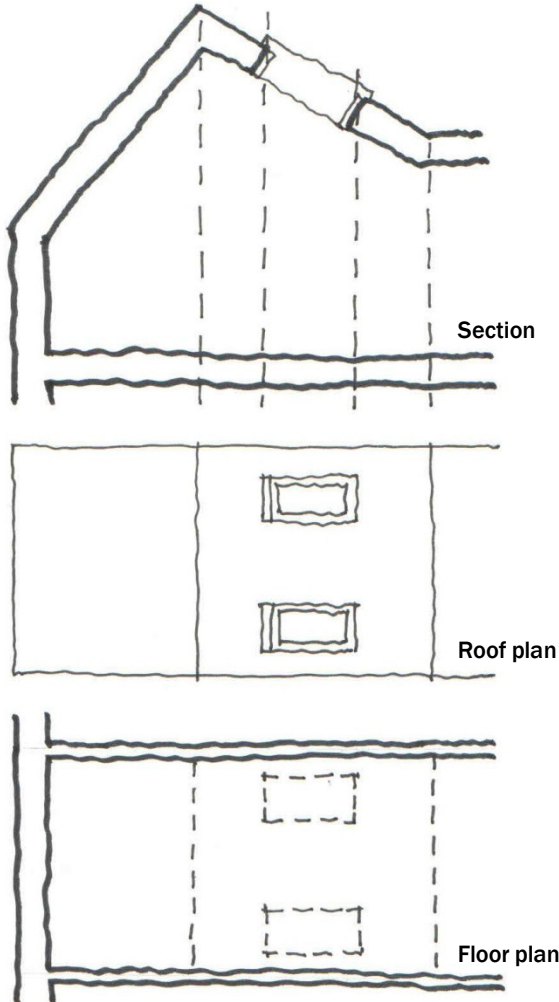
Full height floor to ceiling windows are the best option for spread of light, glare reduction, reflection off ceiling and floor surface, and maximum viewing angle.

A lowered head allows for blind or curtain fixing. A raised cill allows for furniture.

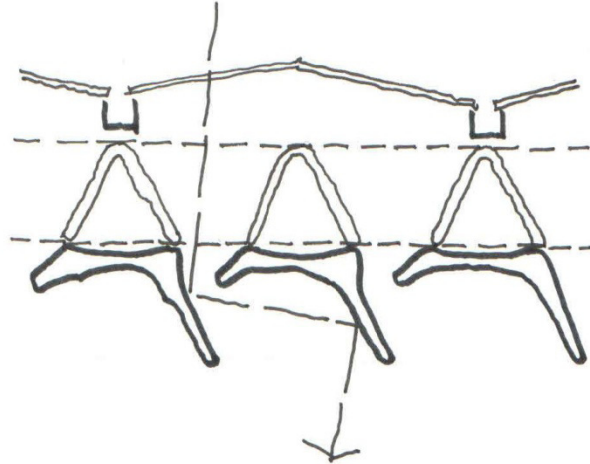


Draw the door swing as a quadrant, not as a line or part of an arc.





Be imaginative with rooflighting. At the Menil Collection Art Museum, in Houston, Texas, by Renzo Piano, light is filtered by ferro-cement 'leaves' to accept the varying moods of natural light in a controlled way.



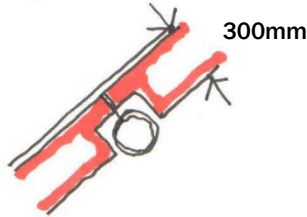
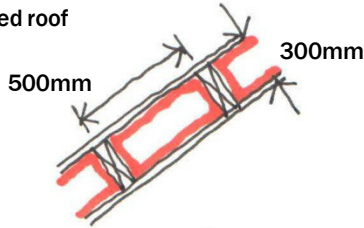
54. Rooflighting

Rooflighting is very efficient, it provides a greater amount of light for a smaller opening. Think about access for cleaning.

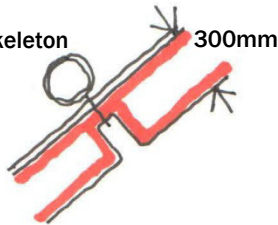
On the top floor plan the rooflight is above and so is dashed. On the roof plan it is seen in elevation and is therefore drawn in a light line. Its position is correlated on section.

55. Roof build-up

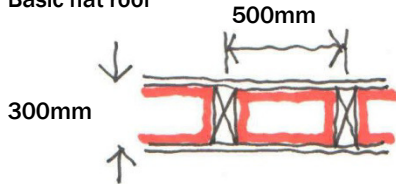
Pitched roof



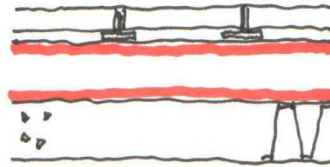
Exo-skeleton



Basic flat roof



Walkway roof

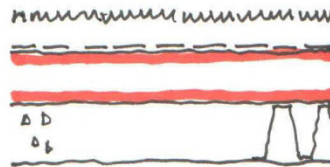


450 sq slabs 50mm thk on spacers; 100 overall

200mm insulation

200mm deck (steel or conc)

“Extensive” green roof

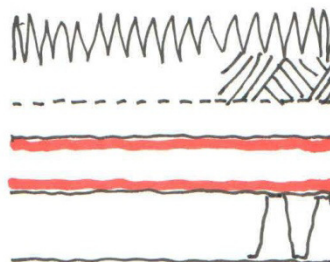


50mm sedum mat

200mm insulation

200mm deck (steel or conc)

“Intensive” green roof



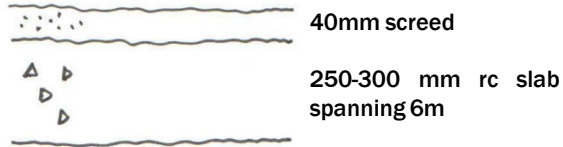
150 topsoil and grass
Or 450 topsoil and shrubs

100mm drainage layer

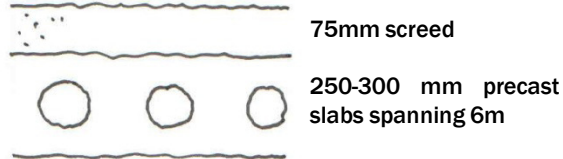
200mm insulation

250mm deck (steel or conc)

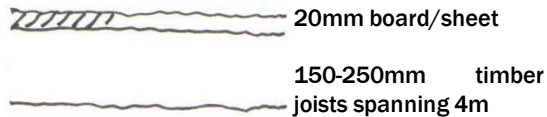
Screed on insitu reinforced concrete



Screed on precast concrete

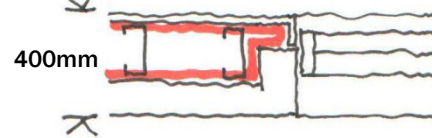


Timber boarding on joists

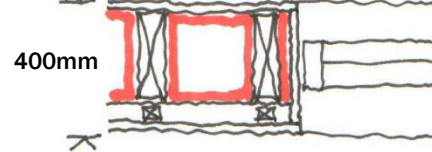


Fire and sound insulation layers may also be required

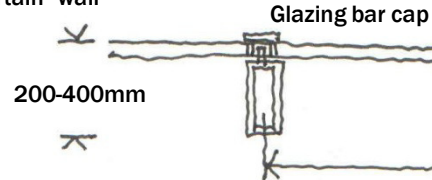
Masonry wall (brick/stone/concrete)



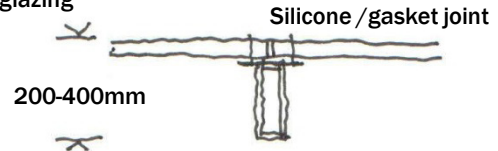
Timber wall



Glazed "curtain" wall



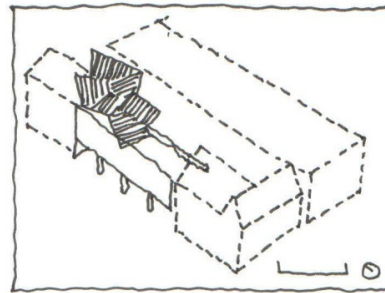
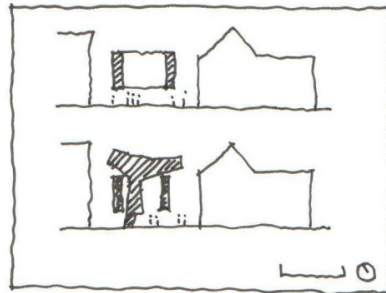
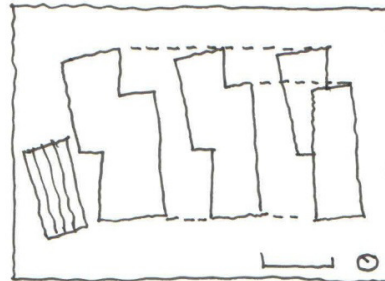
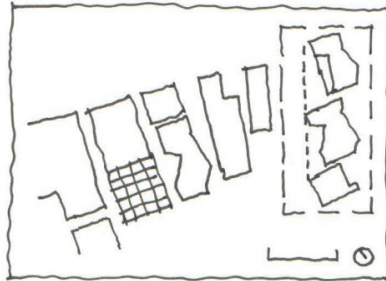
Frameless glazing



56. Floor (in section) and wall (in plan) build-up

57. Presentation drawing

- Decide paper size (A2/A1/A0) and stick to it.
- Decide orientation (landscape or portrait) and stick to it.
- Add title, North point, scale bar in a consistent way.
- Add colour and texture in a consistent way.
- Storyboard to plan what goes on each sheet.
- Avoid crowding drawings together on sheet.
- Do not be afraid of white space to intensify a message.



Check: The Ten Foot Test. Pin drawings up, stand back 10ft (3m); are the drawings clear, can the project be understood?

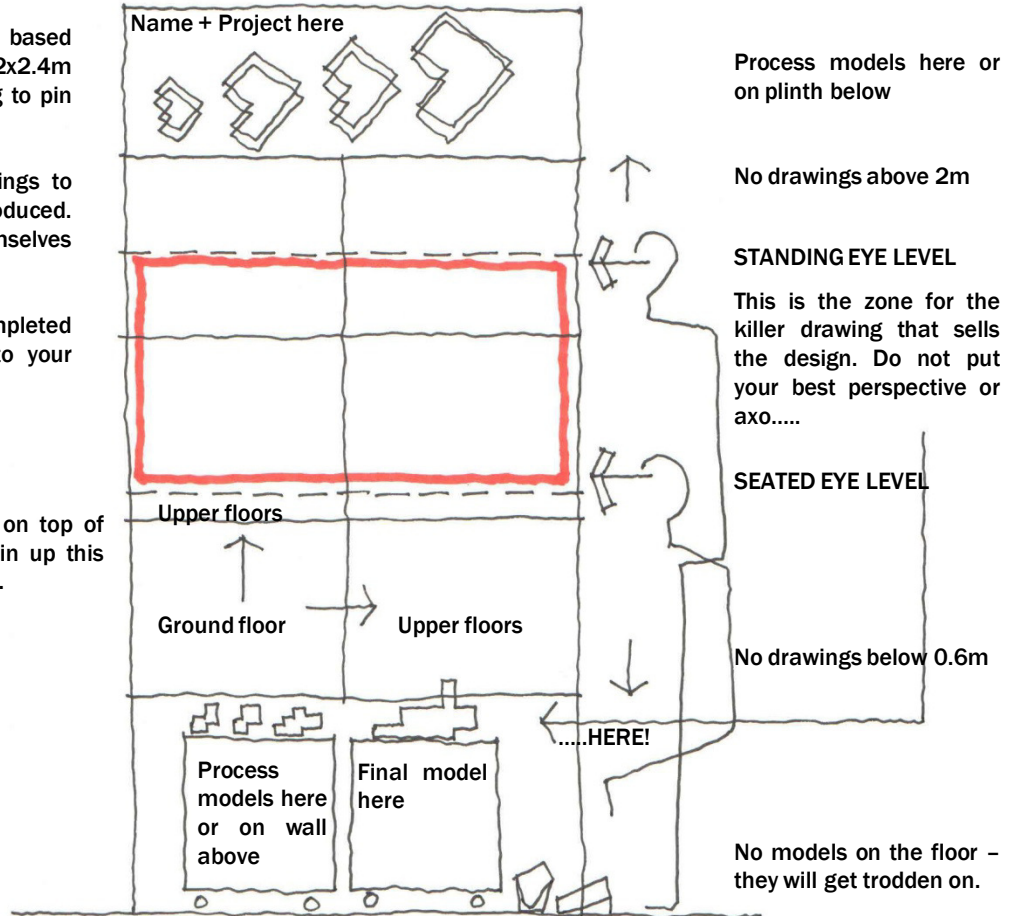
58. Design review set-up

Storyboard the presentation, based on eg A2 sheets on a 1.2x2.4m panel. Do this before starting to pin up.

Relate the position of drawings to how the project will be introduced. This way the drawings themselves act as cues for discussion.

Photograph the completed presentation and add this to your portfolio.

First floor is built on top of ground floor, so pin up this way, or left to right.



Process models here or on plinth below

No drawings above 2m

STANDING EYE LEVEL

This is the zone for the killer drawing that sells the design. Do not put your best perspective or axo.....

SEATED EYE LEVEL

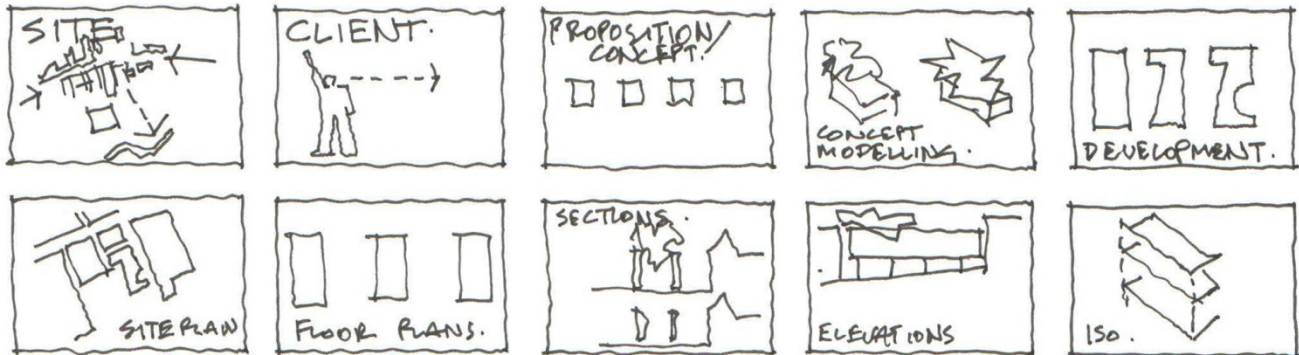
No drawings below 0.6m

.....HERE!

No models on the floor - they will get trodden on.

59. Portfolio assembly

- Tell the story of the project
- Do a storyboard for the portfolio. Example below.
- Include a title sheet with project description, module reference and name, but do not spend more time on this sheet than any other!
- Make a clear break between each project
- Cut text to an absolute minimum – paragraph text will not be read.
- Copy the key sketch drawings from sketchbook, those that capture the moment of design, not random ones
- Balance consistency of style with variety of technique



Portfolio size:

A1 - Awkward to lug around, trains have limited space, and drawings have to be very well executed at this size.

A2/A3 - Practical to carry, reduced drawings can look good with good line definition.

A4 - Too small.

Digital portfolio advice:

www.youtube.com/watch?v=9G5J00yo5zs

60. Further reading

- Banham, Rayner and Hawley, Christine 1985
Blaser, Werner (ed) 1992
Borsi, Stefano 1993
Buxton, Pamela (ed) 2015
Ching, Frank 1975
Chitham, Robert 1980
Dernie, David 2010
Eisenman, Peter 1987
Farrelly, Lorraine 2011
Farrelly, Lorraine 2008
Frederick, Matthew 2007
Ling, Arthur 1967
Luescher, Andreas 2010
Macdonald, Chris 1986
Marjanovic, Igor, Ray, Katerina and Lokko, Lesley 2003
Mertens, Elke 2010
Moussavi, Farshid 2009
Murphy, Richard 1990
Neufert, Ernst, Neufert, Peter and Kister, Johannes 2012
Po, Miyoung 2015
Portoghesi, Paolo 2000
Ridyard, Simone 2015
Shepherd, John and Jellicoe, Geoffrey 1925
Weston, Richard 2010
Yee, Rendow 2012
- Peter Cook: 21 Years, 21 Ideas*
Norman Foster: Sketches
Roma di Benedetto XIV (Nolli Plan)
Metric Handbook, 5th Edition (earlier editions more useful)
Architectural Graphics
Measured Drawing for Architects
Architectural Drawing (Portfolio Skills)
House of Cards
Drawing for Urban Design
Representational Techniques
101 Things I Learned in Architecture School
Runcorn New Town
The Architects Portfolio
Figurative Architecture
The Portfolio, an Architecture Student's Handbook
Visualising Landscape Architecture
The Function of Form
Carlo Scarpa and the Castelveccio
Architects Data, 39th Edition
Architectural Diagrams
Aldo Rossi: The Sketchbooks
Archisketcher
Italian Gardens of the Renaissance (reprinted 1986)
Plans, Sections, Elevations: Key Buildings of the 20th Century
Architectural Drawing
Architectural Review (Magazine)
Architecture Today (Magazine)
Detail (Magazine)
El Croquis (Magazine)
The AA Book
The Bartlett Book

61. Glossary

2D. Two dimensional. In drawing, a flat representation, eg plan, section, elevation.

3D. Three dimensional. In drawing, a representation of solid form, eg isometric, perspective.

A0 etc paper size. A0 = 1189 x 841mm. A1 = half A0, A2 = half A1, and so on.

Axis (plural axes). A line running through an important feature which is used to set up other elements of a design.

Axonometric. A measurable 3D view, made by projecting vertical height lines from a scale plan. Abbr: axo.

BIM. (Building Information Modelling). IT software in which buildings are virtually assembled from 3D components measurable by type, quantity and other characteristics. Most commonly Revit.

Balustrade. Supporting framework, sometimes solid, for handrail.

Basement. Building floor below external ground level.

Beam. Horizontal or sloping structural member.

CAD. (Computer Aided Design). IT software in which buildings are virtually drawn in 2D or 3D. Most commonly AutoCAD.

Cladding. External skin fixed to building structure.

Collage. Drawing or picture assembled from fragments of other drawings or pictures.

Column. Vertical structural member, usually supporting beams.

Commercial. Building typology related to commerce, eg shop, office. Also describes an attitude where the profit made from development overrides all other considerations.

Computational modelling/design. IT software in which specific digital design applications are developed based on scientific research and computing theories.

Concept. The “big idea” for a building, evident throughout development from initial sketches to final resolution.

Context. The surrounding environment.

Corridor. Building space which provides access, usually to a bank of rooms.

Curtain wall. Framed and panelled cladding, usually glazed.

Domestic. Of the house.

Elevation. Face of a building or room, as drawn in 2D.

Enfilade. Arrangement of rooms or spaces along a line.

Ergonomics. The study of space and spatial requirements, especially derived from human form and activities.

Extensive green roof. Thin layer green roof, usually formed with succulent (sedum) plants in a vegetative mat. Not suitable for access except annual maintenance.

FF. First floor.

Figure ground. Urban design drawing in which buildings are depicted as solid and spaces between as void. See also Nolli.

Freehand. Drawn without straight edge guide.

GF. Ground floor.

Going. On stair, depth from front to back of step.

Grid. Setting out of structural column and beam lines. Typically 6-9m coordinates economic span/depth ratios and external cladding elements.

Horizon. Eye level of perspective view, usually drawn as a horizontal line.

In situ concrete. Concrete which is poured on site into a formwork mould. Usually reinforced, see also RC.

Insulation. Building material which insulates, normally against heat loss (therefore with high surface area air spaces and lightweight), but also against noise transfer (therefore heavyweight), and fire (both heavy and light weight).

Intensive green roof. Fully built up roof garden with grass and/or shrubs in topsoil. Accessible for regular use.

Isometric. A measurable 3D view, made by projecting vertical height lines from a 30 degree distorted plan. Abbr: iso.

Masonry. Building construction technique using small units, usually of brick, stone, or concrete (block).

Masterplan. Urban design strategy focusing on relationships between buildings, functional use and spaces in between. A good masterplan will not have specific building designs, but will convey the character those buildings engender.

NTS. Not to scale.

Nolli. After the plan of Rome by Giovan Battista Nolli, 1748. In which a hatched figure-ground plan is enhanced by the internal plans of public buildings, so describing the accessible parts of a city.

Nosing. On stair, projection of tread over the tread below.

Orthogonal. Using right-angles, two-dimensional.

Parallel motion. Integrated tee square or parallel bar fixed to drawing board, movable on pulley system. Used to draw horizontal- and consistently angled lines with the set square.

Parti. Simplified diagram of a project. Usually plan but can be section, etc.

Perspective. 3D drawing in which parallel lines converge on a vanishing point to give an illusion of depth.

Photoshop. IT software used to manipulate images and create collages of different images. Normally for rendering architectural drawings.

Plan. Horizontal slice through a building taken 1m above floor level looking down.

Plant room. Space for building services, eg boilers, water storage, air conditioning.

RC. Reinforced concrete. Concrete poured onto (usually) steel reinforcement. Concrete being good in compression, steel being good in tension.

Revit. See BIM.

Rise. On stair, height from one step to the next.

Rural. Of the countryside, rather than urban.

SF or 2F. Second floor. On multi-storey buildings, use “Level 1”, “Level 2” etc.

Scale. Ratio of dimensions on drawing to their equivalent at full size, eg 1:500, 1:200.

Scale bar. Drawing graphic describing scale. Eg a 2cm scale bar on a 1:50 drawing will represent 1m length.

Screed. Cement based liquid poured onto floor to create a level surface finish.

Section. Vertical slice through a building.

Sedum. Succulent plant species used on extensive green roofs.

Set square. Triangular drawing aid, which when rotated can be used to draw angled perpendicular lines. An **adjustable set square** is articulated and can be set to draw any angle in conjunction with the parallel motion.

Sketchup. IT software for creation of rapid 3D modelling.

Soffit. Visible underside, eg of overhang or floor.

Solar heat gain. Process by which short wave radiation (light) entering a building through glass is reflected from materials as long wave radiation (heat), becoming trapped inside. This can be beneficial (winter) or problematic (summer).

Space. The open area in-between buildings, and/or rooms and volumes within.

Stack effect. Ventilation and cooling process by which warm air is induced upwards through a space, drawing in cooler air from lower level.

Standing seam. Sheet material, usually copper, lead, etc, folded along lateral joint to create a waterproof seam.

Storyboard. Mock-up, or cartoon of presentation, etc.

Sustainability. Design measures to save energy, protect ecosystems and sustain life as we know it.

Thermal mass. Dense materials used to absorb heat and moderate changes in external conditions, so saving energy.

Topography. 3D features of a site.

Urban. Of town or city, rather than rural.

Vanishing point (VP). In perspective drawing, point on the horizon at which parallel lines in reality converge in perspective.

Viewpoint. In perspective drawing, point representing the viewer's location.

Void. Usually floor void, where there is no floor. Also in architectural form, the opposite of solid.

Waist. On stair, construction thickness of staircase.

Worms eye view. 3D view of building from below.