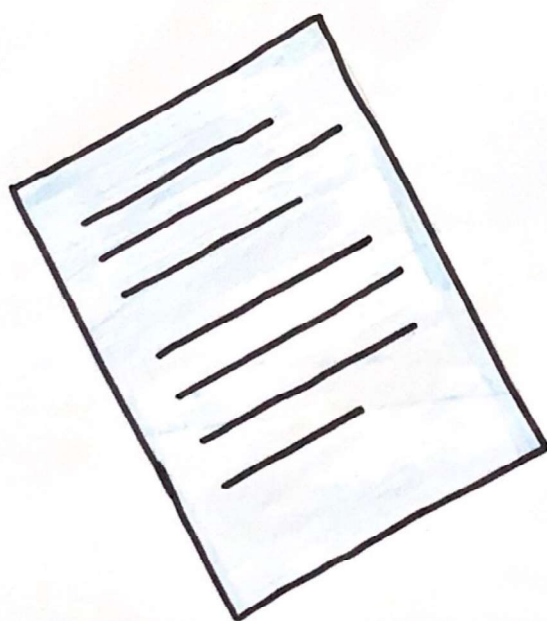


WHAT IS
THE ARCHITEC-
TURAL DESIGN
PROCESS?

RESE
ARCH



ARCHITECTURAL DESIGN PROCESS - 1

[First In Architecture, Accessed 15.07]

→ the process of design is cyclical, can be defined as a six part process:

- 1: define the problem
- 2: collect information
- 3: brainstorm and analyse
- 4: develop a solution
- 5: feedback
- 6: improve

1 - Research and data collection

→ Forms the basis for any design project

→ type of research varies:

- a meeting with the client
- site analysis

→ desk top study about history of the site

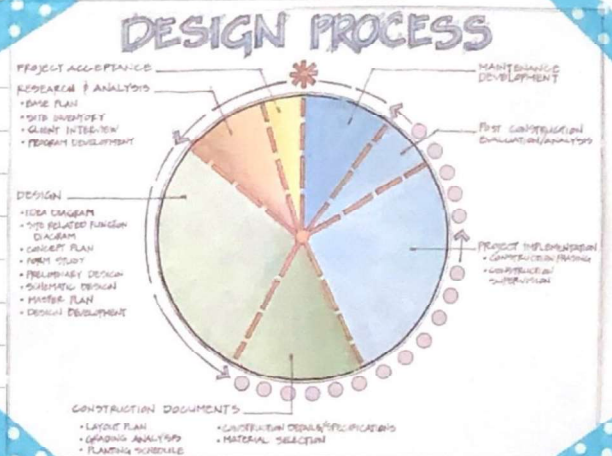
→ goal is to gather data that will present the problems associated with the task

→ a thorough site analysis will start to form a picture of the site; context, limitations, merits, problems; will allow designer to focus on developing a response to these issues

→ discussion with client and developing a brief will also give valuable data about end use of the building, its users and overall goals

→ discovering historical data relating to site and surrounding context can lead to developing a concept that reflects history

→ research can take form of data collection, discussions, studies, model making and sketching etc. to discover as much about site as possible



SITE ANALYSIS

NOTE

Site analysis for this project won't be as detailed, as it isn't very close to any roads or buildings on other properties - I will focus on the location, size, topography and climate (nothing else really matters in the project)

[First In Architecture, Accessed 22.07]

- before starting the design, client will want to know if they can build on the site
- site analysis (extensive) will assess whether development is financially feasible, and will establish parameters to implement the best design that responds to physical and environmental features of the site
- contextual analysis is research of existing conditions of the site, along with any imminent or potential future conditions
- used ~~so~~ our initial design thinking about a site can incorporate considered responses to the external conditions
- site analysis looks at site location, size, topography, zoning, traffic conditions and climate
- analysis needs to consider any future developments or changes to the site's surroundings (change of road designations, changing cultural patterns, significant building developments in the area)

Key points

- Analysis must be thorough: without proper research, the design can be substandard since you won't have all the available info
- Soft data: site conditions that can be changed
- Hard data: more concrete elements like site boundaries, site areas, utility locations, contours, dimensions, site features, climate, legal information
- Then establish which elements are considered to have a neg. impact / pos. impact, and create a hierarchy (systematic approach to design)



site analysis

Desktop study

→ Location:

- Geological maps to discover main type of soil or rock on site
- Aerial photographs and maps, as well as historical maps if possible (can be interesting)
- Distances and travel times between site and other locations of importance

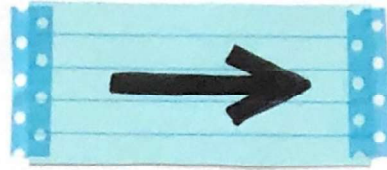
→ Legal information:

- Rights of way, rights of access, town and country planning restrictions
- History of site - anything you can use to inform design (tunnels, disused mines, archaeological interests under the site)
- Historical use of the site - could industrial processes have contaminated the land?
- If the site sits in a conservation area or close to historical listed buildings
- Development controls - is the site subject to any specific planning controls or health and safety?
- Are there any trees on-site? Do they have Tree Preservation Orders on them?

→ Utilities: determine whether there are water, electricity, gas, telephone, sewerage or other services connected to the land

→ Climate:

- Climate conditions of the site / area
- Sun paths and angles
- Is the area susceptible to flooding, is it considered a flood risk area?



Visiting the site

→ Site and surroundings:

→ Location:

- Site location details (road names, address, major landmarks etc.)
- Current context (existing buildings, car parking, roads)

→ Neighbourhood context:

- Look at existing and proposed building uses in area
- What condition are the buildings in?
- Are there exterior spaces and what are they used for?
- Are there activities in the neighbourhood that may create strong vehicle or pedestrian traffic?
- Existing vehicle movement and patterns
- Street lighting
- Vernacular context, materials, architectural features, fenestration, landscaping, parking, building heights
- Any nearby historic buildings
- Sun and shade patterns during the year
- Building context
- Surfaces and materials around site

→ Site and zoning:

- Site boundary and dimensions
- Any rights of way through the site and dimensions
- Any easements locations and dimensions
- Buildable area of the site
- Any building height restrictions
- Access to the site - car parking, bus routes, train stations, cycle routes, pedestrian walkways
- Access to the site for construction - will there be any obstacles or restrictions that could affect the construction process?

site analysis

→ Natural features:

- Topography of the site, valleys, ridges, slopes etc.
- Vegetation - landscaping, greenery, shrubs and trees, open spaces
- Site levels. How does this affect your design process? How does the site drainage work, would there be any potential problems with drainage?
- Soil types on site

→ Man-made features:

- What was the previous use of this site? Would there be any contamination concerns?
- Are there existing buildings on the site - what is their state of repair? Is there any sign of subsidence or settlement damage?
- Are the existing buildings part of the project?
- Any walls, retaining walls on the site, or other built items

→ Circulation:

- Circulation - how do visitors/pedestrians/traffic to or near the site flow around or within it
- Accessibility - current provisions of disabled access to the site and how will this need to be considered
- Does the existing pedestrian movement need to be preserved?
- What is the vehicle peak loads and when?
- Public transport close to the site
- Locations of best access to site for both vehicles and pedestrians
- Travel time to walk across site

→ Utilities:

- Location of all services: electricity, gas, water, sewer, telephone. This includes both underground and above
- Location of power poles
- Drainage
- Sub-stations

→ Sensory:

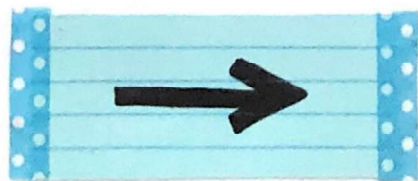
- Views - where are the best views to and from the site
- What are the views of?
- Mark out the positive and negative views
- Which is the most likely feature aspect?
- Look at views towards the site from different approaches to see how the site would be seen when driving near to the site. What are the best views of the site, and would these change in the long term?
- Noise, odour and pollution - is the site in a particularly noisy area? Or near industrial buildings that produce levels of pollution. Is it near a facility that creates smoke?

→ Human and cultural:

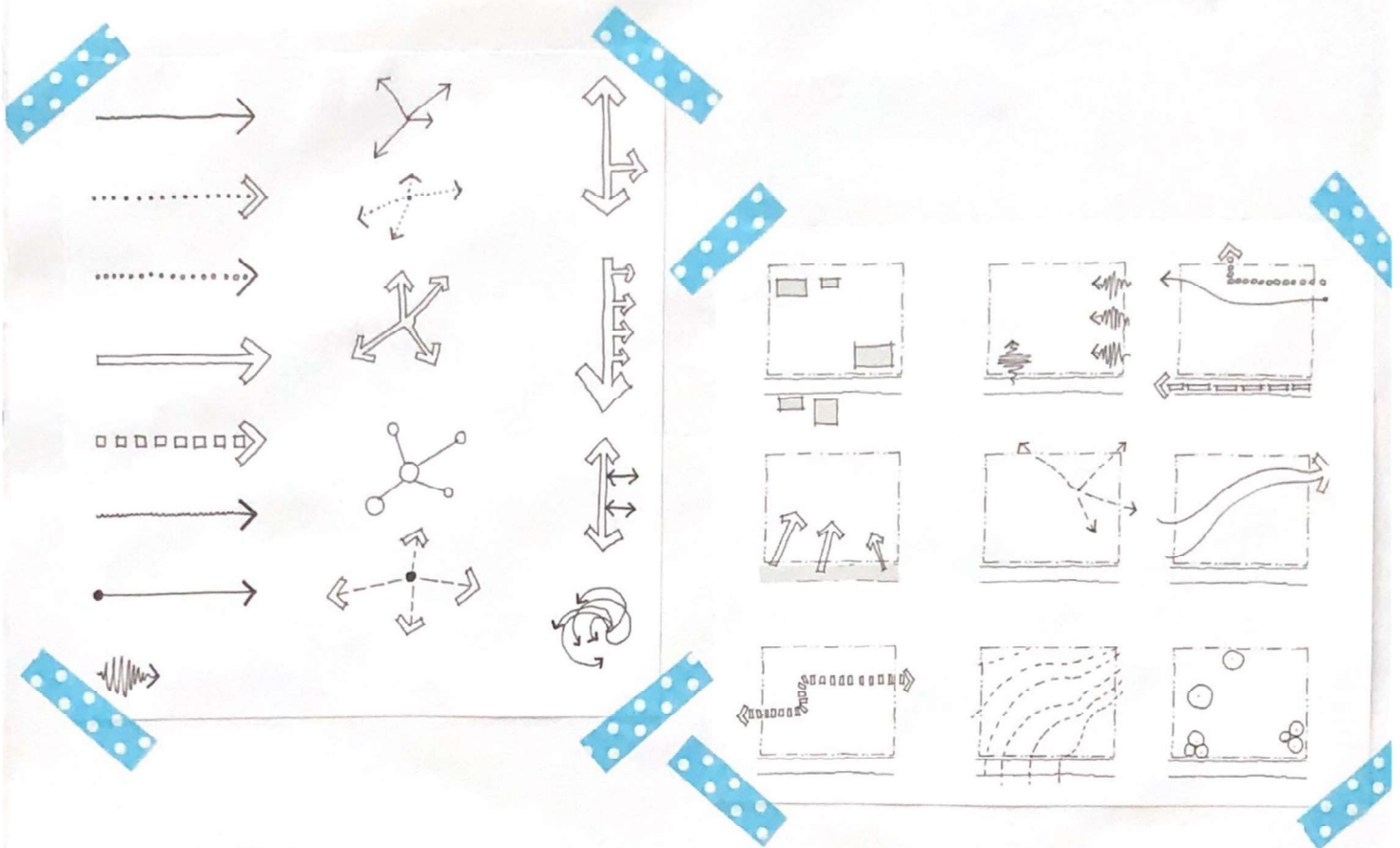
- Negative neighbourhood issues like vandalism and crime
- What are the attitudes towards the site and the potential build?
- What are the general neighbourhood attitudes about the area?
- What is the cultural, psychological, behavioural and sociological aspects of the surrounding area?
- What is the population, density, family size, ethnic patterns, employment, recreation activities etc.

→ Climate:

- Orientation of the site
- Weather - how does the weather affect the site? Is it well shaded, exposed?
- How does the temperature, rain fall etc vary throughout the year?
- What are the prevailing wind directions throughout the year?
- What is the sun path throughout the different times of the year, and day



site analysis



DIAGRAMMING YOUR FINDINGS - 1

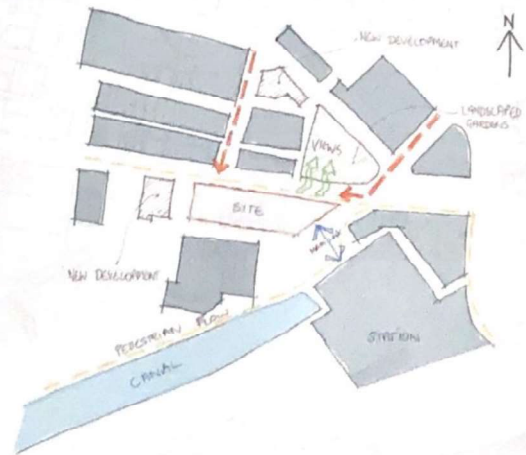
- best way to present data is through diagrams
- some approaches include more data than others, which use a number of smaller diagrams to demonstrate particulars
- so it's not confusing, a single diagram demonstrating many site conditions will be a larger drawing
- so the hierarchy of the drawing is clear, use different pen thicknesses to demonstrate the different aspects

DIAGRAMMING YOUR FINDINGS - 2

- data can be represented in plans, elevations and sections, isometrics or perspectives (there are best options for data)
- we want diagrams to be simple and clear (bold)
- emphasis should be on the information being communicated
- if there is a series of drawings, make sure the site drawing is always the same orientation, and scale so that the drawings are easier to understand

Presenting site analysis

- Give an overview of the site and the information you have found
- Show some of the key photographs of the site
- Give more detail about the elements of your site analysis that you feel will be important in your design process
- Make sure you include images:
 - Sketches from site
 - Photographs from site
 - Annotated photographs
- Present any relevant data found (climate, sun paths etc.). Keep data clear and concise, don't bore everyone with complicated graphs and tables. Instead, make your own chart or table that picks out the important information
- Present your sun paths and angles as some sort of annotated drawing. Sketchup can be a useful way of presenting sun path drawings
- Depending on what has been asked of you, sometimes it is useful to present a couple of overlay drawings showing some initial ideas you have worked on. This will demonstrate your understanding of the site



architectural design brief

[First In Architecture, Accessed 05.08]

- Architectural design brief forms the beginning of the design process
- Thorough and informative briefs are an essential reference for the architect and people involved in the design and implementation of the project
- Decision making and problem solving processes are more effective with the information gathered from the client (formed into a brief)

Types of design briefs

- Main types of briefs are for either private or commercial clients
- Commercial clients are generally more experienced however, and have very different priorities to a domestic client

How the brief evolves

- The brief must be developed with the client and end users to reflect the changes and challenges that occur as the project progresses
- Brief must fulfil aesthetic and functional requirements and needs

Initial Client:
☐ Full contact details of client - name
☐ Full site address
☐ Details of any other important contacts in the project team

Client Information:

- ☐ Why is this project being developed?
- ☐ Why did the client choose this site?
- ☐ Who are the other participants of this project?
- ☐ Does the client have any specific wishes with regard to design?
- ☐ What should do they have towards architecture and design?
- ☐ Has the client worked with an architect before? If so who?
- ☐ What are the time constraints of the project?
- ☐ Are there any particular phasing requirements?

Fees:

- ☐ On what basis is the calculation of fees based?
- ☐ Should the project cost be estimated in order to base?
- ☐ What is the client budget?

Basic Design Factors:

- ☐ Depending on the type of project questions will vary
- ☐ What is the client looking to achieve with this project?
- ☐ What are the surroundings look like? Landscape?
- ☐ What do the existing buildings and surrounds look like?
- ☐ What sort of materials would the client like to use?
- ☐ Does any later construction need to be taken into account?
- ☐ Are there any specific design goals? Sustain?
- ☐ Does the client/company have any learning from previous projects?
- ☐ Would they like to include new technology?
- ☐ Are there any infrastructure requirements?

Details of any other important parties in the design process
Address, phone number, email

About your client:

- ☐ Describe your current home. What do you like and dislike about it? What is missing, and what would you change?
- ☐ What kind of ideas do you have about design and / or materials? Do you have any images from magazines/internet that show us a style that you like?
- ☐ Are there any particular design features that are important to you?
- ☐ What kind of style do you require for the project e.g. contemporary, traditional, industrial, bold, elegant, minimalist etc.
- ☐ Do you have any specific materials or surfaces in mind that you would like to see included in the project?
- ☐ Do you have any specific time requirements for the project?
- ☐ Do you have any specific accessibility requirements for the project?
- ☐ Do you have any regular visitors to the project?
- ☐ Do you have any specific considerations for the project?
- ☐ How much time and energy would you like to invest in the project?
- ☐ What are your budget requirements?

THE ARCHITECTURAL DESIGN BRIEF - CHECKLIST

What is an architectural design brief?

The architectural design brief forms the very beginning of the design process. The brief is a real life project with an imaginary client often included. A brief provides an understanding of the needs of a client, which determines the project's form, function, and aesthetic.

About the site:

- ☐ Why did the client choose this site?
- ☐ Is there anything about the site that you part?
- ☐ Are there any views within the site that are part?

About the occupants:

- ☐ How many people will be living in the house?
- ☐ Do you foresee any additions?
- ☐ Are there any...

INITIAL CLIENT QUESTIONS

1. Full contact details of client - address, phone number, email
2. Full site address
3. Details of any other important parties in the design process

ABOUT THE SITE

1. Why did the client choose this site?
2. Is there anything about the site that you particularly like or dislike?
3. Are there any views within the site that are particularly important to you?

ABOUT YOUR CLIENT - 1

1. Describe your current home. What do you like/dislike about it? What is missing, and what would you change?
2. What kind of ideas do you have about the design and/or materials? Do you have any images that show a style you like?
3. Are there any particular design features that are important?
4. What kind of style do you require for the project?
5. Do you have any specific materials or surfaces in mind that you would like to see included in the project?
6. Do you have specific time requirements for the project to be complete?

ABOUT YOUR CLIENT - 2

7. Do you have any specific accessibility requirements, for example is anyone in your family disabled or do you have any regular visitors with special needs?
8. Do you have any specific considerations toward sustainability and energy efficiency (or a particular system you want)?
9. How much time and energy would you be willing to invest to maintain your home?
10. What are your budget requirements?

ABOUT THE OCCUPANTS

1. How many people will be living / sleeping in the new home?
2. Do you foresee new additions to the home (i.e. children)?
3. Are there any pets that will need to be accommodated?

ABOUT THE LIFESTYLE

1. Describe your lifestyle and the kind of spaces that you need. For example: work from home, entertain often etc.
2. How much time do you spend in the different areas of your home (indoors and outdoors)?
3. What type of entertainment systems do you require? Music, TV, projectors, speakers around house?
4. What type of storage do you require? Specific hobbies that require lots of storage? Large wardrobe space?

INDOOR SPACES

1. Number of floors/rooms/spaces and use for each
2. Are there any particular areas that are to be more private than others? Or particular rooms you would like to be connected?
3. Do you have any preferred room layouts (south facing etc.)

OUTDOOR SPACES

1. Do you have any specific ideas for the outside spaces that you would like us to consider?

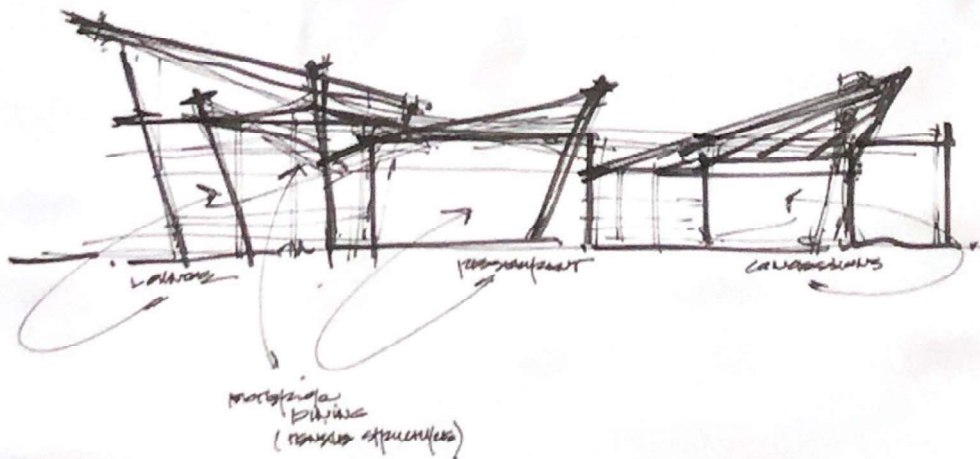
SPECIFICS FOR CLIENTS WANTING TO RENOVATE

1. What would you like to see in your newly extended/renovated home that it currently lacks?
2. What additional areas/functions/activities will be housed in the new proposed space?
3. Do you have any particular preferences to the relationship between the rooms? Would you be happy to reconsider the internal layout?

ARCHITECTURAL DESIGN PROCESS - 2

2 - Proposals

- after research phase is complete, there is enough information to begin establishing ideas and concepts, and develop solutions to identified problems
- initial research and proposal stages intertwine as solutions and response are made as research is collected
- as proposal stage continues, more definite ideas emerge
- sketches and models will be used in plans, elevations and section to develop proposals in proposal phase, also 3D discoveries to imagine a contextual approach to design



architectural concepts

[First In Architecture, Accessed 12.08]

- a concept is an idea, theory or notion, but in architecture we could also describe it as 'an approach' to the design
- a concept can be linked to many factors and can evolve as the design grows
- architectural concepts are the designer's way of responding to the design situation; are a means of translating the non-physical design problem into the physical building product
- every project will have critical issues, and there are a number of approaches to these general issues

Approaches to the design

- there are several areas the designer may focus on at the early stages of design that will begin to inform the concept and direction: these areas can be drawn upon throughout the project, weaved into each other

- the approaches can be categorised as

- Functional
- Material
- Contextual
- Conceptual
- Formal
- Collaborative
- Philosophical

can be combined and shifted to expand and explore the different approaches

WHAT IS A CONCEPT?

Concept - definition

1. an abstract idea
2. a plan or intention
3. an idea or invention to help sell or publicise a commodity
4. idea, notion, theory, conviction, opinion

Functional

- particular buildings have function higher priority (factories, hospitals)
- ensures building can be used effectively

architectural concepts

Material

- can approach design by looking at materials of the structure
- we can be lead towards particular forms of construction when focusing on specific materials
- selecting a material approach based on site context (suggest historical use of materials)
- local materials give local visitors sense of comfort and familiarity; gives nod to natural surroundings and environmental benefits of sourcing locally

Contextual

- looks at context of site and surroundings, historical features and people that occupy the area
- heavily draw from site analysis (physical and non physical elements)
- every project should have an element of contextual approach, but some designs rely on it more than others
- might not always sit "harmoniously" in surroundings, but always depends

Conceptual

- sole focus is about the idea instead of a combination of approaches and methods
- conceptual architecture is sometimes never built, but instead a form of thought provocation and exploration

Formal

- a formal approach uses formal architectural language to develop a concept
- "classic orders" give formality to elements of design such as proportion, scale and form

Collaborative

- most projects are different people architectural design engineers, survey and user is often however

Philosophical

- design philosophy inform design
- can investigate
 - artistic vs
 - rational vs
 - personal vs
 - visual vs
 - needs vs W.
 - individual
- also values in terms of design
 - ordered vs random
 - structured vs unstructured
 - objective vs subjective
 - one answer vs multiple solutions
 - creative vs conservative
 - specific vs general
 - man vs nature
 - complexity vs simplicity

ARCHITECTURAL DESIGN PROCESS - 3

3 - Analysis of proposals

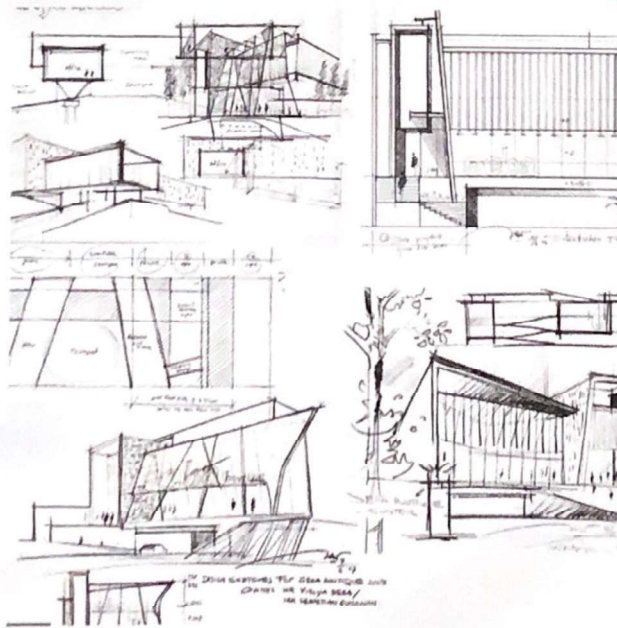
- after development of initial proposals, must be analysed and critiqued to establish feasibility of these proposals
- establish criteria (either client needs, performance of building, budget, aesthetics and so on): diverse criteria, with varying factors to evaluate
- once criteria is established it is possible to analyse, in professional setting this means discussion between architect and client



ARCHITECTURAL DESIGN PROCESS - 4

4 - Review and develop

- review and development stage can happen multiple times
- after design is analysed, designer can refine the design ideas and start to develop the scheme
- analysis can present issues in design that require extra refining; however the design could only need fine tuning
- this stage requires constant reflection and reference to the research and data and initial ideas
- this stage cycle continues until the analysis suggests that the criteria has been met



ARCHITECTURAL DESIGN PROCESS - 5

5 - Design development

- there comes a point in the design process when the client will approve the design so it can be taken to the next developmental stage
- at this stage drawings are developed at scale with the integration from structural engineers, mechanical engineers and other external team members
- design will be more detailed, considering elements such as materials, fixtures and fittings along with finishes
- cost will also become a more important factor, and for larger projects a quantity surveyor may be brought in to manage that aspect of the project
- the project may need to be prepared for planning applications, so might require 3D models or visualisations
- technical information will be developed to begin to provide a full picture of the design and how it will be constructed

PROJECT



Site analysis

Desktop study

Location

Soil

The most common soil around the area is red-brown gradational soil, which has a strong fine structure (high pedality), slightly acidic to neutral pH, high clay content, high free iron content, and high nutrient levels. Although the soil is very easy to dig, it is laced with floaters, which are large pieces of broken off rock that can however be easily removed by a bulldozer.

Rock

Blue Mountain is a steep high lava volcano with a broad lava flow to the northwest. The mountain consists of two slightly differing types of trachyte lava - the bulk of the mountain and the northern flow are of anorthoclase trachyte while a small flow near the summit is a coarser rock with phenocrysts of feldspar. However, the rocks around the site area a lot bluer toned and are more likely to be weathered basalt, which is also an igneous rock which makes sense.

Distance between site and key locations

- Blackwood road (closest highway): 3.3km, 7 minute drive
- Trentham centre: 5.7km, 9 minute drive
- Blackwood centre: 9.5km, 13 minute drive
- Woodend centre: 28.8km, 27 minute drive
- Melbourne home: 102km, 1h28min drive

History

The property and surrounds have a history of gold mining during the 19th century, and further down the mountain there are signs of abandoned mine shafts, however they wouldn't travel near the site. Further down the line the property had minor agriculture and potato production since the nutrient rich soil provides a perfect environment for farming, and most recently the site was used for logging and doesn't have many older trees, however it is still well populated with younger trees.

Utilities

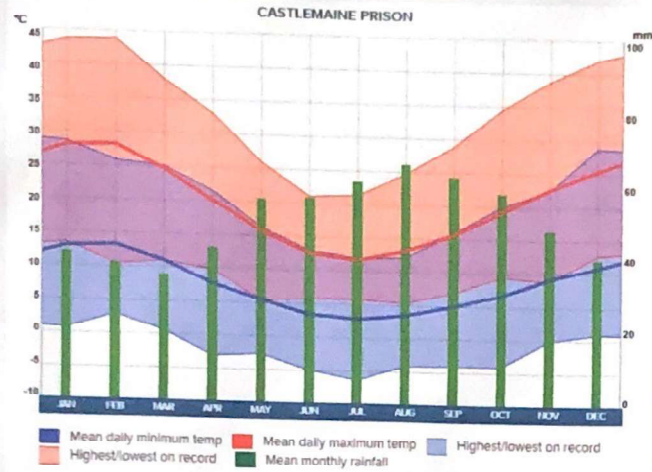
Being off the grid, there is no connection to public utilities including water, electricity, gas, telephone and sewage, however there is an existing bore pump on the property which taps into an aquifer so there is no shortage of drinkable water on the site.

Climate

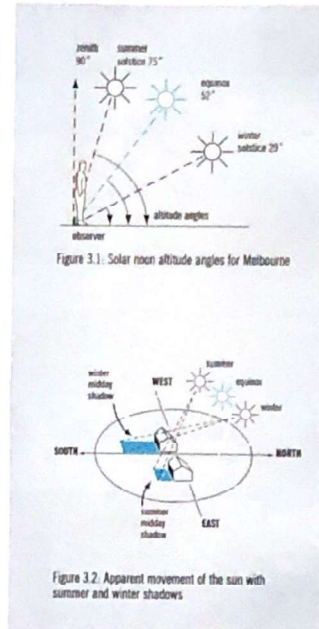
Climate conditions

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
Mean Max (°C)	28.0	28.2	24.7	20.1	15.8	12.6	11.7	13.2	15.7	19.2	22.7	25.5	19.8
Mean Min (°C)	13.0	13.3	11.0	7.7	5.5	3.5	2.9	3.6	5.0	6.7	9.2	11.0	7.7
Mean Rain (mm)	40.2	37.3	34.5	41.9	55.6	56.2	61.0	65.6	62.4	58.1	48.1	40.3	600.6
Median Rain (mm)	30.8	19.2	22.6	33.5	47.2	42.3	57.7	67.4	50.8	49.2	40.0	35.0	611.0
Mean Rain Days	6.1	5.1	6.5	8.0	12.0	14.2	17.1	16.2	13.4	11.2	8.7	7.4	123.9

CASTLEMAINE ANNUAL TEMPERATURES & RAINFALL



Sun paths and angles



Risky areas

Being in the midst of a eucalyptus forest, there is a great risk from bush fires, since dried eucalyptus leaves are very flammable, fires can spread quickly, trees commonly fall in the high winds and forests provide both fine fuels that burn very quickly and heavy fuels that will burn very hot for long periods of time. Also being near paddocks means there is dry and brown grass that easily catches on fire nearby.

Visiting the site

Site and surroundings

Location

Site location details

1 Blue Mount road Newbury 3458

Current context

Current holiday home, 2 story small dwelling (70m²)

Images of the site

I noticed this particular patch of land had less trees in it, which influence my decision when choosing a site

There has been a lot of bush fires in the past. This is a tree that had one side of it burn, leaving a hollowed-out shell

This is the current house which resides further uphill on the property. It doesn't try to blend into the scenery, but it is still humble

A panoramic shot of the site I chose. It is pretty bare of trees and isn't as steep as further down the hill. The view is blocked by the clouds, which shows you how high up the property is, however in clear weather you are able to see Snake Gully and parts of Mount Macedon

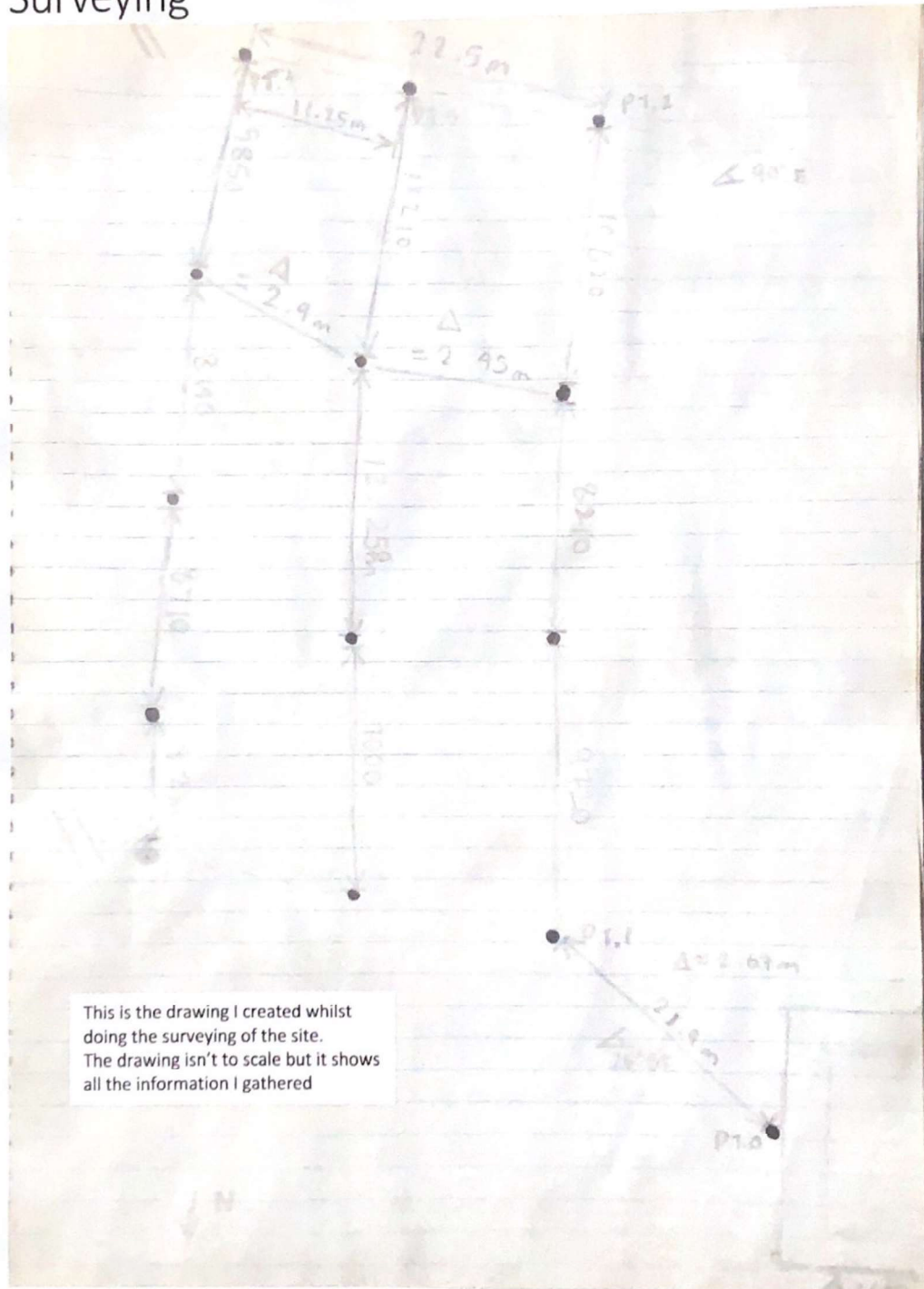


View east from edge of clearing (further up mountain near existing house)



View east from site of proposed design

Surveying

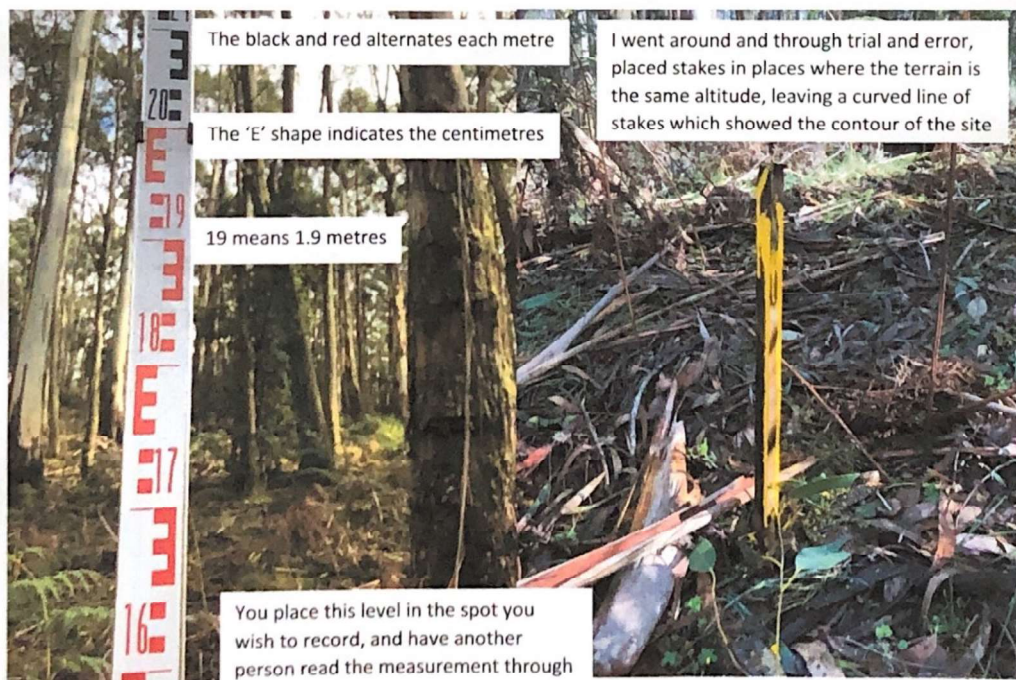


This is the drawing I created whilst doing the surveying of the site. The drawing isn't to scale but it shows all the information I gathered



The vegetation is quite thick, especially further down the landscape, so I could only record a few points at a time, and had to move and re-calibrate the dumpy a lot

The dumpy is placed in area where you can see multiple points that you want to record. Everything is done relatively, so the "anchor" or 1st point I recorded was the centre of the existing house (PT. 0 on notebook), then recorded PT. 1 and subtracted the difference to find the height change



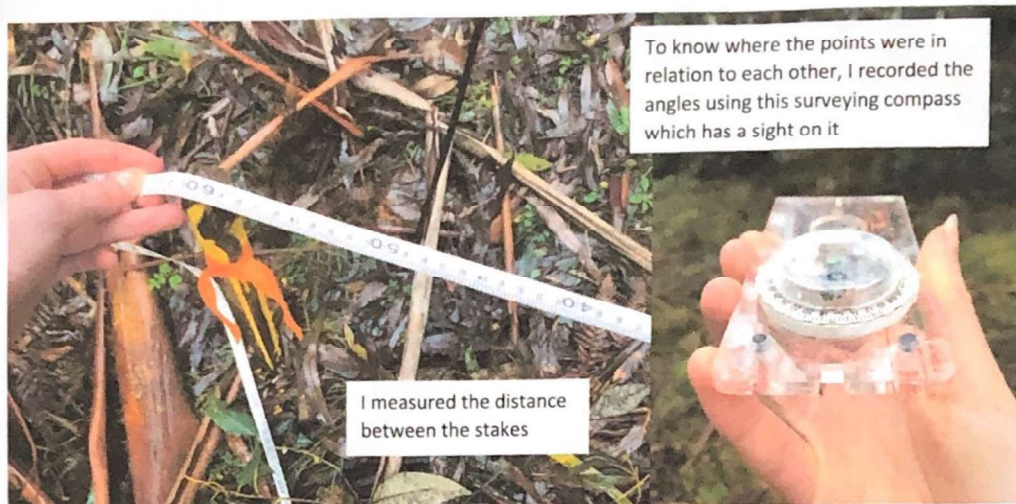
The black and red alternates each metre

The 'E' shape indicates the centimetres

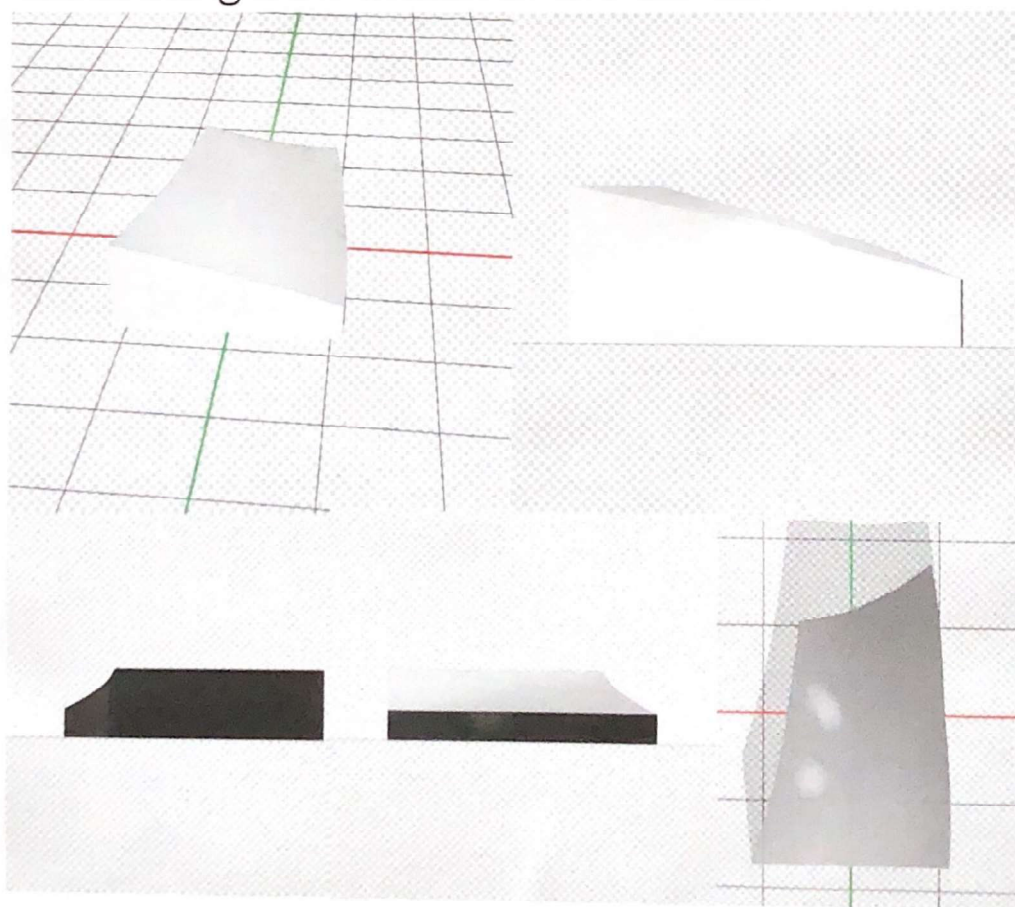
19 means 1.9 metres

I went around and through trial and error, placed stakes in places where the terrain is the same altitude, leaving a curved line of stakes which showed the contour of the site

You place this level in the spot you wish to record, and have another person read the measurement through the lens of the dumpy



Generating a 3D model of the terrain



Process

- in 3D cad, always start off by creating a 2D drawing
- add existing house (reference) measurements in metres
- add point 0 (on existing house)
- add point 1 (in relation with length and angle)
- keep on adding points
- used a new layer for each new level (just makes drawing it easier)
- curve --> freeform --> fit to points (select points in line, and gives curves for straight line sections
- surface --> network surface (generates a surface from a curve network [select all freeform curves included in surface])
- solid --> extrude surface --> straight

Design brief

Asking my dad about what he imagines this project to look like

Initial client questions

Full site address: 1 Blue Mount road, Newbury 3458

About client

He like the current house on the property because it is compact and small, it has beautiful views into the bush, and it is a sustainable house to live in. He dislikes it because it isn't insulated enough and has thin windows, there isn't enough solar energy collected and stored, and he wants more space for living and sealed off bedrooms.

Some ideas for the design are to include natural materials that fit with the environment, have the design look like it's a part of the bush, and fire safety must be essential.

Design features that he imagines in the design include solar panels, a firewood heater, hot water powered by firewood and/or solar panels, and the house to be completely off grid.

The style of the design should be contemporary and something that fits into the environment.

Specific materials that he wants to include are natural stones, wood, and glass.

The house should be very easy to maintain, and it should be able to be visited once every 4-6 weeks, so the irrigation and bore pump should be automated.

About the site

The site was chosen because of the elevated position and natural environment it's in.

He likes the site because of the views, high elevation, wildlife, natural forest and the snow that sometimes occurs.

The views that are important on the site are the views across to Mount Macedon and Mount Gisbon.

About the occupants

The house will accommodate 3 people sleeping minimum, multiple dogs, and should have 2-3 bedrooms.

About the lifestyle

The house should be an environment with less computer contact and more tradition entertainment forms (reading, playing card/board games, sitting around fire, writing, drawing).

The time spent in parts of house depends on the weather, time, season (farming and outdoor working times spend a lot of time outside; cold days have everyone inside; natural flow of activities on property).

The only entertainment system the house should have is a good hi-fi system in the living area.

The design only has basic storage requirements so that clutter isn't encouraged.

Indoor spaces

The house should have two floors, be open plan with kitchen, meals and living connected, have one bathroom, and 2-3 bedrooms.

The kitchen, meals and living should be connected, whereas the bedrooms should be sealed off and more private.

The living room should have the views (facing east) and direct sunlight (from north) in winter but not summer (use shades on windows).

Outdoor spaces

There should also be a place near the house with a shelter/pergola with a stone floor, wood fired heater and seats.

The design also requires exterior firewood storage near the house and a mudroom connected to the front door with a seat, shoe storage, coat hanger.

Reflection

I think if I was to do this IGNITE unit again, I wouldn't be doing the same subject. I switch between hobbies and passions a lot, and by the end of the semester I was losing motivation to continue working on the project. It didn't help that the online learning situation meant that I wasn't working in a school environment where there aren't as many distractions and there are teachers to motivate your learning. But I think I would struggle to stay interested in any subject so I wonder if I would ever stay completely motivated.

The quarantine situation particularly affected my topic, since I wasn't able to access the site and do any on-site research or get inspiration for the design. I was lucky that I completed the surveying before the restrictions were established so I couldn't travel there, and I definitely gained a lot from the hands-on experience; I think the surveying was my favourite part of IGNITE. However not being able to go to the site also contributed to my lack of motivation, not being able to see the site and get excited to design something there.

Because of these circumstances, I didn't achieve as much as I wanted to, and didn't end up with as much evidence of what I had accomplished in terms of something like a house plan or 3D model like I had intended to do. However, I still answered my big question, and I am happy with the quality of my end product.