Solar on Livingston

Interior Design Studio 3:INDE2000
Design and Research Manual (Part 1)
Submitted to: Marlene Mitchelmore
Submitted by: Crystal Roy
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I. PROBLEM STATEMENT

I. PROBLEM STATEMENT

To design a freestanding passive and active solar sustainable structure with an emphasis on form to provide a space for living.

II. THE SITE

II. THE SITE

A. PRECONDITIONS

Project Name: Solar on Livingston
Client Name: Angela and Dan Ciavarella
Land Location: Municipal Address: 375 Livingston St W. Barrie, Ontario
Legal Address: Lot 20, Concession 6
Applicable Authorities:
OBC Data Matrix and Energy Efficient Design Summary
Occupation (code):
Part 9, Group C, Residential Occupancies
Zoning Information:

	RI
Minimum Lot Area	900 m^2 (9688 sqft)
Minimum Lot Frontage	22 m (72'-0")
Front Yard Setback	4.5 m (15'-0")
Rear Yard Setback	7 m (23'-0")
Side Yard Setback	1.5 m (4'-9")
Minimum Open Space Landscape Req.	-
Minimum Dwelling Unit Floor Area	110 m^2 (1184 sqft)
Maximum Lot Coverage (% of lot area)	45%
Maximum GFA (% of lot area)	-
Maximum Building Height	10 m (32'-8")

Arial Perspective of site

II. THE SITE

A. PRECONDITIONS

Context Plan:

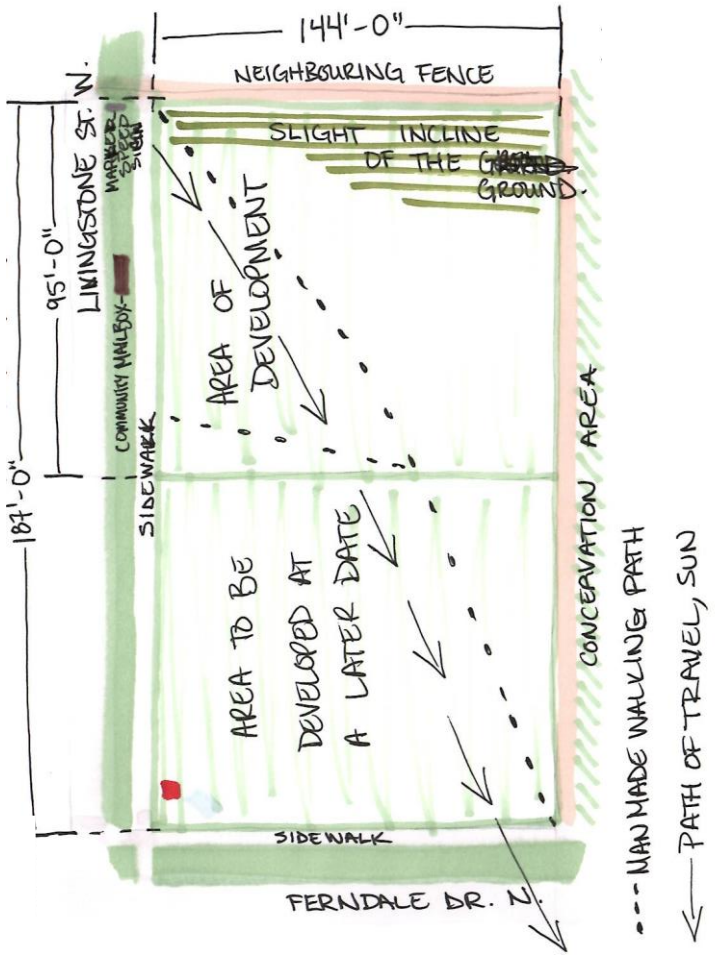
Observations
- traffic lights at intersection
- major intersection Livingston St. W. and Ferndale Dr. N.
- surrounding properties – Fully developed homes
- homes follow the same visual design (traditional, brick façade)
- 2 places of worship near by
- 2 schools near by
- sidewalks on north, south, east and west side of the surrounding roadways
-community mailbox
- fire hydrant
- electrical box

II. THE SITE

A. PRECONDITIONS

Site Assessment:

Observations
- Back of home looks into conservation area
- Front of home will be looking at neighbours across the street
- Neighbouring yards have mature trees for shading
- No wind on day of visit
- Neighbours walking/taking dogs for walk
- Students walking to and from school
- Sounds; cars, buses, trucks, birds, insects
- Steady vehicle traffic all ways
- Slight upward slope of land by neighbouring fence
- Moderately even ground throughout
- Existing fence with neighbour and conservation area to the rear
- Traffic – Medium to high volume; mostly traveling straight through the lights at Ferndale Dr. N

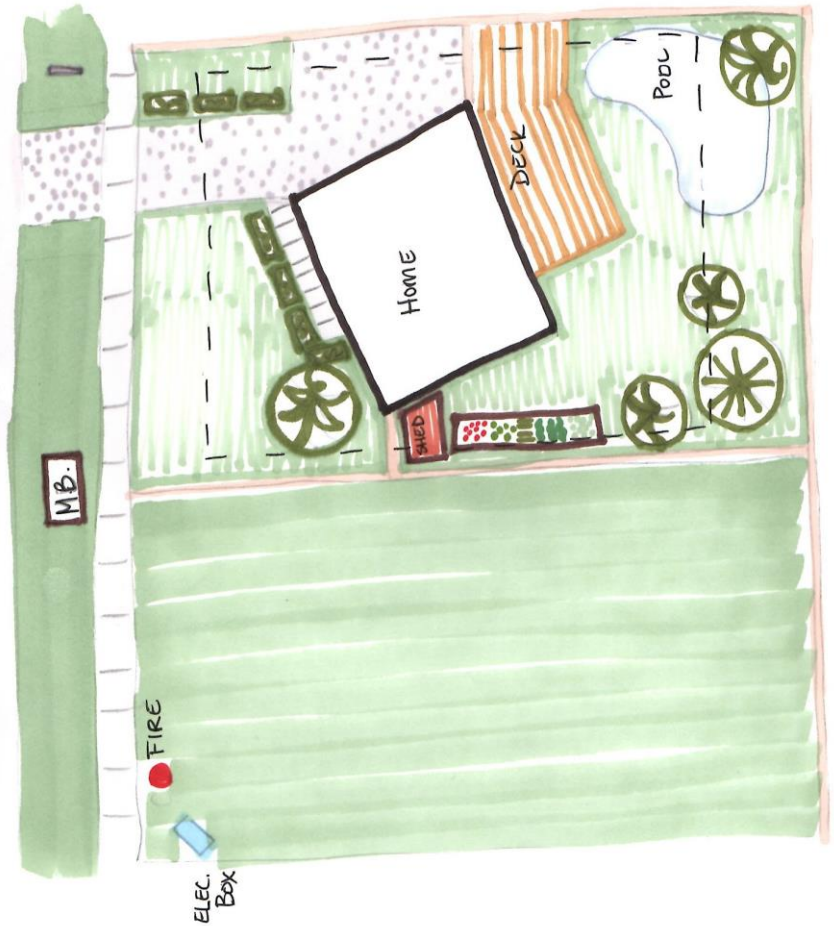


II. THE SITE

A. PRECONDITIONS

Pre-Planning Diagram:

Observations
- Move mailbox
- Create driveway that allows easy to street
- Add foliage/trees to create natural shading in front and back yards (will also provide privacy)
- Large deck for entertaining in rear yard
- Pool for exercise and entertainment
- Garden bed and shed



II. THE SITE

B. PHOTO DOCUMENTATION

Land to be developed – Insert address

Major intersection – Insert Address

II. THE SITE

B. PHOTO DOCUMENTATION

Across the street from development – North side of Livingston Road

Across the street from development – West side Ferndale Road

III. RESEARCH

III. RESEARCH
A. PROTOTYPICAL RESEARCH

1. Charles Rennie Mackintosh's Hill House was Designed from the inside out
By Alyn Griffiths

Critique:

Hill House, built in 1904 in Helensburgh, Scotland is one of Mackintosh's most influential buildings. Griffiths examines the typical characters of this design as it relates to Mackintosh's work and that of the time period. Traditional dark wood interiors speak to the richness and ornamentation of the time. Details such as tall windows, delicate art-nouveau features along with white or cream walls and linens mark Mackintosh's modern signature style in the home.
This house was designed for Walter Blackie, Mackintosh in collaboration with his wife Margaret MacDonald every aspect of the design process in the home was to be controlled by Mackintosh. However during the construction process, Blackie wasn't able to afford the full scope of work for the project and it had to be scaled back to just the main areas of the home.

Hill House Exterior

Hill House Interior Hall

Hill House Bedroom

Hill House Drawing Room

III. RESEARCH

A. PROTOTYPICAL RESEARCH

2. Glasgow school of art is Charles Rennie Mackintosh's "Masterwork"
By Alyn Griffiths

Critique:

The Glasgow School of Art has been praised be the Charles Rennie Mackintosh Society as Mackintosh's "masterwork" and Griffiths points out that throughout the design of this building iconic characters of Mackintosh's architect can be found. When Mackintosh was first awarded his commission, he was a junior draughtsman at Honeyman and Keppie. Keppie received the credit for the design, however when looking at the features of the construction Mackintosh's signatures are not only present, they are predominant. Like the Hill House construction for this building had limited funds and so construction had to be completed in two phases. The first phase was between 1897-1899 which included the central and eastern portions, the museum, headmaster's quarters and boardroom. The second phase was completed in 1907-1909, which addressed studio spaces and basement as well as modernizing the sections previously completed to reflect more modern influences.

Glasgow School of Art Exterior

Interior Window Details

Library Detail

Glasgow School of Art Library

III. RESEARCH
A. PROTOTYPICAL RESEARCH

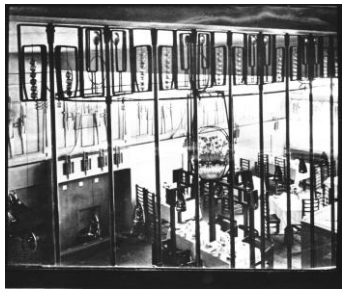
3. Willow Tea Room is Charles Rennie Mackintosh's most complete interior design
By Alyn Griffiths

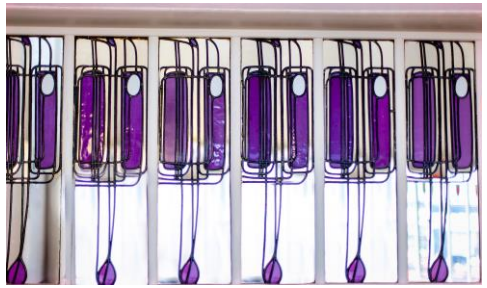
Critique:

The Willow Tea Rooms was commissioned by Catherine Cranston, who had worked with Charles Rennie Mackintosh previously. For this project she gave Mackintosh free rain to design the exterior and interior of the building. Like many of Mackintosh's designs the Willow Tea Room features white and light cream spaces and facades. These light toned spaces add contrast between; the building and its surroundings of the time; the tones and the iron work detail as well as highlighting design features, such as windows, interior artwork and furniture. This was also one of the few of Mackintosh's designs that were able to be fully realized to due budget. The theme that inspired this buildings design came from a sonnet by Dante Gabriel Rosetti "O Ye, All Ye That Walk in the Willow Wood". The words influenced the organic forms and lines of the design, and perhaps even the subtle touches of colour. Compared to the ephemeral curved lines of the architectural details the furniture is heavy in the spaces grounding the rooms.


Willow Tea Room Facade


Willow Tea Room Interior Detail


Willow Tea Room Interior First Floor View from Above


Willow Tea Room Window Detail

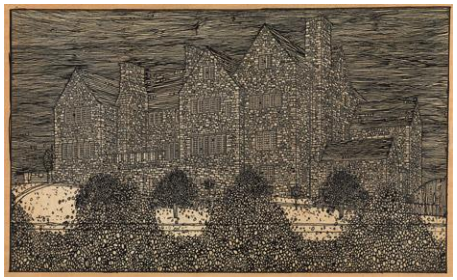
III. RESEARCH

A. PROTOTYPICAL RESEARCH

4. Drawings from the Charles Rennie Mackintosh archive shoe his “exceptional draughtsmanship”
By Olivia Mull

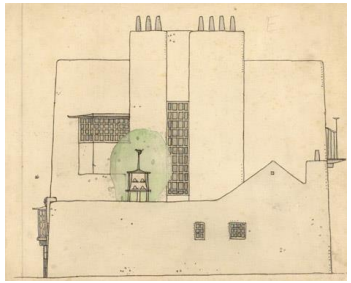
Critique:

Mull’s article highlights some of Charles Rennie Mackintosh’s most acclaimed work accomplished during his career but also remembers some of his misses as well. The article praises Mackintosh’s excellent draughtsmanship and mentions a few competitions that were entered throughout his career usually falling shy of winning.
However, when comparing the facades of the buildings depicted with the light and airy interior details I wonder how much of the style we credit Mackintosh for us his wife’s Margaret Macdonald. Art Nouveau at the time was about creating beautiful things because they are beautiful, which is clearly seen in the intricate details of latus work and decorative features. The elevations drawn by Mackintosh reflect the utilitarian ideals of the heavy Bauhaus movement that came before it. I suspect that just like generations before her Macdonald’s work went unnoticed until she started working with her husband, and continued to work under his name.



Auchinibert, Killearn

Hill House



Artist house

Liverpool Cathedral

III. RESEARCH
A. PROTOTYPICAL RESEARCH

5. Spotlight: Zaha Hadid
By Patrick Lynch

Critique:

Patrick Lynch's article about Zaha Hadid addressed her rise to fame, her struggles and her sudden death. He praises her achievements, awards and her development of a new form of calculations called parametricism. Hadid credits a lot of what pushes her designs with her visits to museums, art galleries and travels in her formative years. Her father, a diplomat, would push her to question and think about the process of artists and designers, why they made their decisions. This is an important thought pattern, understanding why something is achieved as well as how because we have to understand the decision-making process. Why are you making something beautiful? Or ugly, or obtuse? Knowing these answers pushes creation past the point of just being, it turns them into something more. After Hadid's death her firm is continuing to push the boundaries of design.


Heydar Aliyev Center


Riverside Museum


Jockey Club Innovation Tower


Pierres Vives

III. RESEARCH

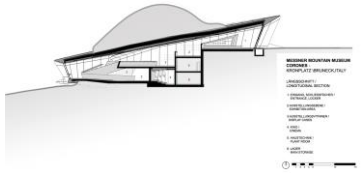
A. PROTOTYPICAL RESEARCH

6. Messner Mountain Museum Corones

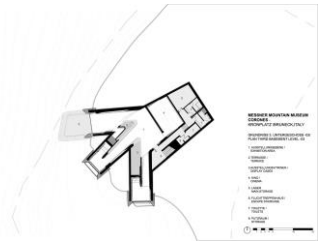
Critique:

The Messner Mountain Museum is a deviation from the light, weightless and feminine designs Zada Hadid is usually known for. The museum focuses on showcasing the history of mountain climbing, and is named after the first person to climb the trio of mountains. As such it is embedded into the one of the mountains itself, visitors must climb the mountain in order to experience it. The structure is only that protrudes from the mountain sides are three look out terraces that face the surrounding mountains. Due to the nature of the project and its location this building has become one of Hadid's heavier designs but the sheer fact that part of securing the structure was to bury it. The museum is surrounded by earth and allows it to be the focus of the design. Hadid isn't a after to leave behind her signature characteristics in order to create a successful.

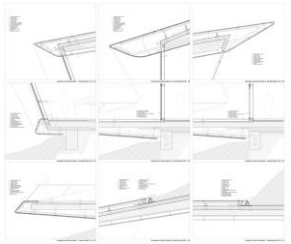
Messner Mountain Museum



Messner Mountain Museum - Sections



Messner Mountain Museum – Plan view



Messner Mountain Museum - Details

III. RESEARCH

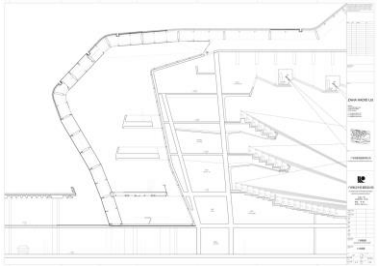
A. PROTOTYPICAL RESEARCH

7. Guangzhou Opera House

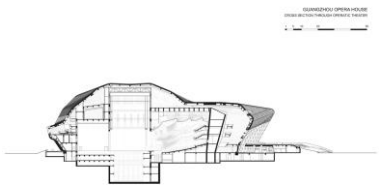
Critique:

The opera house sits on a river bank and who's design is inspired by the river rocks, topography, natural erosion and geology. It's design was meant to bridge the gap to unify the cultural centers and the financial sectors. The main opera theater boasts the best technology available and the smaller theater is designed as a multifunctional space from other performance based arts. The design of this building has elements that connect the exterior design with the interior structure, such as where rooms are divided. These elements strengthens the Opera House's connection to it's surroundings. The curved lines of the building and it's connection to the natural elements around it are the design we have come to expect from Hadid. She design thinks outside of the box as to what an opera house is supposed to look like and function. This design is both feminine and aquatic, the exterior panels look like fish scales re-enforcing it's connection to the river.

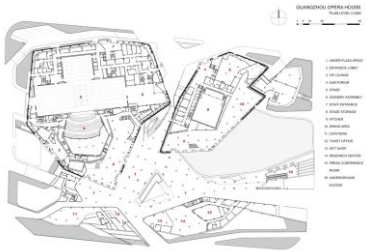
Guangzhou Opera House



Guangzhou Opera House - Detail



Guangzhou Opera House - Section



Guangzhou Opera House – Plan view

III. RESEARCH

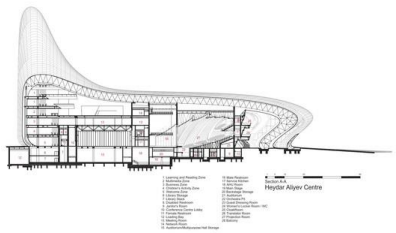
A. PROTOTYPICAL RESEARCH

8. Heydar Aliyev Center

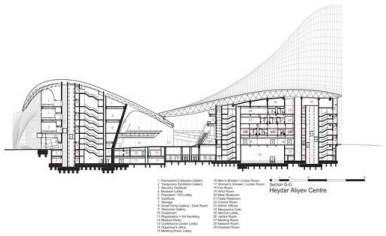
Critique:

Zaha Hadid won the bid to create the Heydar Aliyev Center in 2007, the building is meant as a cultural center. Instead of following the typical block construction this building was meant to stand out and “look to the future” from the Soviet Union country. All though the building is meant to stand out from it’s surrounding, meant as an inviting structure to welcome all members of the community. All walls within the space are bifurcated and fold away opening spaces or guiding through the building directing visitors to explore the building. This is another example as to how Hadid as taking into consideration the surrounding and setting of the construction. This building was created relatively early in Hadid’s career and her signature curved structures have not been developed yet.

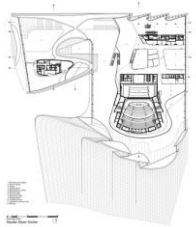
Heydar Aliyev Center



Heydar Aliyev Center - Section



Heydar Aliyev Center - Detail



Heydar Aliyev Center - Plan view

III. RESEARCH

B. SUMMARY OF INFLUENCES

Influences that emerged from the prototypical research are;

1. Have the entire house follow the same design (consistency)
2. Maintain a gender neutral design scheme, not too feminine or too masculine
3. Use the land around the building as a sustainable feature
4. Use organic forms in the structure of the design
5. Use of white as a base allows design features to be accents
6. Windows are used as a source of light as well as a connection to the outside
7. Create spaces for rest and relaxation away from shared spaces in the building
8. Mix textures to create a dynamic space

Sunroom

Use of white to feature accents

Consistent design throughout

Connection to outdoors

Restful spaces

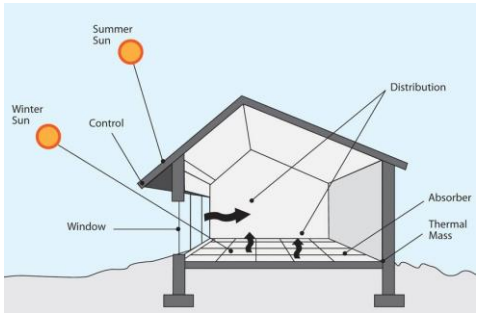
III. RESEARCH

C. PASSIVE SOLAR DESIGN RESEARCH

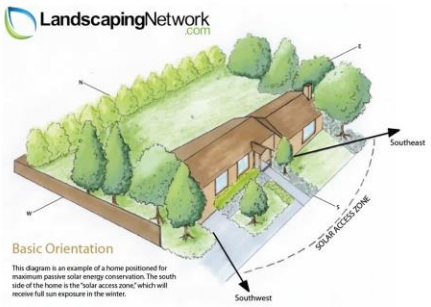
1. Passive Solar Home Design
By: Author Unknown

Critique:

The author examines that there are more ways then one to create or refurbish your home so that it's energy efficient. To be a passive home each design must be site specific, depending on the region that it is located simply positioning your home to take advantage of sun and wind are two big passive actions that you can do, and one major factor are the windows. Their position in the house, can help capture the light and heat from the sun, create a breeze way for the wind. As well using triple pained windows creates a stronger seal to keep heat in the home. The author also gives examples of gains, such as using a trombe wall to capture, retain and release heat. The author also addresses quickly ways of shading to create a comfortable house during hotter summer months, using awnings, or local vegetation to create shaded areas and help to protect the house from heating up.



How the sun position matters



Local foliage to create natural shading

Position of the building on the property

III. RESEARCH

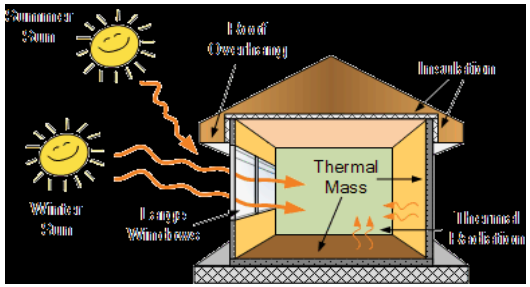
C. PASSIVE SOLAR DESIGN RESEARCH

2. Sustainable Architecture, Green Architecture
By OntarioArchitecture.com

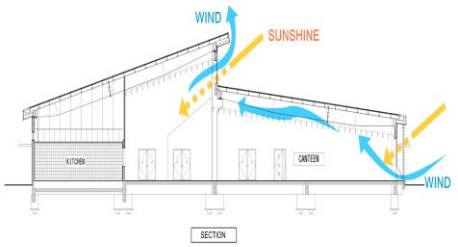
Critique:

Ontario Architecture addresses passive solar energy as a comparison to active solar energy that is captured through solar panels. Where the panels require materials, the panels themselves, a way to store the energy as well as a means of transferring the energy from one source to another. Where as passive solar design doesn't require additional materials. Instead it requires more thought and planning in the initial stages and then the house will work on its own to heat and cool itself. Ontario Architecture explains the importance of positioning your home in order to capture the direction of the wind as a cooling source, so window placement become an important part of the design. The second design feature they focus on as a primary source of heat for the home is the sun. They address the inclusion of a longer over-hang with on the side of the house where the sun travels. This over-hang helps capture the suns light in the winter (a lower position of the sun) and creates a shade to reduce the heat entering the house during the summer months. Ontario Architecture finishes the article by giving examples of passive solar designs around the world through history.

Using windows to as a source of light



Using the suns position to heat the building



How the building can be cooled with air flow

III. RESEARCH

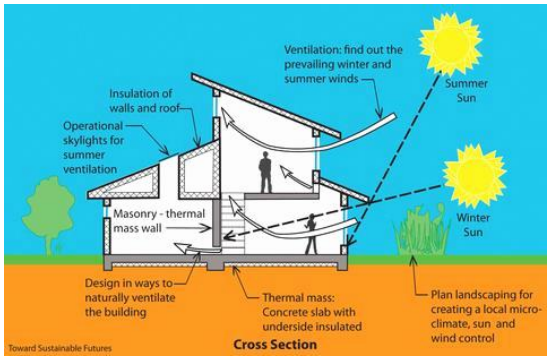
C. PASSIVE SOLAR DESIGN RESEARCH

3. Sustainability
By: Green Building Basics

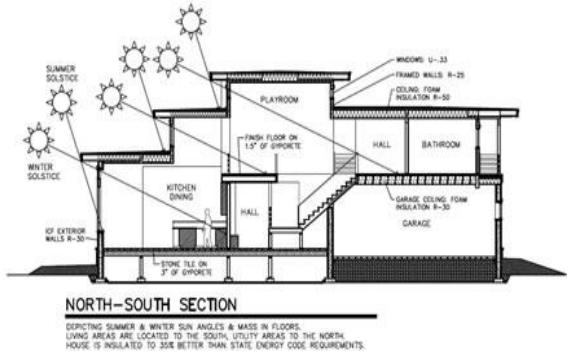
Critique:

Green Building Basics explains many of the key elements of a passive solar design, addressing attributes such as, Apertures and when the best time to capture the suns light; Absorber, a dark surface to store heat, a floor, wall or water container; Thermal mass, a hidden source of storing heat; Distribution, 3 ways of transferring the heat throughout the house naturally, conduction, convection and radiation; Control, is a natural or man-made way of reducing the suns light/heat or a way to move around air flow.

Sunroom – captures heat



Heat distribution



Capturing the sun on multiple levels of the house as the position changes

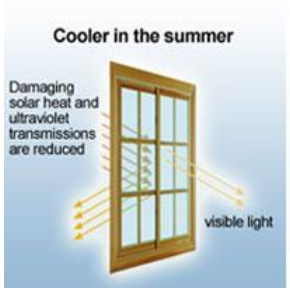
III. RESEARCH

C. PASSIVE SOLAR DESIGN RESEARCH

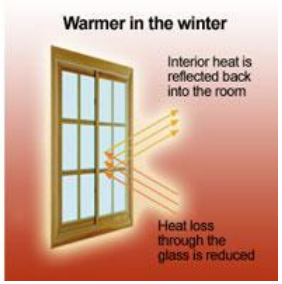
4. Passive Solar House Design Basics – Orientation, Design Elements, and Materials
By: James Ayre

Critique:

Ayre believes the most important part of passive solar design first analyses the site and studies the orientation, the path of the sun and the isolation levels. This initial study will allow designers to fully understand the local area and condition to create a home that can capture as much heat in the colder winter months and reduce the amount of heat captured during the warmer summer months. Ayre's also addresses insulation, he discusses the importance of a home being airtight, which is reducing or eliminating the holes in which outside air enters or inside exits the home. By filling or preventing these holes designers are able to protect the envelop of the house. In these cases one needs only to open a window to vent the house and allow for air circulation.



Triple pain windows



Spray foam insulation

Sunroom – living space and green space

III. RESEARCH

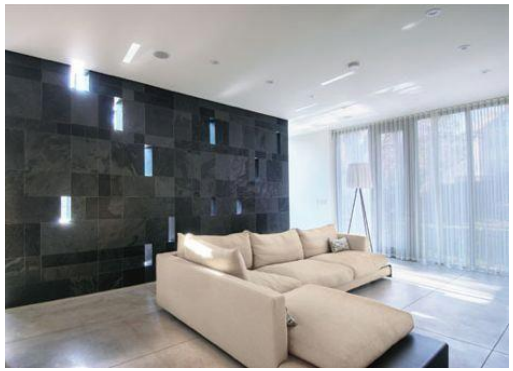
D. SUMMARY OF TEN (10) SOLAR DESIGN FEATURES/INNOVATIONS

Influences that emerged from the passive solar design research are;

1. Tri-pained windows
2. Trombe wall
3. Longer over-hanger on south side
4. Windows positioned to create breeze way
5. Sun capture room
6. Reduce piecing the envelop of the structure
7. Strong insulation – spray foam
8. Windows used as light source
9. Use of native foliage to create shading in the warmer months and an introduction of green space
10. Positioning of the building on the land for maximum use of the position of the sun and wind

Windows for light

Man-made shading



Trombe wall

Sun capture space

III. RESEARCH

E. CONSTRUCTION PHOTO DOCUMENTATION

1. Foundation

2. Foundation

III. RESEARCH

E. CONSTRUCTION PHOTO DOCUMENTATION

3. Foundation

4. Heated Floor Tubing

III. RESEARCH

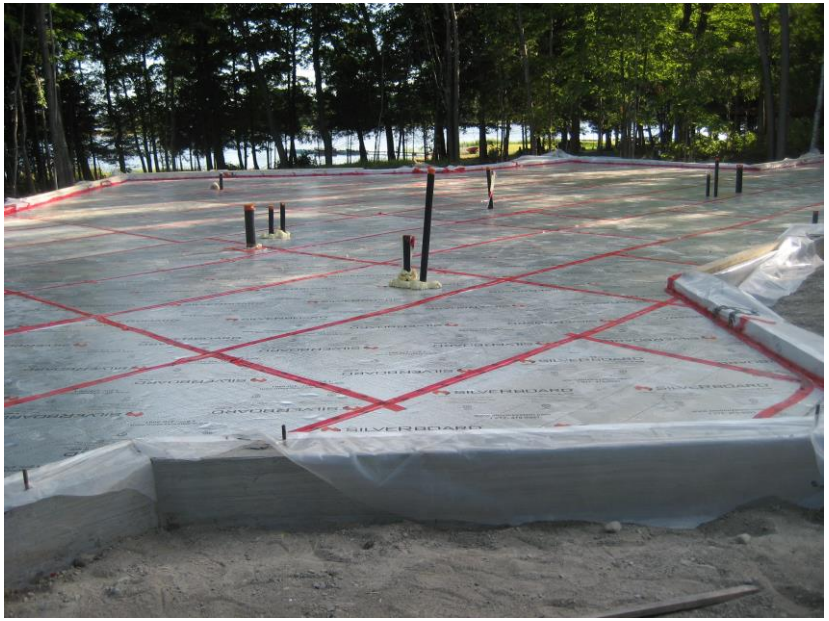
E. CONSTRUCTION PHOTO DOCUMENTATION

5. Heated Floor Tubing

6. Foundation/Plumbing

III. RESEARCH

E. CONSTRUCTION PHOTO DOCUMENTATION



7. Foundation/Grid of heated floors

8. Plywood Walls

III. RESEARCH

E. CONSTRUCTION PHOTO DOCUMENTATION

9. Future Entrance

10. Plywood Walls-Exterior View

III. RESEARCH

E. CONSTRUCTION PHOTO DOCUMENTATION

11. Framing first floor

12. Framing second floor

III. RESEARCH

E. CONSTRUCTION PHOTO DOCUMENTATION

13. Second Floor Joists

14. Interior View of Roof Installation

III. RESEARCH

E. CONSTRUCTION PHOTO DOCUMENTATION

15. Exterior View Wall

16. Lifting main roof support

III. RESEARCH

E. CONSTRUCTION PHOTO DOCUMENTATION

17. Installation for roof support beam

18. Final roof paneling and tower construction

III. RESEARCH

E. CONSTRUCTION PHOTO DOCUMENTATION

19. Tower facade

20. Tower window installation

III. RESEARCH

E. CONSTRUCTION PHOTO DOCUMENTATION

21. Forming architectural feature

22. Completion of architectural feature

III. RESEARCH

E. CONSTRUCTION PHOTO DOCUMENTATION

23. Wrapping tower for weather proofing

24. Window installation

III. RESEARCH

E. CONSTRUCTION PHOTO DOCUMENTATION

25. Wrapping

26. Stone and brick installation

III. RESEARCH

E. CONSTRUCTION PHOTO DOCUMENTATION

27. Window installation

28. Foundation repairs

III. RESEARCH

E. CONSTRUCTION PHOTO DOCUMENTATION

29. Excavation

30. Framing/Roof/Insulation

III. RESEARCH

E. CONSTRUCTION PHOTO DOCUMENTATION

31. Before window and door installation

32. Scaffolding for window and door installation

III. RESEARCH

E. CONSTRUCTION PHOTO DOCUMENTATION

33. After window and door installation

35. Complete

III. RESEARCH

F. ENVIRONMENTAL PSYCHOLOGY RESEARCH

1. The Psychology of Interior Design
By: Jared Green

Critique:

The author of the article *The Psychology of Interior Design*, Jared Green, examines how interior design influenced those working and living in the space. He also relates humans to animals in that humans are more relaxed and at ease in natural environments.

In his article Green introduces Barbara Stewart a San Francisco-based architect who studies Feng Shui, incorporating it into corporate offices. She explains that human beings feel more comfortable in spaces that mimic the outdoors. Ideally this is would consist of dark wood floor, mid-tone walls (at eye level), and a white ceiling to mimic the sky. Spaces that follow this pattern are safer for seniors as they are better able to navigate, and reduces the micro-anxieties. Green explains that in spaces that are monotone humans reactions cause higher anxiety levels, these small stressors build up over time, eventually these lead to larger anxiety issues. Where as in naturally simulated environments anxiety and stress levels are reduced.

Incorporating greenery into your space

Biomimicry through colours and patterns

How to mimic natural elements into a space

III. RESEARCH

F. ENVIRONMENTAL PSYCHOLOGY RESEARCH

2. Design Psychology
By: Dawn Chapnick
Critique:

Design Psychology, introduces readers to what environmental psychology is and it's goals. Dawn Chapnick describes this practice as the inter-play between environment and how it affects behaviors of people using the space. The ultimate goal is "maximizing the positive effects of the relationship." Chapnick addresses how a space needs to be efficient and that the design of the relates to the performance and productivity of the people in the space. She believes that good design is responsible for finding beautiful solutions that support the safety and well-being of the people using the space as well as enhancing the quality of their lives. Chapnick gives the example of individual going through a divorce, this can be a very emotional and stressful time in their lives. Design can help create an emotionally safe and supportive environment for those people. This can be achieved through colours, shapes, textures as well as light and the size of a room. As the popularity of neuroscience goes designer and scientists are able to see that there are positive and negative reactions in the brain to certain environmental elements. As designer we want to be cognitive of what we are including in a space and how people are going to react to it on an unconsciousness level. If you are creating an environment for someone who is emotionally sensitive we want to make sure that we are including low anxiety elements to create a safe space.

Natural warm colours and textures creates an inviting space

Wide hallway- creates a safe/comfortable space for users

Comfortable safe space

IV. BUILDING CODE ANALYSIS

IV. BUILDING CODE ANALYSIS

A. PLANNING AND DESIGN APPLICATIONS

Terms and Abbreviations:

1. Exit: “means that part of a means of egress, including doorways, that leads from the floor area it serves to a separate building, an open public thoroughfare or an exterior open space protected from fire exposure from the building and having access to an open public thoroughfare.”
2. Floor area: “means the space on any storey of a building between exterior walls and required firewalls, including the space occupied by interior walls and partitions, but not including exits, vertical services spaces and their enclosing assemblies.”
3. Horizontal Exit: “means an exit from one building to another by means of a doorway, vestibule, walkway, bridge or balcony.”
4. Building Area: “means the greatest horizontal area of a building area grade,
    a. Within the outside surface of exterior walls, or
    b. Within the outside surface of exterior walls and the center line of firewalls.
5. Suites: “ means a single room or series of rooms of complementary use, operated under a single tenancy, and includes,
    a. Dwelling units,
    b. Individual guest rooms in motels, hotels, boarding houses, rooming houses and dormitories, and
    c. Individual stores and individual or complementary rooms for business and personal services occupancies.”
6. Dwelling Units: ”means a suite operated as a housekeeping unit, used or intended to be used by one or more persons and usually containing cooking, eating, living, sleeping and sanitary facilities.”
7. Hotels: “means a floor areas, a floor area or part of a floor area that contains four or more suites and that provides sleeping accommodation for the travelling public or for recreational purposes.”
8. Egress: “means the action of going out or leaving a place.”
9. Basement: “means one or more storeys of a building located below the first storey.”
10. Live/work unit: “means a dwelling unit having an area of not more than 200 m^2 that contains a subsidiary low hazard industrial occupancy, and which is used and operated by one or more persons of a single household.”

IV. BUILDING CODE ANALYSIS

A. PLANNING AND DESIGN APPLICATIONS

11. Mezzanine: “means an intermediate floor assembly between the floor and ceiling of any room or storey and includes an interior balcony.”
12. House: “means a detached house, semi-detached house or row house containing not more than two dwelling units.”
13. Major occupancy: “means the principal occupancy for which a building or part of a building is used or intended to be used, and is deemed to include the subsidiary occupancies that are an integral part of the principal occupancy. The major occupancy claasifications used in this Code are as follows:
    a. Group A, Division 1 – Assembly occupancies intended for the production and viewing of the performing arts,
    b. Group A, Division 2 – Assembly occupancies not elsewhere classified in Group A
    c. Group A, Division 3 – Assembly occupancies of the arena type,
    d. Group A, Division 4 – Assembly occupancies in which occupants are gathered in open air,
    e. Group B, Division 1 – Detention occupancies,
    f. Group B, Division 2 – Care and treatment occupancies,
    g. Group B, Division 3 – Care occupancies,
    h. Group C – Residential occupancies,
    i. Group D – Business and personal services occupancies,
    j. Group E – Mercantile occupancies,
    k. Group F, Division 1 – High hazard industrial occupancies,
    l. Group F, Division 2 – Medium hazard industrial occupancies, and
    m. Group F, Division 3 – Low hazard industrial occupancies. “
14. Storage Garage: “means a building or part of a building that is intended for the storage or parking of motor vehicles and that contains no provision for the repair or serving of motor vehicles.”
15. Fire separation: “means a construction assembly that acts as a barrier against the spread of fire.”
16. Air barrier system: “means an assembly installed to provide a continuous barrier to the movement of air.”

IV. BUILDING CODE ANALYSIS

A. PLANNING AND DESIGN APPLICATIONS

17. Smoke alarms: “means a combined smoke detector and audible alarm device designed to sound an alarm within the room or suite in which it is located on the detection of smoke within that that room or suite.”
18. Residential occupancy: “means an occupancy in which sleeping accommodation is provided to residents who are not harboured for the purpose of receiving special care or treatment and are not involuntarily detained and includes an occupancy in which sleeping accommodation is provided to residents of a retirement home.”
19. Appliance: “means a device to convert fuel into energy and includes all components, controls, wiring and piping required to be part of the device by the applicable standard referred to in this Code.”
20. Canopy: “means a roof-like structure projecting more than 300mm from the exterior face of the building.”
21. Carbon dioxide equivalent: “means a measure used to compare the impact of various greenhouse gases based on their global warming potential.”
22. Cooktop: “means a cooking surface having one or more burners or heating elements.”
23. Drainage system: “means an assembly of pipes, fittings, fixtures and appurtenances on a property that is used to convey sewage and clear water waste to a main sewer or a private sewage disposal system, and includes a private sewer, but does not include subsoil drainage piping.”

IV. BUILDING CODE ANALYSIS

A. PLANNING AND DESIGN APPLICATIONS

Symbols and Abbreviations:

Item	Symbol or Abbreviation	Meaning
1	1 in 2	slope of 1 vertical to 2 horizontal
2	diam	Diameter
3	ft	Foot (Feet)
4	HVAC	Heating, ventilating and air-conditioning
5	m2	Square metre(s)
6	max.	Maximum
7	min.	Minimum
8	N/A	Not applicable
9	%	percent
10	RSI	Thermal resistance, International System of

IV. BUILDING CODE ANALYSIS

A. PLANNING AND DESIGN APPLICATIONS

POINT NUMBER 1:

9.9.2.1. Types of Exits

*"**(1)** Except as otherwise provided in this Section, an exit from any floor area shall be one of the following used singly or in combination:*
(a) an exterior doorway,
(f) a horizontal exit,
(g) an interior passageway,
(i) an interior stairway."

Summary:
An Exterior doorway, a horizontal exit, an interior passageway and an interior stairway can be used as exits from the house we are designing. There must be at least one of these exits on each floor but there can also be more and used together; such as an interior passageway can lead to a horizontal exit.

IV. BUILDING CODE ANALYSIS

A. PLANNING AND DESIGN APPLICATIONS

POINT NUMBER 2:

9.9.6.7. Door Latching, Locking and Opening Mechanisms

*" **(1)** Principal entrance doors, exit doors and doors to suites, including exterior doors serving a house or an individual dwelling unit, and other doors in an access to exit shall,*
(a) be openable from the inside or in travelling to an exit without requiring keys, special devices or specialized knowledge of the door opening mechanism
***(2)** Except for doors serving a single dwelling unit and doors to accessory buildings and to garages serving a single dwelling unit, door release hardware on doors in a means of egress shall be operable with one hand and the door shall be openable with not more than one releasing operation.*
***(3)** Door release hardware on doors in a means of egress shall be installed not more than 1 200 mm above the finished floor."*

Summarize:
All doors that transition from the inside to outside and that are attached to a suite must be able to be functional and operable without a locking device (i.e key or magnetic lock) or require any special instructions. Doors have to be operable with one hand and only have one release (latch). Finally the hardware will not be installed higher than 1,200mm (3'-11") above the finished floor.

IV. BUILDING CODE ANALYSIS

A. PLANNING AND DESIGN APPLICATIONS

POINT NUMBER 3:

9.9.10.1. Egress windows or doors for Bedrooms

*"**(1)** Except where a door on the same floor level as the bedroom provides direct access to the exterior, every floor level containing a bedroom in a suite shall be provided with at least one outside window that,*
(a) is openable from the inside without the use of tools,
(b) provides an individual, unobstructed open portion having a minimum area of 0.35 m² with no dimension less than 380 mm, and
(c) maintains the required opening described in Clause (b) without the need for additional support.
***(2)** Except for basement areas, the window required in Sentence (1) shall have a maximum sill height of 1 000 mm above the floor.*
***(3)** When sliding windows are used, the minimum dimension described in Sentence (1) shall apply to the openable portion of the window.*
***(4)** Where the sleeping area within a live/work unit is on a mezzanine with no obstructions more than 1 070 mm above the floor, the window required in Sentence (1) may be provided on the main level of the live/work unit provided the mezzanine is not more than 25% of the area of the live/work unit or 20 m^2, whichever is less, and an unobstructed direct path of travel is provided from the mezzanine to this window."*

Summarize:
For every bedroom or suite that isn't on the ground floor will have at least one window with can be opened from the inside, has access that is at lest .35m^2, with no dimension less than 380mm (1'-2"). Basement spaces will have windows will have a max sill height of 1,000mm above the floor.

POINT NUMBER 4:

9.5.1.4. Combination Rooms

*"**(1)** Two or more areas may be considered as a combination room if the opening between the areas occupies the larger of 3 m^2 or 40% or more of the wall measured on the side of the dependent area.*
***(2)** Where the dependent area is a bedroom, direct passage shall be provided between the two areas.*
***(3)** The opening required in Sentence (1) shall not contain doors or windows."*

Summarize:
When combining two rooms to create an open space the wall that both rooms share in common must have an opening of 40% or greater to be considered a combination room. If one of the two spaces is a bedroom a passage between the areas is required.

IV. BUILDING CODE ANALYSIS
A. PLANNING AND DESIGN APPLICATIONS

POINT NUMBER 5:

9.5.2.1. General

*"**(1)** Except as provided in Sentence (2) and Article 3.8.1.1., every building shall be designed in conformance with Section 3.8.*
***(2)** The requirements of Section 3.8. need not be provided for houses, including semi-detached houses, duplexes, triplexes, town houses, row houses and boarding or rooming houses with fewer than eight boarders or roomers.*
Note: On July 1, 2017, Sentence 9.5.2.1.(2) of Division B of the Regulation is revoked and the following substituted: (See: O. Reg. 139/17, s. 72)
***(2)** The requirements of Section 3.8. need not be provided for houses, triplexes and boarding or rooming houses with fewer than eight boarders or roomers."*

Summarize:
Article 3.8.1.1 of the OBC states that a building is not to be occupied at all times. This article 9.5.2.1 is the exception to the rule, which is houses, semi-detached houses, duplexes, triplexes, town houses, row houses and boarding or rooming houses (with less than 8 residents). As such houses, etc… can be occupied at all times.

IV. BUILDING CODE ANALYSIS

A. PLANNING AND DESIGN APPLICATIONS

POINT NUMBER 6:

9.5.4.1. Areas of Living Rooms and Spaces

*"**(1)** Living areas within dwelling units, either as separate rooms or in combination with other spaces, shall have an area not less than 13.5 m².*
***(2)** Where the area of a living space is combined with a kitchen and dining area, the living area alone in a dwelling unit that contains sleeping accommodation for not more than two persons shall be not less than 11 m².*
9.5.5. Dining Rooms or Spaces within Dwelling Units"

Summarize:
Addressing the minimum size of a space this article states that a living space (whether in combination with other rooms or not) will have a minimum size of 13.5 m² (145 sqft), and where the living room is in combination with a kitchen and dining area will have a minimum space of 11m² (118 sqft), when there are sleeping spaces for no more than 2 persons.

POINT NUMBER 7:

9.5.5.1. Area of Dining Rooms or Spaces

*"**(1)** A dining space in combination with other space shall have an area of not less than 3.25 m².*
***(2)** Dining rooms not combined with other space shall have a minimum area of 7 m².*"

Summarize:
Addressing the minimum size of a space this article states that a dining space when in combination with other spaces will have a minimum size of 3.25m² (35 sqft), and when it's closed off from other spaces will have a minimum size of 7m² (75 sqft).

POINT NUMBER 8:

9.5.7.1. Areas of Bedrooms

*"**(1)** Except as provided in Articles 9.5.7.2. and 9.5.7.3., bedrooms in dwelling units shall have an area not less than 7 m^2 where built-in cabinets are not provided and not less than 6 m^2 where built-in cabinets are provided."*

Summarize:
Addressing the size of bedrooms, when there aren't built-in cabinets the space will be a minimum for 7m^2 (75 sqft) and when there are built-in cabinets the space will be a minimum of 6m^2 (64 sqft).

POINT NUMBER 9:

9.5.7.2. Areas of Master Bedrooms

*"**(1)** Except as provided in Article 9.5.7.3., at least one bedroom in every dwelling unit shall have an area of not less than 9.8 m^2 where built-in cabinets are not provided and not less than 8.8 m^2 where built-in cabinets are provided."*

Summary:
This article states that at least one bedroom in the building will have an area with a minimum size of 9.8m^2 (105 sqft) without built-in cabinets and if that room does have built-in cabinets are provided will be a minimum of 8.8m^2 (94 sqft).

IV. BUILDING CODE ANALYSIS

A. PLANNING AND DESIGN APPLICATIONS

POINT NUMBER 10:

9.5.7.3. Areas of Combination Bedrooms

*"**(1)** Bedroom spaces in combination with other spaces in dwelling units shall have an area not less than 4.2 m².”*

Summarize:
When a bedroom space is combined with another area it will have a minimum size of 4.2m² (45 sqft).

IV. BUILDING CODE ANALYSIS

A. PLANNING AND DESIGN APPLICATIONS

POINT NUMBER 11:

9.5.10.1. Hallway Width

*"**(1)** The unobstructed width of a hallway within a dwelling unit shall be not less than 860 mm, except that the hallway width is permitted to be 710 mm, where,*
(a) there are only bedrooms and bathrooms at the end of the hallway furthest from the living area, and
(b) a second exitis provided,
(i) in the hallway near the end furthest from the living area, or
(ii) in each bedroom served by the hallway."

Summarize:
All unobstructed hallways must have a minimum width of 860mm (). Hallways can be 710mm () wide if it leads to bedrooms and bathrooms that are far from the living space, there is a second exit, or there is a bedroom with a hallway.

IV. BUILDING CODE ANALYSIS

A. PLANNING AND DESIGN APPLICATIONS

POINT NUMBER 12:

9.10.2.1. Occupancy Classification

*"**(1)** Every building or part of it shall be classified according to its major occupancy as belonging to one of the groups or divisions described in Table 9.10.2.1."*

Table 9.10.2.1.
Occupancy Classifications
Forming Part of Sentence 9.10.2.1.(1)

Item	Column 1 Group	Column 2 Division	Column 3 Description of *Major Occupancies*
1.	C	—	residential occupancies
2.	D	—	Business and personal services occupancies
3.	E	—	Mercantile occupancies
4.	F	2	Medium hazard industrial occupancies
5.	F	3	*Low hazard industrial occupancies* (Does not include *storage garages* serving individual *dwelling units*)

Summarize:
Every building will be identified and follow the code as per that identification according to the OBC Table 9.10.2.1.

IV. BUILDING CODE ANALYSIS

A. PLANNING AND DESIGN APPLICATIONS

POINT NUMBER 13:

9.10.9.16. Separation of Storage garages

*"**(1)** Except as provided in Sentences (2) and (3), a storage garage shall be separated from other occupancies by a fire separation having not less than a 1.5 h fire-resistance rating.*
***(2)** Except as permitted in Sentence (3), storage garages containing 5 motor vehicles or fewer shall be separated from other occupancies by a fire separation of not less than 1 h.*
***(3)** Where a storage garage serves only the dwelling unit it is attached to or built into, it shall be considered as part of that dwelling unit and the fire separation required in Sentence (2) need not be provided between the garage and the dwelling unit.*
***(4)** Where a storage garage is attached to or built into a building of residential occupancy,*
(a) an air barrier system conforming to Subsection 9.25.3. shall be installed between the garage and the remainder of the building to provide an effective barrier to gas and exhaust fumes, and
(b) every door between the garage and the remainder of the building shall conform to Article 9.10.13.15.
***(5)** Where membrane materials are used to provide the required airtightness in the air barrier system, all joints shall be sealed and structurally supported."*

Summarize:
A garage will have 1.5 hours of fire-resistance rating to protect the building occupancies. Expect if the garage holds 5 vehicles or less the fire rating will be 1 hour. If the storage garage is attached or built into the building is considered part of the dwelling unit, an air-barrier system to protect against gas and exhaust fumes, in this case all joints must be sealed and structurally sound.

IV. BUILDING CODE ANALYSIS

A. PLANNING AND DESIGN APPLICATIONS

POINT NUMBER 14:

9.10.19.3. Location of Smoke Alarms

*"**(1)** Within dwelling units, sufficient smoke alarms shall be installed so that,*
(a) there is at least one smoke alarm installed on each storey, including basements, and
(b) on any storey of a dwelling unit containing sleeping rooms, a smoke alarm is installed,
(i) in each sleeping room, and
(ii) in a location between the sleeping rooms and the remainder of the storey, and if the sleeping rooms are served by a hallway, the smoke alarm shall be located in the hallway.
***(2)** Within a house that contains an interior shared means of egress or common area, a smoke alarm shall be installed in each shared means of egress and common area."*

Summarize:
Each storey of the dwelling must have a smoke alarm, if any floors have bedrooms each bedroom must have a smoke alarm as well as an alarm in an area between the bedrooms and in a hallway leading to the bedrooms. Finally a smoke alarm must be installed in shared exits and common areas.

POINT NUMBER 15:

9.33.4.2. Location of Carbon Monoxide Alarms

*"**(1)** Where a fuel-burning appliance is installed in a suite of residential occupancy, a carbon monoxide alarm shall be installed adjacent to each sleeping area in the suite.*
***(3)** Where a storage garage is located in a building containing a residential occupancy**,** a carbon monoxide alarm shall be installed adjacent to each sleeping area in every suite of residential occupancy that is adjacent to the storage garage.*
***(4)** Where a storage garage serves only the dwelling unit to which it is attached or built in, a carbon monoxide alarm shall be installed adjacent to each sleeping area in the dwelling unit.*
***(5)** A carbon monoxide alarm shall be mechanically fixed,*
(a) at the manufacturer's recommended height, or
(b) in the absence of specific instructions, on or near the ceiling."

Summarize:
This article addresses where carbon monoxide alarms must be placed. If a dwelling has a fuel-burning appliance, a storage garage a carbon monoxide alarms must be installed adjacent to each sleeping area. The installation will be based on the manufacturer's recommendation, in the event that there are no manufacturer's recommendations it will be installed on or near the ceiling.

V. INFORMATION GATHERING AND DESIGN DEVELOPMENT

V. INFORMATION GATHERING AND DESIGN DEVELOPMENT

A. CLIENT PROFILE

Angela and Dan Ciavarella are planning for their retirement and would like from downsize their current home. They are in their 60s and recently adopted a German Shepard. They have two children in their 30s with families of their own. Angela worked for 35 years and has recently retired, not ready to stop working completely she started her own business and now works from home. Dan is a security trainer working full time and is starting to plan for his own retirement.

Angela and Dan would like to start planning for their retirement home and customize it to suit their future needs as they age. With this in mind they have asked that their home be accessible and easily navigatable. They would like to include a spare bedroom for family and friends. Angela would like to have a home office for her business, she will not need to see clients in her home but she will need lots of storage. Dan would also like to incorporate a filing system in the office for his paper work as well.

V. INFORMATION GATHERING AND DESIGN DEVELOPMENT

B. CLIENT LIST OF REQUIREMENTS

1. Physiological
    1. Natural light
    2. Windows and a connection to the outdoors
    3. Food and water
    4. Shelter
2. Safety and Security
    1. Alarm system
    2. Proximity to emergency services and medical care
    3. Accessibility features
3. Sociological
    1. Open rooms for gatherings
    2. Welcoming
    3. Calming and relaxing
    4. Private
4. Philosophical
    1. Traditional building style
    2. Family/cultural traditions
5. Self-Actualizing
    1. Easy access to the outdoors
    2. Kitchen is the heart of the building

V. INFORMATION GATHERING AND DESIGN DEVELOPMENT

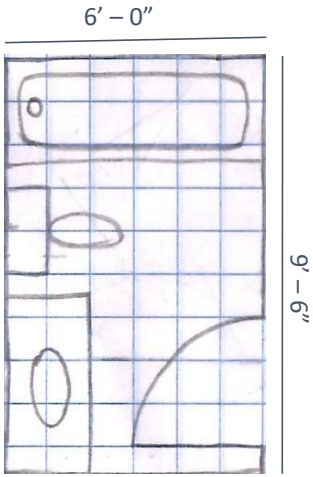
C. PROGRAM OF FUNCTIONS

Primary Functions	Secondary Functions	FFE	Dimensions (LxWxH)
Entry	main door	Rug	5'-0x8'-0"
	entrance	Ottoman	1'-6"x3'-0"x2'-9"
	storage		
	greating/farewell		
2nd floor bathroom	cleaning	Sink	1'-9"x1'-6"x0'-6"
	storage	Toilet	1'-5"x1'-2"x2'-4"
		Mirror	4'-0"x3'3"x0.8"
	hygene	Bath/Shower	5'-6"x2'-5"x2'-4"
	bathing	Rug	2'-0"x3'-0"
Garage	storage	Shelving	6'-0"x4'-0"x2'-0"
	organizing		
Living room	entertaining	Sofa	6'-8"x3'-0"x2'-11"
	resting	Coffee table	1'-6"x3'-6"x1'-10"
	reading	Side table	2'-4"x2'-3"x1'-4"
		TV	4'-0"x2'-4"x0'-2.3"
		Video equipment	
Laundry room	cleaning	Washer	2'-3"x3'-2"x2'-8"
	organizing	Dryer	2'-3"x3'-2"x2'-8"
	storage	Sink	1'-2"x2'-1'x1'-10"
Mudroom	entry	Storage system	6'-0"x4'-0"x2'-0"
	organizing		
	storage		
Kitchen	baking	Stove	2'6"x3'11"x2'-1"
	cooking	Fridge	2'-9"x5'-10"x2'-9"
	eating	Microwave	2'-4"x1'-3"x1'-4"
	gathering	Coffee machine	
	cleaning	Sink	1'-9"x1'-6"x0'-6"
	storage	Dishwasher	2'-0"x2'-11"x2'-1"
	drinking	Phone	6"x9.5"x5"

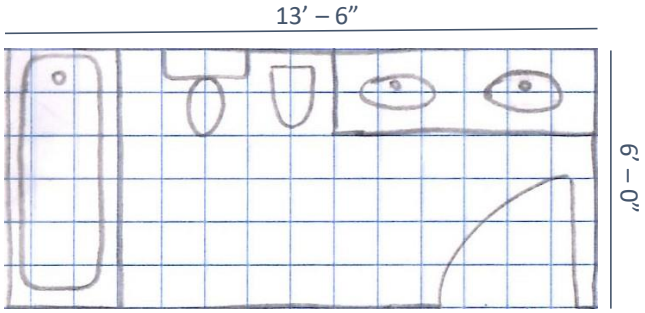
Primary Functions	Secondary Functions	FFE	Dimensions (LxWxH)
Dining room	gathering	Table	5'-7"x3'-0"x2'-6"
	eating	Chairs	2'-9"x1'-4"x1'-6"
	socializing		
2nd exit	access to exterior	Sliding doors	
Deck	gathering	Table	5'-7"x3'-0"x2'-6"
	relaxing	Chairs	2'-9"x1'-4"x1'-6"
	reading		
	sunning		
Master bedroom	resting	Bed	5'-6"x7'-4"x4'-0"
	sleeping	Side table	2'-4"x2'-3"x1'-4"
	reading	Dresser	5'-4"x3'-0"x1'-5"
	changing	Mirror	4'-0"x3'3"x0.8"
	storage		
Ensuite	bathing	Toilet	1'-5"x1'-2"x2'-4"
	cleaning	Bidet	1'-2"x1'-3"x2'-1"
		Tub	5'-6"x2'-5"x2'-4"
		Shower	5'-6"x2'-5"x2'-4"
		Mirror	4'-0"x3'3"x0.8"
		Sink	4'-0"x1'-4"x0'-6"
Guest bedroom	sleeping	Bed	5'-6"x7'-4"x4'-0"
	relaxing	Side table	2'-4"x2'-3"x1'-4"
	storage	Mirror	4'-0"x3'3"x0.8"
Office	computing	Deck	5'-7"x3'-0"x2'-6"
	networking	Chairs	1'-11"x2'-0"x2'-0"
	filing	Filing Cabinet	6'-0"x4'-0"x2'-0"
		Computer	1'-6"x1'-0"x6"
		Printer	2'-6"x3'-0"x2'-6"
		Phone	6"x9.5"x5"
Covered patio	entering	N/A	N/A
	exiting		
	greeting		
	salutations		

V. INFORMATION GATHERING AND DESIGN DEVELOPMENT

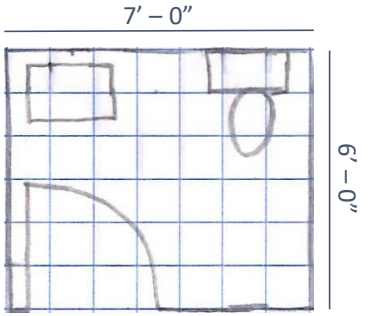
D. SPACE CALCULATION DRAWINGS



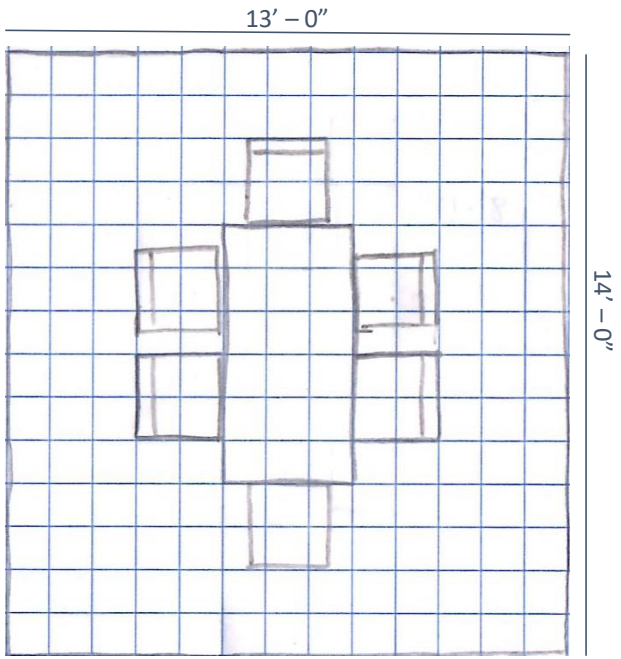
3-piece bathroom
57 sqft



5-piece bathroom
81 sqft



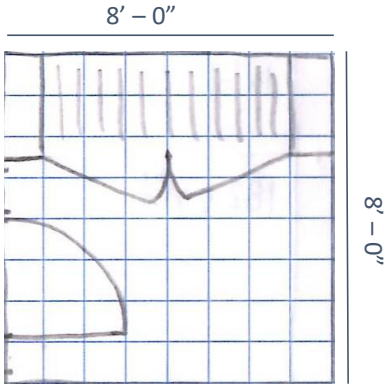
2-piece bathroom
42 sqft



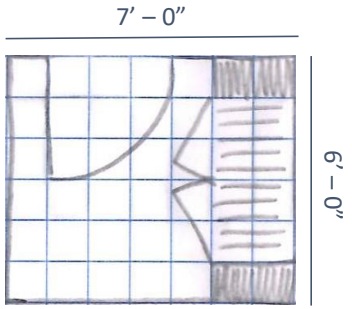
Dining room
182 sqft

V. INFORMATION GATHERING AND DESIGN DEVELOPMENT

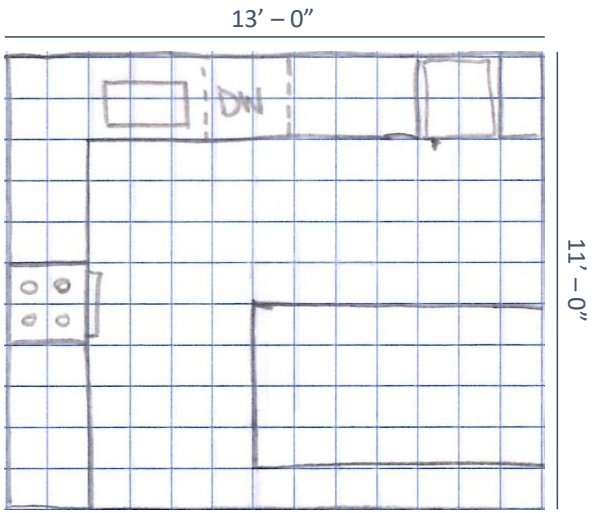
D. SPACE CALCULATION DRAWINGS



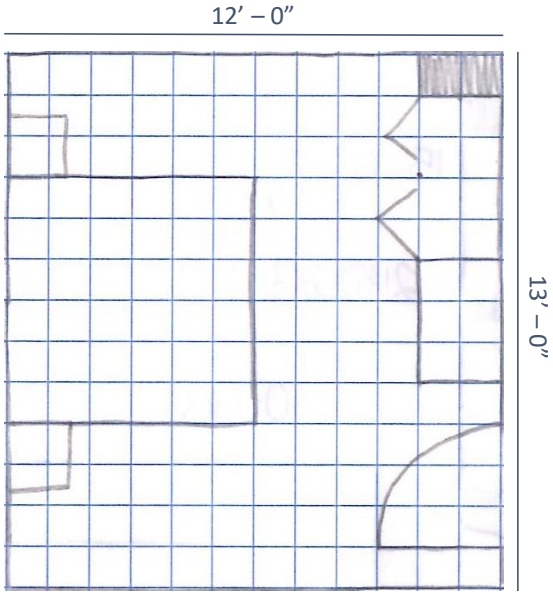
Entry
64 sqft



Exit to garage
42 sqft



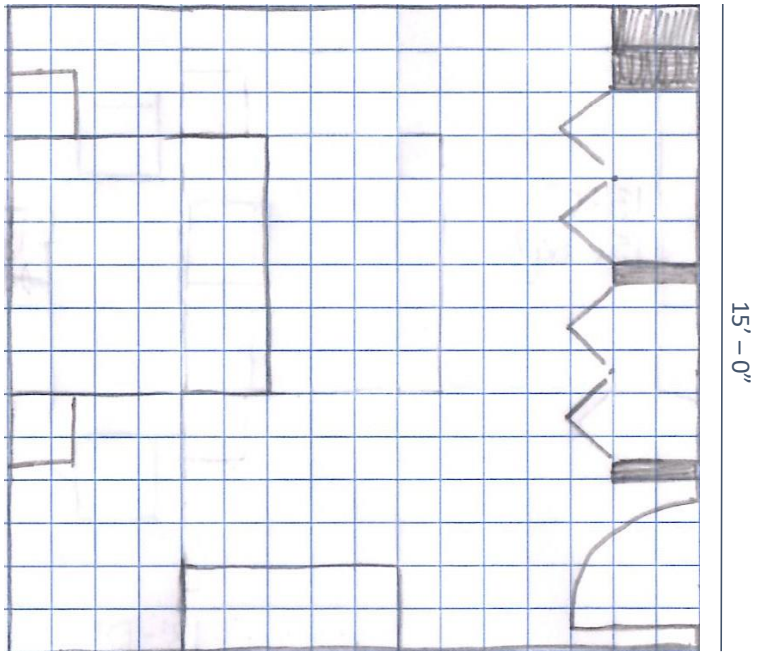
Kitchen
143 sqft



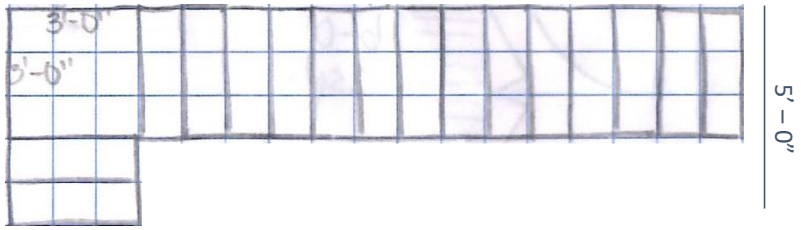
Guest bedroom
240 sqft

V. INFORMATION GATHERING AND DESIGN DEVELOPMENT

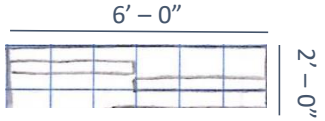
D. SPACE CALCULATION DRAWINGS



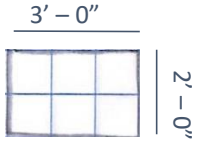
Master bedroom
240 sqft



Stairs to basement
57 sqft



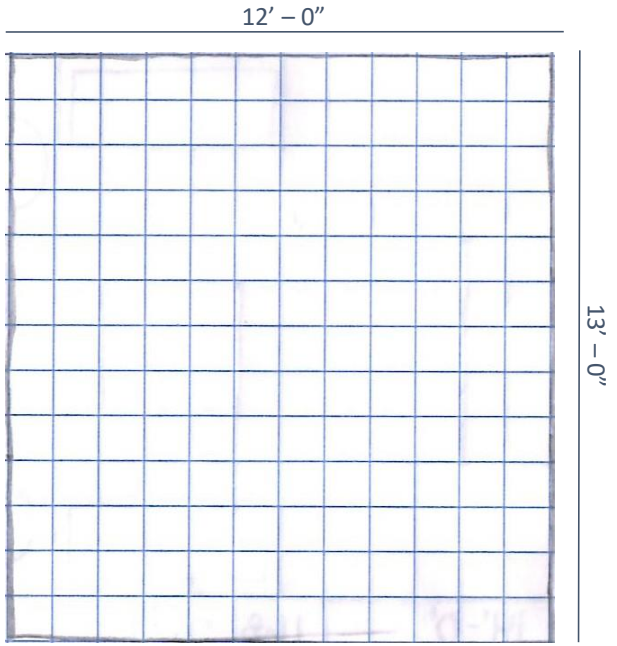
Exit to deck
9 sqft



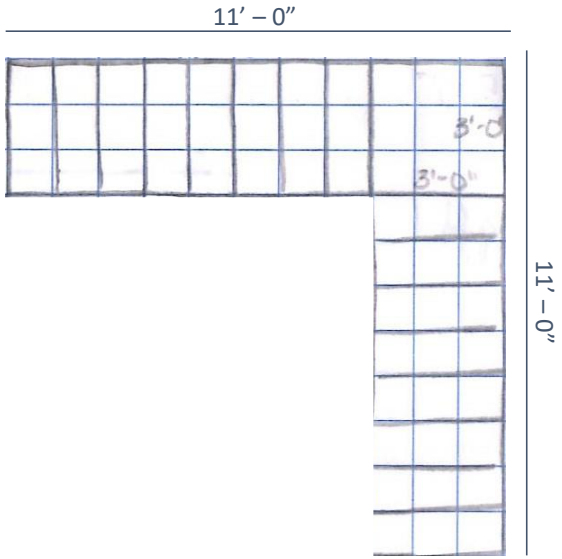
Electrical room
6 sqft

V. INFORMATION GATHERING AND DESIGN DEVELOPMENT

D. SPACE CALCULATION DRAWINGS



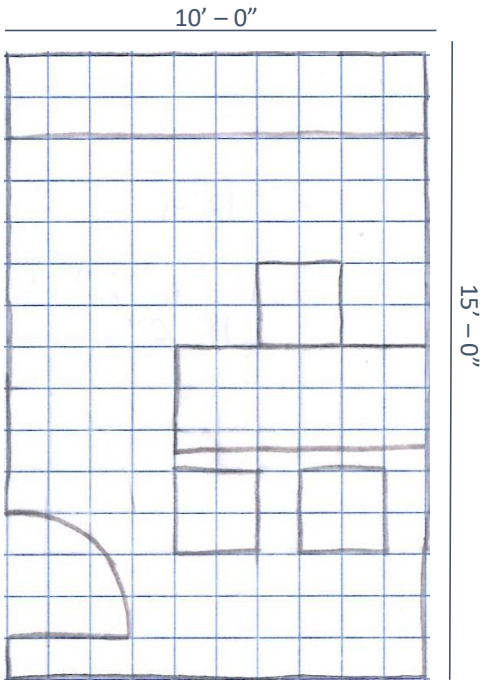
Mechanical room
156 sqft



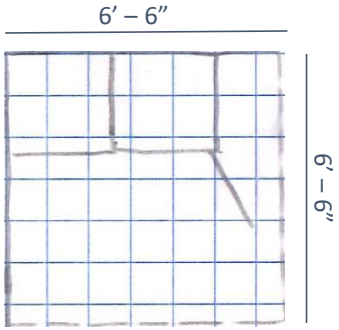
Stairs to 2nd floor
57 sqft

V. INFORMATION GATHERING AND DESIGN DEVELOPMENT

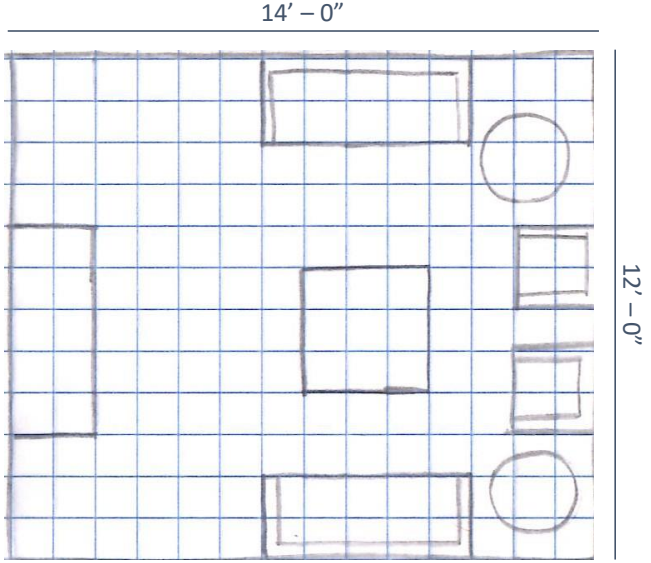
D. SPACE CALCULATION DRAWINGS



Office
150 sqft



Laundry
42 sqft



Living room
168 sqft

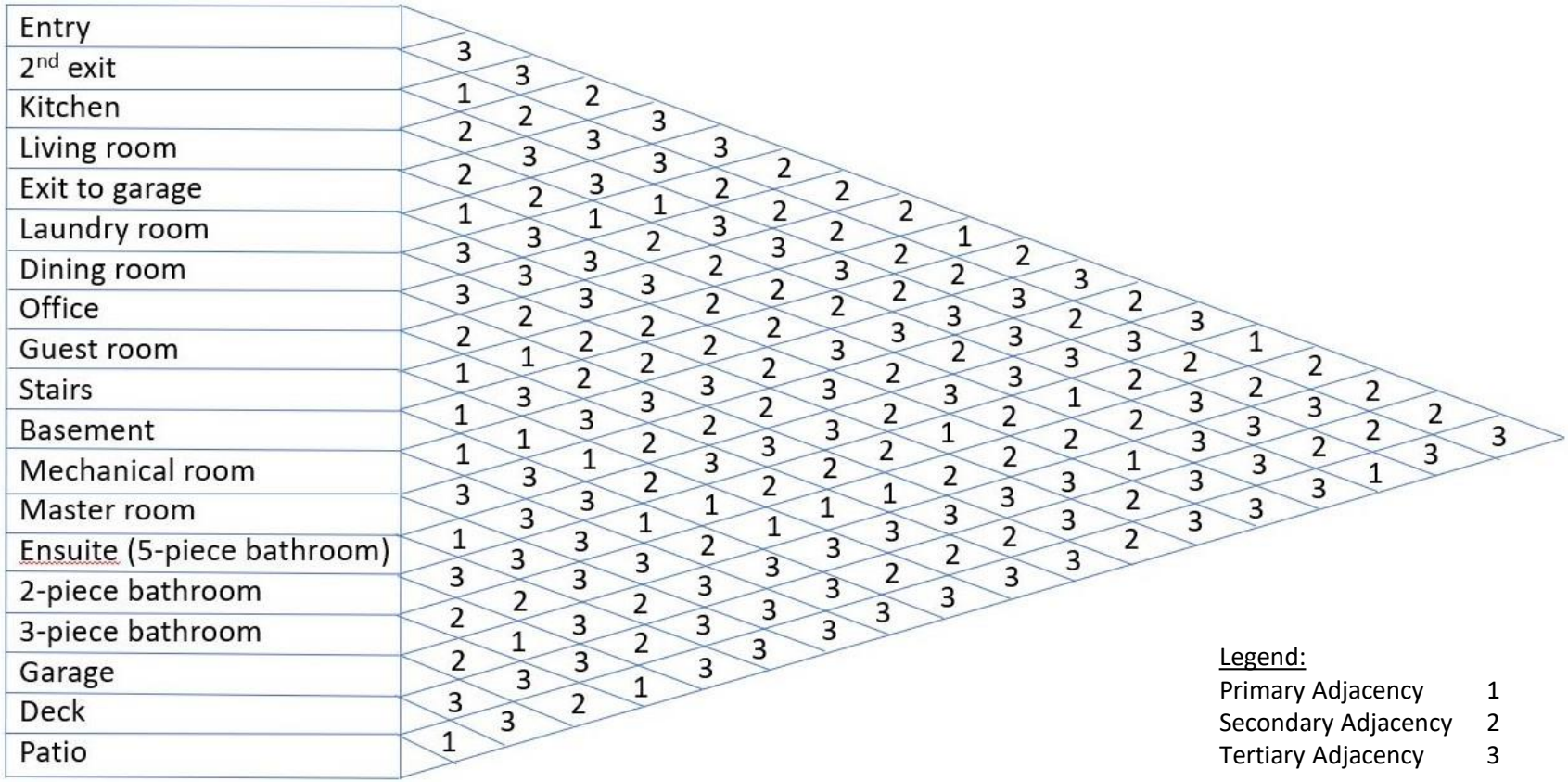
V. INFORMATION GATHERING AND DESIGN DEVELOPMENT

E. SPACE CALCULATION SUMMARY

Primary Level Function	SF. Requirement	SF. Circulation Req. (25% of sqft. Req.)	SF Total Finished Floor Area	SF Total Unfinished Area	SF Grand Total All Functions
Master bedroom	225	56.25	281.25		
Guest bedroom	156	39	195		
Entry	64	16	80		
Laundry	42	10.5	52.5		
Dining room	150	37.5	187.5		
Office	115	28.75	143.75		
Exit to deck	9	2.25	11.25		
Exit to garage	42	10.5	52.5		
Stairs to basement	57	14.25	71.25		
Stairs to 2nd floor	57	14.25	71.25		
Kitchen	130	32.5	162.5		
Living roon	130	32.5	162.5		
2-piece bathroom	42	10.5	52.5		
5-piece bathroom	70	17.5	87.5		
3-piece bathroom	57	14.25	71.25		
Electrical room	6	1.5	7.5		
Mechanical room	150	37.5	187.5		
Unfinished basement	800	200		1000	
Deck	300	75		375	
2-Car garage	200	50		250	
Covered Porch	45	11.25		506.25	
Totals			1877.5	2131.25	4008.75

V. INFORMATION GATHERING AND DESIGN DEVELOPMENT

F. ADJACENCY MATRIX



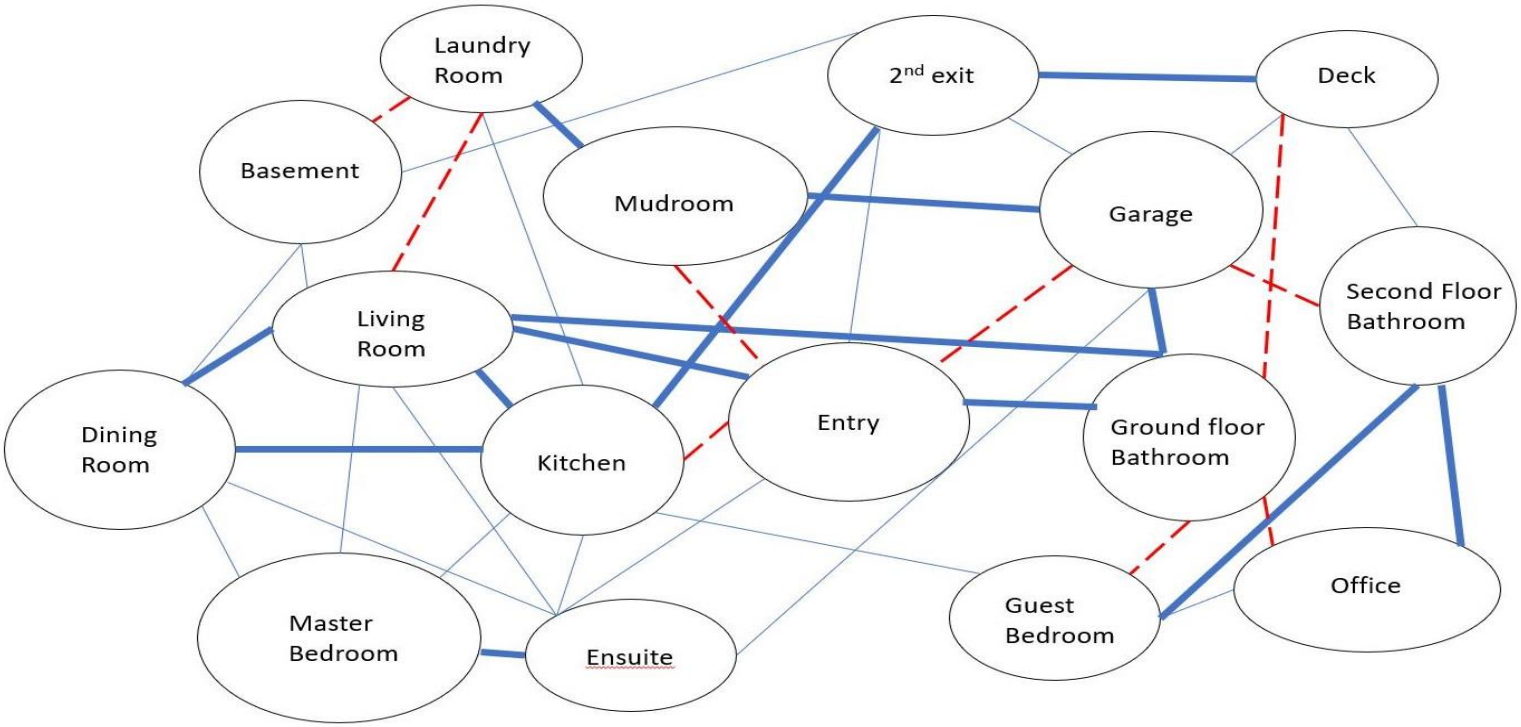
Legend:

Primary Adjacency	1
Secondary Adjacency	2
Tertiary Adjacency	3

VI. SCHEMATICS: SUGGESTED SCALE

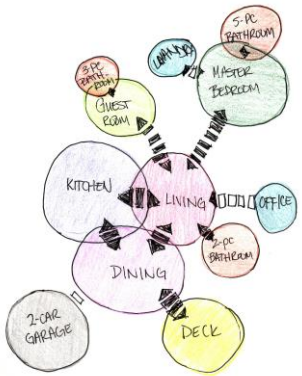
VI. SCHEMATICS: SUGGESTED SCALE

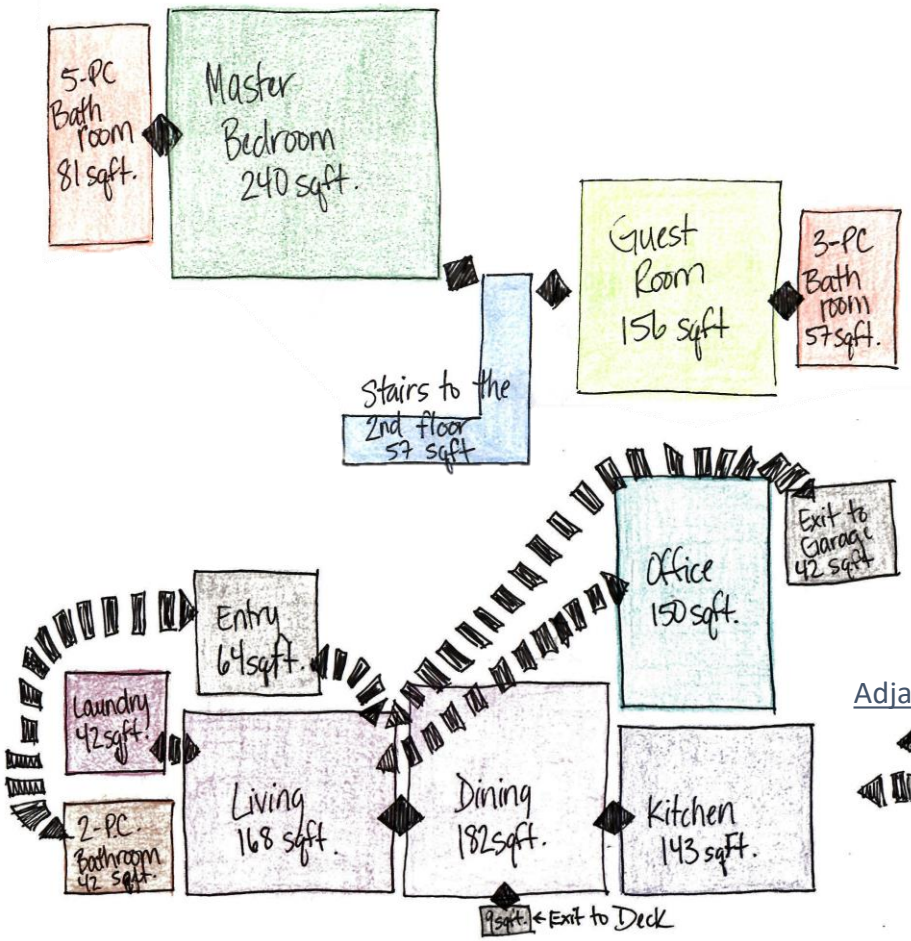
A. ADJACENCY DIAGRAM



VI. SCHEMATICS: SUGGESTED SCALE

B. SPATIAL DIAGRAM





Adjacency Legend:

Direct Connection

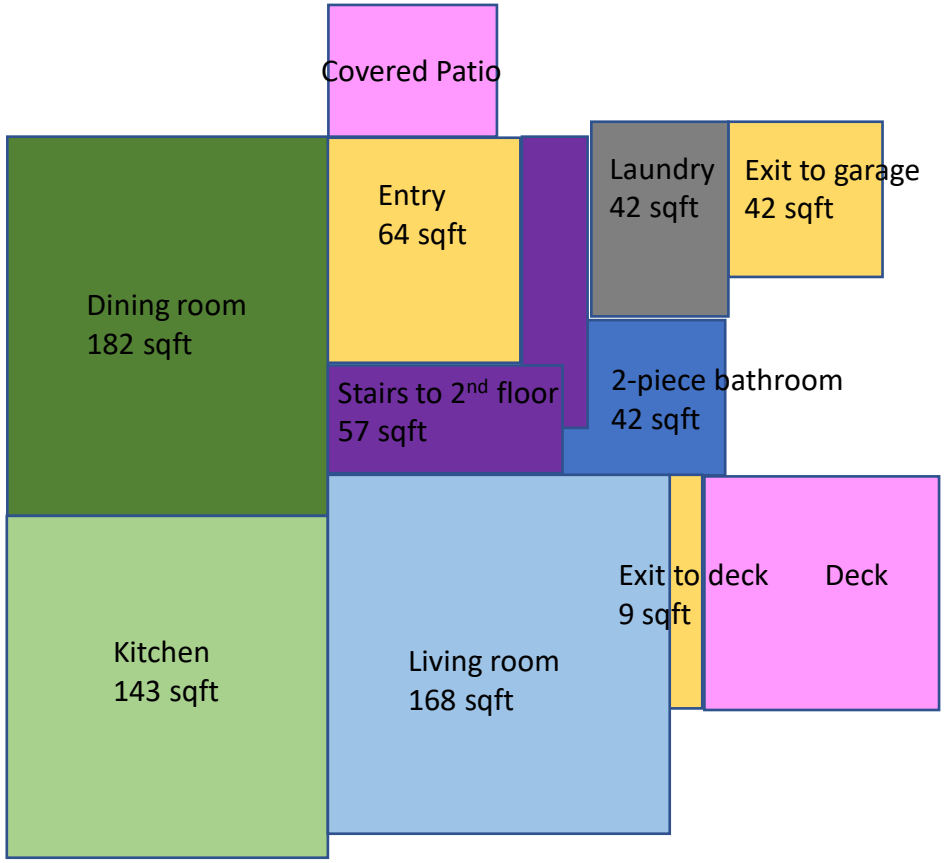
Second Connection

NORTH

Scale 1/8” = 1’-0”

VI. SCHEMATICS: SUGGESTED SCALE

C. BLOCK PLANS

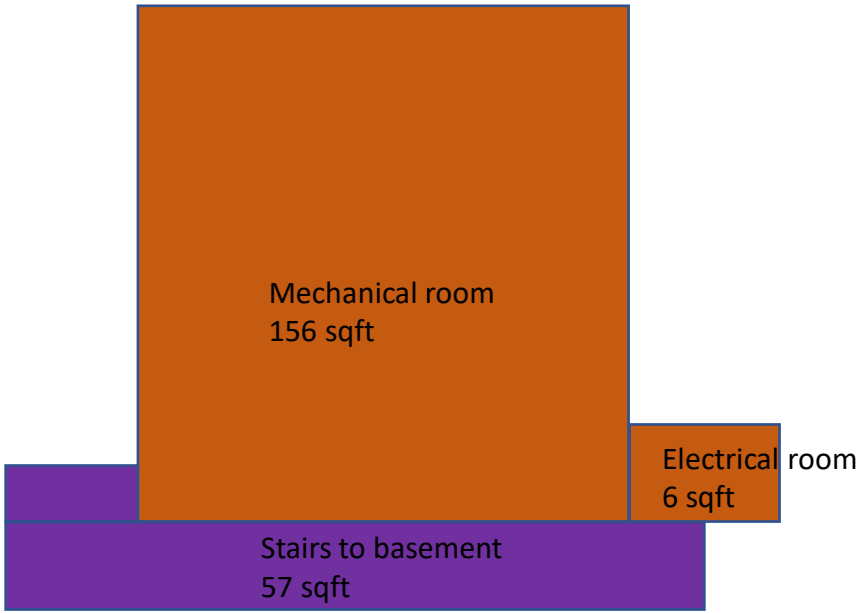


NORTH

Scale ¼" = 1'-0"

VI. SCHEMATICS: SUGGESTED SCALE

C. BLOCK PLANS



NORTH

Scale ¼” = 1’-0”

VI. SCHEMATICS: SUGGESTED SCALE

C. BLOCK PLANS

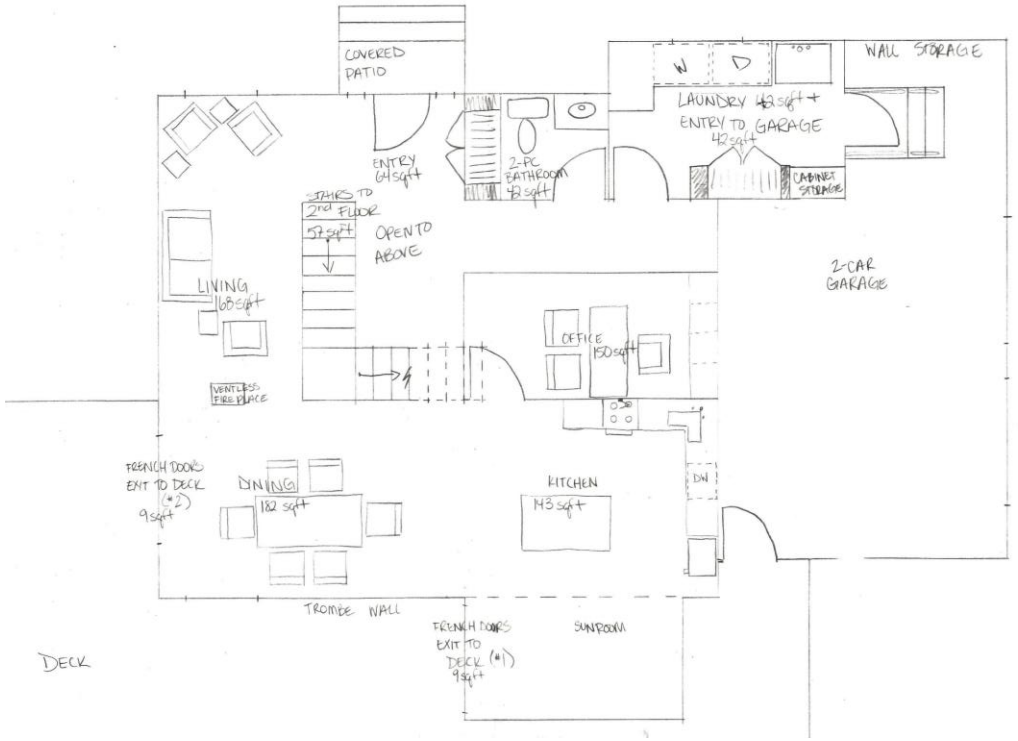
NORTH

Scale ¼” = 1’-0”

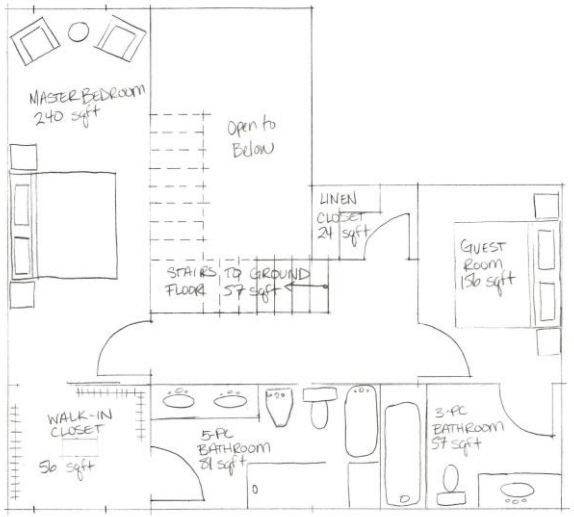
VI. SCHEMATICS: SUGGESTED SCALE

D. INITIAL SPACE PLANS

Ground Floor



Second Floor

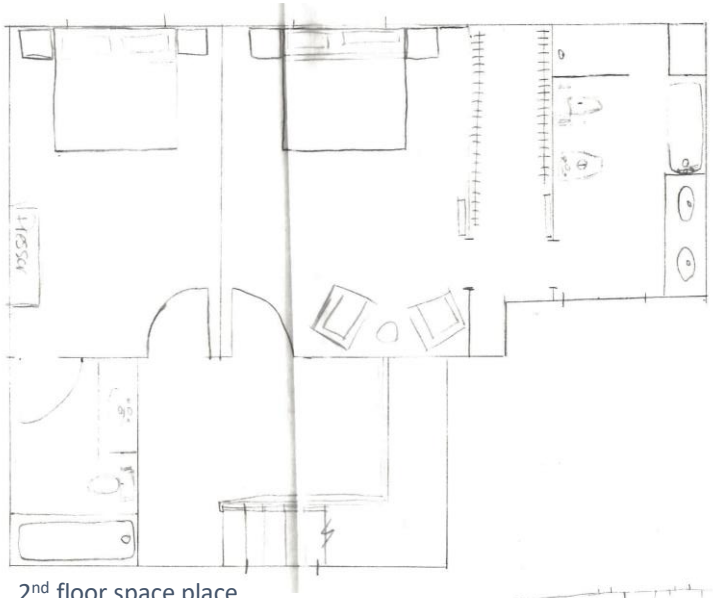


NORTH

Scale ¼” = 1’-0”

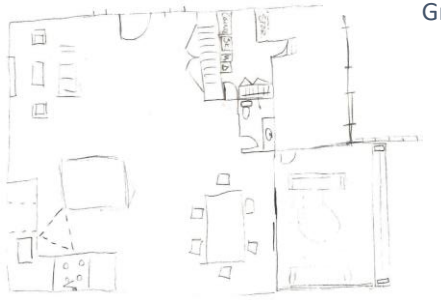
VI. SCHEMATICS: SUGGESTED SCALE

D. INITIAL SPACE PLANS



2nd floor space place

Ground floor space place



Initial ground floor sketch

NORTH

Scale ¼” = 1’-0”

VII. DESIGN CONCEPTUALIZATION

VII. DESIGN CONCEPTUALIZATION

A. DESIGN STATEMENT

A home that is warm and comforting, when you walk through the doors it embraces you like a hug. Find cozy spaces in every corner of the house. This is a place to leave the stresses of your busy day behind and find rest and relaxation in this retreat.

Kitchen

Warm lighting

Private retreat

VII. DESIGN CONCEPTUALIZATION

B. FUNCTION

The design of this home is intended to function as a safe and accessible space as the owner age in place. As the home is designed with special features to accommodate the needs seniors it will not sacrifice beauty. Instead beauty and function will work together to create a peaceful home. The home also has live/work space, the work space has to be isolated from the rest of the environment to provide silence and focus. The work space will also service to organize work materials so that they are not interrupting the daily living.

Live/Work Space

Simple Work Space

Home Office

VII. DESIGN CONCEPTUALIZATION

C. FORM

The exterior of the home will follow a traditional style to blend to follow a cohesive look of the homes around it. Entering the home and maneuvering around the spaces will be seamless. Through the open design the home owners and visitors will be able to navigate and find features easily. Large windows are positioned to take advantage of the natural sun light on the interior and creates an engaging façade for the building. Hiding behind traditional visuals will be modern features to accommodate todays style of living and facilitate aging in place.

Traditional Facade

Traditional Design

VII. DESIGN CONCEPTUALIZATION

D. VISTAS AND STRUCTURE TO NATURE INTERFACE

The master bedroom has a beautiful view of the conservation area behind the property, furthermore the back yard will provide an outdoor living space that can be used in the warmer months. The back yard provides an opportunity to create a green space which will be a relaxing space for entertaining. Adding trees to the shared property line will be added privacy for the neighbours, and shading for the warmer summer months. When in the back yard the owners will be able to experience the sounds of nature coming from the conservation area located to the south of the property. With a protected land in close proximity the clients will be able to not only experience nature from afar, they are able to take walks through the land whenever they would like. Also the client will be able to enjoy a sunroom, it will capture heat from the sun, and the clients will be able to enjoy the warmth in the space during the winter months and maintain free herbs and plants year round in this space. Both the back yard space the sun room will be a calming environment to sit and have a cup of tea to decompress from the work day.

Conservation Area

Sunroom Interior

Sunroom Exterior

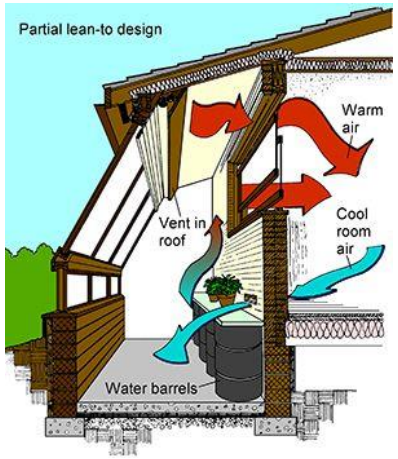
VII. DESIGN CONCEPTUALIZATION

E. PASSIVE SOLAR RESOLUTION

In consideration of the environment this home will take advantage of its placement on the property in order to use the sun and wind to it's fullest potential. It will also contain a trombe wall on the south side of the home to capture the most heat from the sun and slowly release it back into the home. BY using spray foam installation it reduces any possible breaks in the envelop of the home helping to maintain the home's R-value. Furthermore using a longer over hang along the path of the sun will block some of the heat of the sun during the summer months and along the sun's rays to enter the home during the winter months when they're needed.

Trombe Wall

Overhang



Air Flow

VII. DESIGN CONCEPTUALIZATION

F. ACTIVE SOLAR RESOLUTION

Along with passive solar applications solar panels will be installed on the south and west roof lines to capture energy from the sun and this is what will be used in the home.

Solar Panels

Solar Panels on breezeway

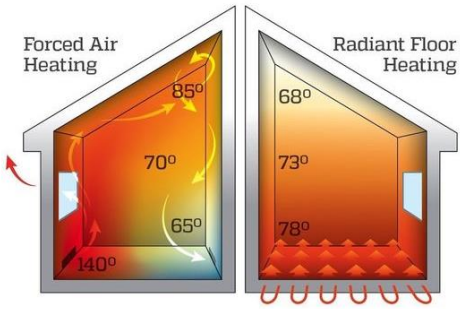
Tesla Solar Panels

VII. DESIGN CONCEPTUALIZATION

G. SUSTAINABLE APPLICATIONS

By using recycled materials and reducing construction waste, along with the passive and active solar applications in the home we are creating a home that considers the wellbeing of the users and the environment. This home will utilizes features such as grey water collection to water the lawn and for gardening purposes. In addition the home will use radiant heated floors that produces an low energy way of heating the home, the water that is pumped through the tubs will also be provided by the grey water collection.

Grey Water Collection



Radiant Heated Floors

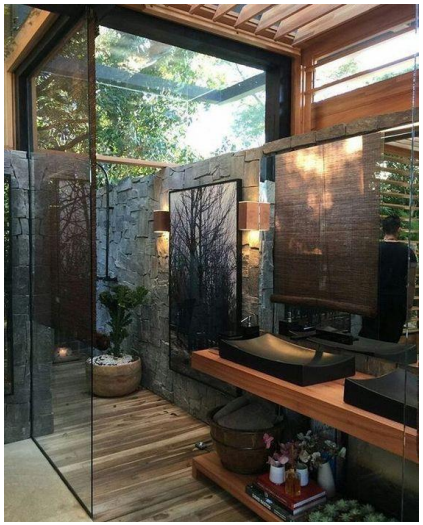
Reduce Construction Waste

VII. DESIGN CONCEPTUALIZATION

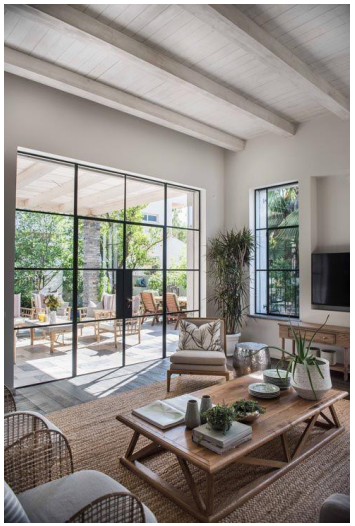
H. ENVIRONMENTAL PSYCHOLOGY

This home is designed to be an oasis from the busy life running around the city. Through the use of biomimicry to bring the outside in, calming spaces are created. Following the philosophy of architect Barbara Stewart has lead out, mimicking nature will create a safe space and contrast for seniors aging in place, they will be able the stay in their home safely for long, with pathways that are easily navigable. This is achieved be using contrast that resembles nature, a dark wood floor to simulate the ground, a mid-tone wall to adopt the various shades of foliage around us and a white/light tone on the ceiling to reflect the sky. And mimicking natural texture will help define individual spaces.

Biomimicry



Natural Design

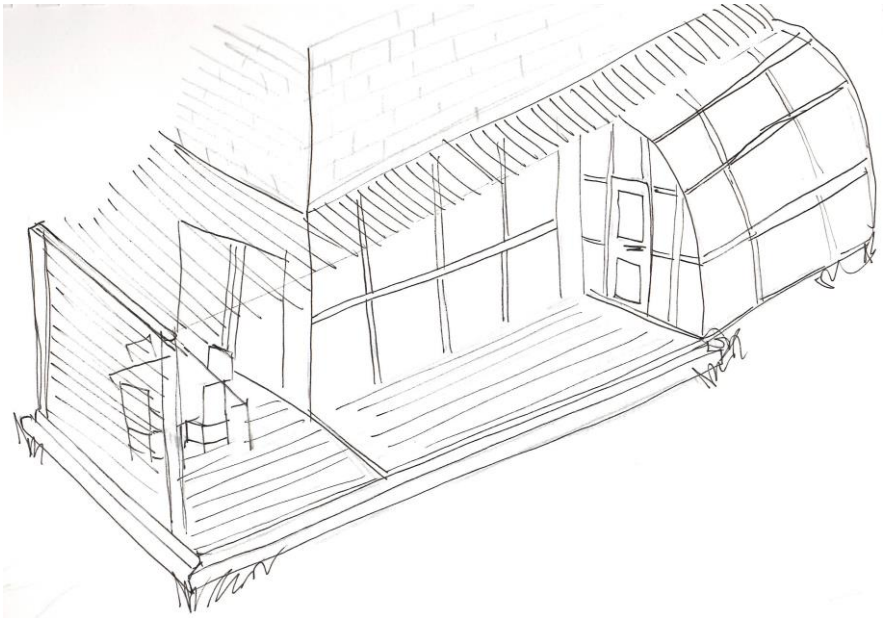


Nature through textures

VIII. DESIGN SKETCHES AND MASSING MODEL

VIII. DESIGN SKETCHES AND MASSING MODEL

A. DEVELOPMENT SKETCHES



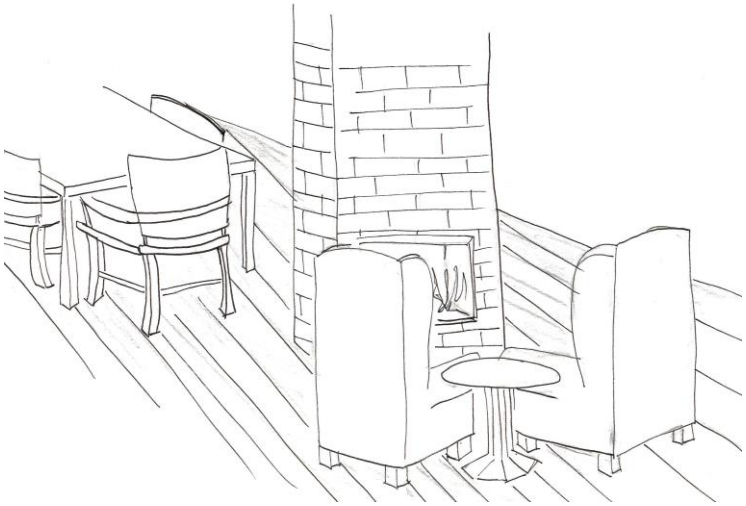
Back Yard – Covered Deck and Sunroom

Front Facade – Covered Entry with path between driveway and front door

VIII. DESIGN SKETCHES AND MASSING MODEL

A. DEVELOPMENT SKETCHES

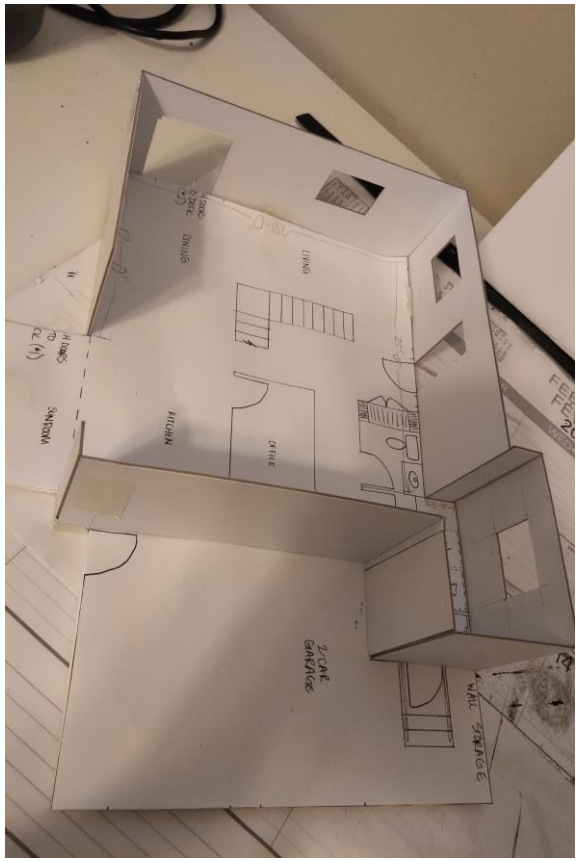
Master Bedroom



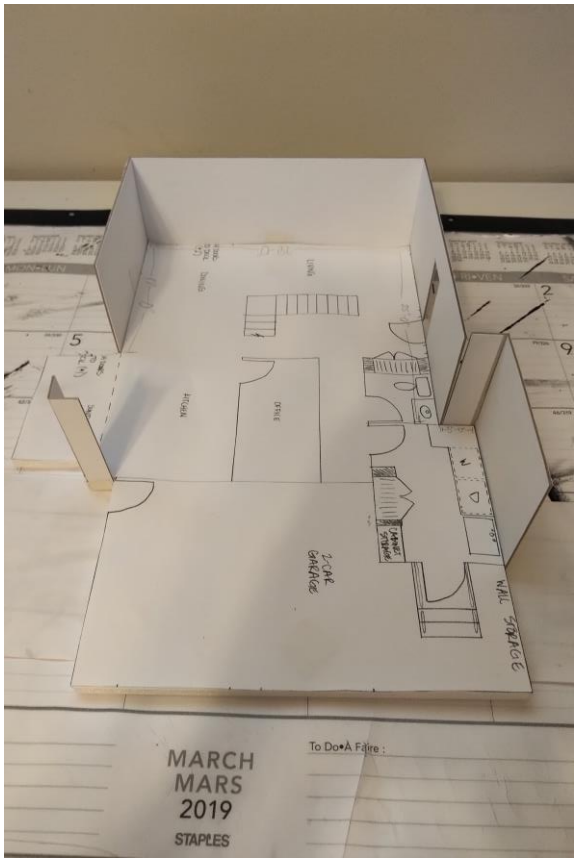
Dining and Fireplace Seating

VIII. DESIGN SKETCHES AND MASSING MODEL

B. MODEL



1. Mapping in Walls of First Floor



2. Gluing Ground Floor

I began by mapping out the form using the initial floor plan, I was then able to begin evaluating at what height I wanted the ceiling of the ground and second floor. I was also able to consider air flow from one window to another and the natural path the wind takes across the landscape.

VIII. DESIGN SKETCHES AND MASSING MODEL

B. MODEL

3. Garage Planning

4. Framing South Wall/Trombe Wall

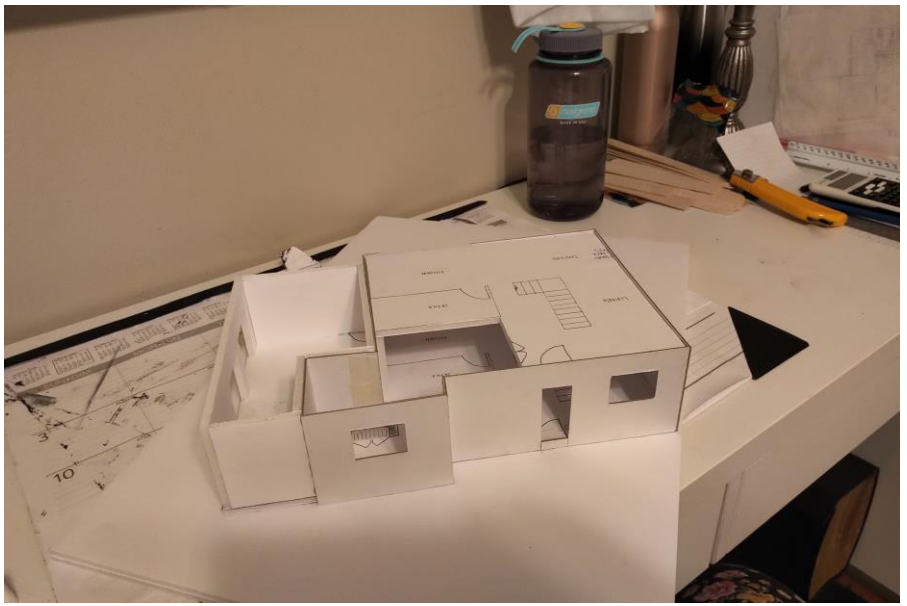
Once the ground floor was mapped in, I decided to construct the 2-car garage. Using a thicker material then the house walls. This way I could differentiate between different building materials.

VIII. DESIGN SKETCHES AND MASSING MODEL

B. MODEL

5. Garage Development

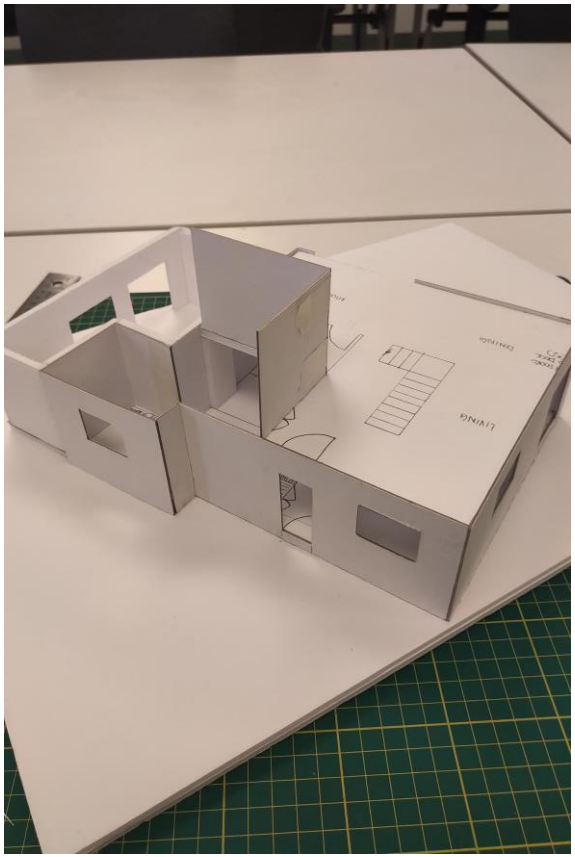
I later decided that the garage could be taller to accommodate extra storage. A taller garage would also add a more dynamic roof line. The second floor was created in the same manner the ground floor was. I first layered out the foot print of the floor using the initial floor plan, and continued building the walls up.



6. Blocking in Second Floor

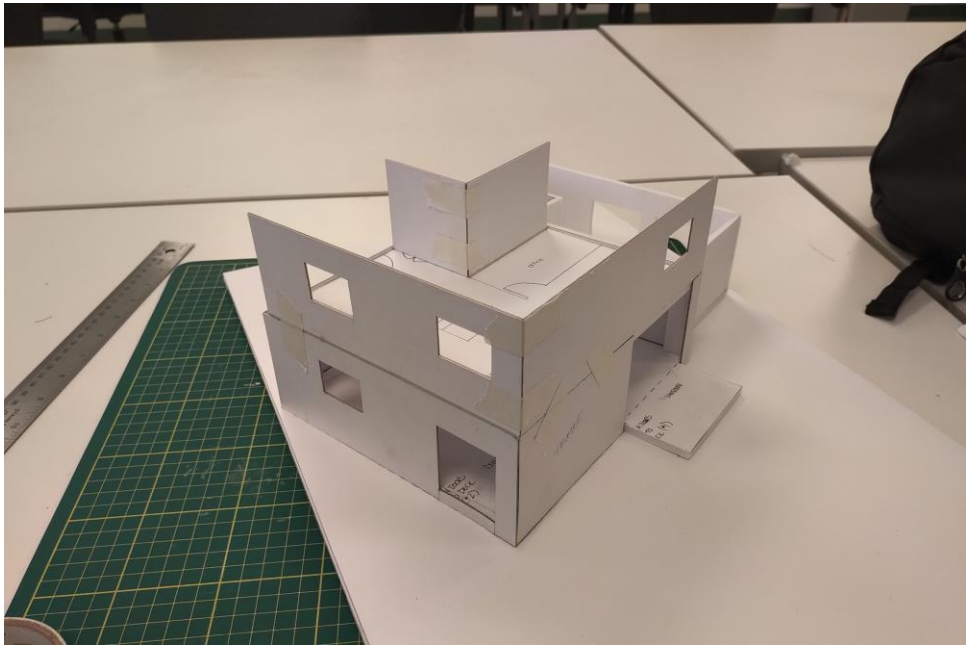
VIII. DESIGN SKETCHES AND MASSING MODEL

B. MODEL



7. Second Floor North - East Wall

I'm currently planning out the possible roof options.



8. Second Floor South Wall

IX. PRODUCT CUT SHEET

EQUIPMENT

Hover over image to zoom
Images are for reference only.

- Overall Dimensions: 24 1/4" W x 34 3/16" H x 24 5/8" D
- Wine Storage Capacity: 46 Bottles
- Door Clearance: 25 3/8"
- Star-K Certified
- Electrical Supply: 115 VAC, 60 Hz
- Electrical Service: 15 amp dedicated circuit

24" Coffee System - Stainless Steel

- Overall Dimensions: 23 1/2" W x 17 7/8" H x 15 1/2" D
- Receptacle: 3-prong grounding-type

24" Dishwasher with Water Softener - Panel Ready

Wi-Fi Enabled

- Overall Dimensions: 23 5/8" W x 34 1/2" H x 23 1/4" D
- Door Clearance: 26 3/4"
- Sabbath Mode disables sounds and interior lights, and prevents changes in the state of the control display.
- Sound Level: 41 dBA (Model and cycle/option dependent)
- Receptacle: 3-prong grounding-type
- Water Connection: 5' braided tubing with 3/8" female compression fitting
- Drain Connection: 5' (1.5 m) corrugated tubing
- Pressure: 30–140 psi
- Electrical Supply: 115 VAC, 60 Hz
- Electrical Service: 15 amp dedicated circuit
- Cord Length 3'

Hover over image to zoom
Images are for reference only.

- Overall Dimensions: 42" W x 84" H x 24" D
- Refrigerator Capacity: 17.9 cubic feet
- Freezer Capacity: 6.3 cubic feet
- Door Clearance: 22 1/4"
- Drawer Clearance: 23 5/8"
- Star-K Certified
- Annual Energy Usage: $83 (693 kWh)
- Receptacle: 3-prong grounding-type
- Electrical Supply: 115 VAC, 60 Hz
- Electrical Service: 15 amp dedicated circuit

48" Dual Fuel Range - 4 Burners and Infrared Dual Griddle

Model # DF484DG

See model options

Download reference guide

ADD TO MY FAVORITES

48" Dual Fuel Range - 4 Burners and Infrared Dual Griddle

Features

- Cook at higher highs and lower lows with four dual-stacked, sealed burners that produce up to 20,000 Btu and
- Clean up spatters and spills easily

48" Dual Fuel Range - 4 Burners and Infrared Dual Griddle

Hover over image to zoom
Images are for reference only.

- Cook at higher highs and lower lows with four dual-stacked, sealed burners that produce up to 20,000 Btu and deliver as low as 300 Btu
- Rely on two 7,500 Btu infrared double griddle to sear burgers, stir-fry vegetables, and more
- Clean up sloshes and spills easily with the seamless, sealed, black porcelain-coated burner pans
- Assures predictably delicious results with a variety of modes including Convection Roast, Proof, and Dehydrate
- Control heat and airflow expertly as dual convection creates just the right cooking environment for everything from Cornish hens to cherry pie to butternut squash
- Operate easily with a control panel that rotates out of sight when not in use
- Leave nothing to chance. Our temperature probe alerts you when your dish has reached the desired temperature for worry-free, delicious results
- Includes options such as self-clean, delayed start, timed cook, Sabbath mode, and more
- Re-ignites flame automatically with our spark ignition system for improved temperature control and added safety
- Move pots and pans around easily with continuous cast-iron grates
- Find your kitchen style with a choice of iconic red, black, or brushed stainless control knobs
- See food clearly with bright interior halogen lights and large double-panel glass door windows

54" Outdoor Gas Grill

Hover over image to zoom
Images are for reference only.

- Overall Dimensions: 54" W x 27" H x 30" D
- Receptacle: 3-prong grounding-type, GFCI

FIXTURES

ONLY AT HOME DEPOT

EVERLY®

67" x 36" Freestanding Tub with Integrated Waste and Overflow

MODEL#: B14451-6736-WH

View Full Everly® Bathroom Collection

★★★★★ (0) Write A Review | Ask A Question

- Durable two-piece acrylic construction
- Factory-installed waste and overflow drain
- Backed by Delta Faucet's 10-Year Limited Warranty

Finish: **WHITE**

PRODUCT FEATURES | DOCUMENTS & SPECS | REVIEWS | Q&A | PART LIST

Immerse yourself in a deeply relaxing soak with the Delta Everly® Freestanding Bathtub. Constructed from lightweight, durable acrylic material, this soaking tub helps to create a tranquil bathing experience and is easy to clean and maintain. The factory-installed integrated overflow and waste drain helps to reduce potential leak points and simplify the installation process. Also available in 60 in. X 32 in. to fit smaller spaces. Coordinates with the Everly bath collection.

- Vacuum formed acrylic reinforced with fiberglass
- Scratch, stain, and fade resistant high gloss finish
- Installation-friendly two-piece design
- Accepts deck mounted faucet
- Includes integral pop-up drain and slotted overflow with cover
- 2 in. diameter (51 mm) drain opening
- 3-1/4 in. (83 mm) drain to floor clearance

STRYKE™

Single Handle Floor Mount Tub Filler Trim

MODEL#: T47766-CZFL

View Full Stryke™ Bathroom Collection

★★★★★ (0) Write A Review | Ask A Question

WaterSense® Labeled

Finish: **CHAMPAGNE BRONZE**

PRODUCT FEATURES | DOCUMENTS & SPECS | REVIEWS | Q&A | PART LIST

Product Support, Repair Parts & Technical Specifications

View Maintenance & Installation Sheet

View Technical Specifications

View Parts & Accessories Diagram

Installation Information


Single hole installation

Flow Rate:	1.75 gpm @ 80 psi, 6.6 L/min @ 552 kPa
Spout Height:	42-29/32"
Spout Length:	9-23/32"
Deck Thickness:	3"

FEATURED ACCESSORIES





PIVOTAL®

Single Handle Exposed Hose Kitchen Faucet with Touch$_2$O Technology

MODEL#: 9693T-PN-DST

View Full Pivotal® Kitchen Collection

★★★½☆ (3) Write A Review | Ask A Question

Finish: **POLISHED NICKEL**

List Price*:
$978.60

Product Support, Repair Parts & Technical Specifications

View Maintenance & Installation Sheet

View Technical Specifications

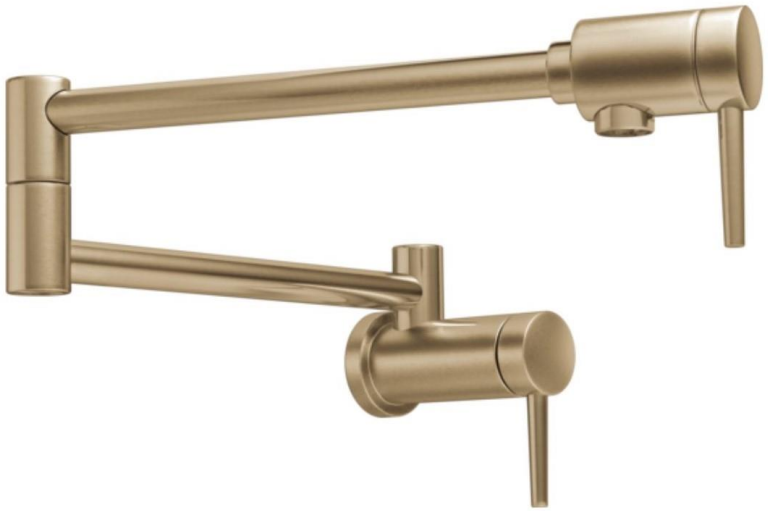
View Parts & Accessories Diagram

Installation Information

1 or 3-hole 8" installation

Escutcheon:	Optional Escutcheon Available
Flow Rate:	1.80 gpm @ 60 psi, 6.8 L/min @ 414 kPa
Spout Height:	19-1/16"
Spout Length:	10-3/16"
Deck to Outlet:	7-1/8"
Fittings Type:	3/8" compression fittings
Deck Thickness:	2.5"
Supply Lines:	Included InnoFlex® Pex-C Supply Lines
Valve Type:	DIAMOND™ Seal Valve

FEATURED ACCESSORIES







DELTA

Contemporary Wall Mount Pot Filler

MODEL#: 1165LF-CZ

★★★★½ (24) Write A Review | Ask A Question

- 4 gallons per minute for quick fills
- Two swing joints
- Backed by Delta Faucet's Lifetime Limited Warranty

Finish: **CHAMPAGNE BRONZE**

List Price*:
$730.05

Product Support, Repair Parts & Technical Specifications

View Maintenance & Installation Sheet

View Technical Specifications

View Parts & Accessories Diagram

Installation Information

singleholewallmountinstallation

Flow Rate:	4.00 gpm, 15.1 L/min
Spout Height:	8-1/8"
Spout Length:	21-9/16"
Fittings Type:	1/2" IPS connection
Supply Lines:	Not Included
Valve Type:	Ceramic valve

* Actual pricing may vary and is determined by the selling retailer/wholesaler/dealer.

STRADA LARGE LINEAR CHANDELIER

$4,625.00

1

Usually Ships in 9 weeks

Add to Cart

Add to Lists

DETAILS & DIMENSIONS

The Strada features a distinctive design and soulful vibe. A style that juxtaposes raw with refined, melds color, sophistication and spirited spontaneity.

- Diameter: 60"
- Height: 22"
- Wattage: 5W
- Bulb Type: E12
- Bulb not included

DRAPED COCO BEAD CHANDELIER

View All Made Goods

$3,375.00

− 1 +

Usually Ships in 8 weeks

Add to Cart

Add to Lists

DETAILS & DIMENSIONS −

Coco beads are loosely draped and gathered in this glamorous chandelier. Accented with sparkly clear beads, it has an undeniably beautiful appeal that is even more desirable since it doesn't try too hard!

- Diameter: 30"
- Height:29"

SHIPPING AND RETURNS +

FURNITURE

STANWICK SIDE CHAIR

$1,335.00

1

In Stock

Add to Cart

Add to Lists

DETAILS & DIMENSIONS

The Stanwick Side Chair features a button tufted back in charcoal grey upholstery on legs with an ember finish.

- Width: 22"
- Depth: 18"
- Height: 40.5"

SHIPPING AND RETURNS

BEA 97" TUFTED SOFA

~~$5,045.00~~ $4,036.00

1 In Stock

Add to Cart Add to Lists

DETAILS & DIMENSIONS

The classic chesterfield form is given a modern edge with squared, pleated arms and square rather than diamond tufting on the back, seat, and sides. Upholstered in rich velvet for a touch of luxury.

- Width: 97"
- Depth: 40"
- Height: 29"

SHIPPING AND RETURNS

MARLENA CHAIR

View All Mitchell Gold + Bob Williams

$3,546.00

1

In Stock

Add to Cart

Add to Lists

DETAILS & DIMENSIONS

This modern-feeling, low-slung, English arm chair is extra comfortable thanks to its tall back and cushy lumbar pillow. Rolled arms slope from the top of the back down into the seat, for an updated take on traditional style.

- Width: 31"
- Depth: 37"
- Height: 37"

Comfort Club Members receive 25%-35% savings on all full-priced Mitchell Gold + Bob Williams merchandise. Membership is free for a limited







COHESION PROGRAM BY ARTISTICA HOME

APERITIF ROUND/OVAL DINING TABLE

PRODUCT DESCRIPTION:

Updated traditional design crafted from Mahogany veneers, bleached Mahogany and select hardwoods in the Grigio finish, a warm gray tone with hand wire brushing. Features include a radial veneer match top with straight grain border and tapered legs. The 42-inch diameter top extends to 66-inch oval to comfortably seat six. Available in all Cohesion finishes.

DIMENSIONS –

DIMENSIONS: 42W x 42D x 30H in.
DIAMETER: 42 in.
LEAF COUNT: 1
LEAF WIDTH: 24 in.
TABLE EXTENDS TO: 66 in.

AVAILABILITY: Contact Store for Availability

LX2 CORNER LEFT OR RIGHT VIEWABLE AREA

L 49⅝"
D 14"
H 16½"

Great for asymmetrical living space or transition between two rooms.

LX1 3-SIDED PIER VIEWABLE AREA

L 36"
D 18⅝"
H 16½"

Fits smaller rooms and helps define open spaces.

LX2 Gas Fireplace

Valor's multi-sided linear fireplace is ideal for perpendicular rooms and now offers two engine styles to choose from. The 3-Sided engine is designed for 180-degree enjoyment, while the Corner engines offers design flexibility. The LX2 provides outstanding radiant heat performance that will heat any living space. Available with splitwood, driftwood, rock and shale, and two types of glass fire beds, the LX2 will suit homeowners who value aesthetics, performance and safety.

The LX2 supports the Valor HeatShift System™, which is required for installations where surrounding structural areas must remain at cooler temperatures.

SPECIFICATIONS

Model	Max Input	Min Input	Max Output	Energuide
2200KN	36,000	19,000	26,028	67.40%
2200KP	36,000	21,000	26,028	67.40%
2200L/RKN	36,000	19,000	25,975	65.90%
2200L/RKP	36,000	21,000	25,975	65.90%

Gas Type	Natural Gas (NG) or Propane (LPG)
Remote Control	Quick Guide I Manual

MORE

Support

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Thank you

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