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## 3 EXTERIOR

This section of the report describes the various systems and materials that comprise the Exterior of the House and the overall lay of the property. It includes other Exterior Structures such as retaining walls and garages.

### 3.1 Description

#### 3.1.1 Gutters & Downspouts

##### Materials and Maintenance

The following are the most common types of materials used in the home building industry.

**Aluminum:** The most common material in use that is very durable and comes in many colours and styles. Requires general cleaning and caulking maintenance on an annual basis (sometimes more often if there are trees near the house). Prone denting though easily repaired.

**Galvanized Steel:** Typically gray in appearance and widely used before aluminum became a more popular product in the market. Prone to rusting over the long term and usually require painting every 3-5-years. Prone to denting though easily repaired.

**Plastic:** More popular in recent years since plastic quality has been improved to resist extreme weather conditions as well as flexibility improvements.

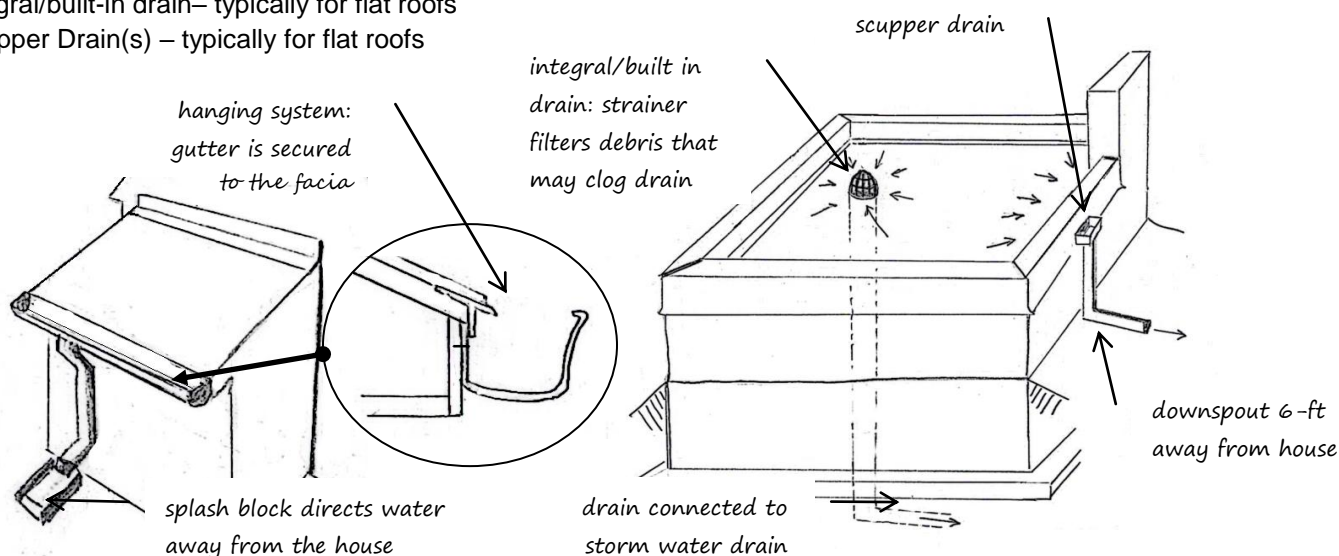
**Copper:** Some homes (usually high end and/or 100-years-old) will have copper gutters in use as this type of metal can last a very long time. The shiny 'orange-brown' look of copper gives it much curb appeal though surface oxidization (turns green) is natural. Due to the high cost copper is seldom used in most homes built today. Many aluminum gutters have been factory painted to resemble copper.

##### Type of Installation

The most effective type of installation will typically depend on the type of roof structure illustrated below

- Hanging System – most common – typically for sloped roofs
- Integral/built-in drain– typically for flat roofs
- Scupper Drain(s) – typically for flat roofs

Fig 3.1



### 3.1.2 Downspout(s) Discharge

Typically downspouts **should extend a minimum 6 ft** (1.83 meters) away for the house. Grading around the house must be adequate in order to allow for proper water runoff (see Grading)

Downspouts often discharge into a **municipal storm water collection system** (especially for newer subdivisions).

### 3.1.3 Lot Topography (Grading)

Grading describes the overall lay of the land and is important in determining the potential for basement leaking and proper removal of rainwater from around the house.

### 3.1.4 Walls

The function of the wall is to repel moisture, aesthetics and provide security. The report provides a description of the wall surfaces.

### 3.1.5 Retaining Walls

The function of a retaining wall is to shape the landscape providing space for functional or aesthetic purposes.

## 3.2 Limitations

A visual evaluation is performed when walking around the perimeter of the House and Property. The Inspection is typically performed from ground level though a ladder may be used to inspect areas the Inspector might find suspect or require closer scrutiny.

**Decks and Porches:** Inspection to the underside of decks and porches will depend on access. Often a gate is present along the skirting or a hatch door on the floor deck. Regardless, safety should be considered before entering a confined space. Storage may obstruct a proper visual inspection and usually not removed by the Inspector. Snow and carpeting will limit the inspection.

**Grading:** The grading (lay of the land) or landscaping might be obstructed by snow, restricted access and flora.

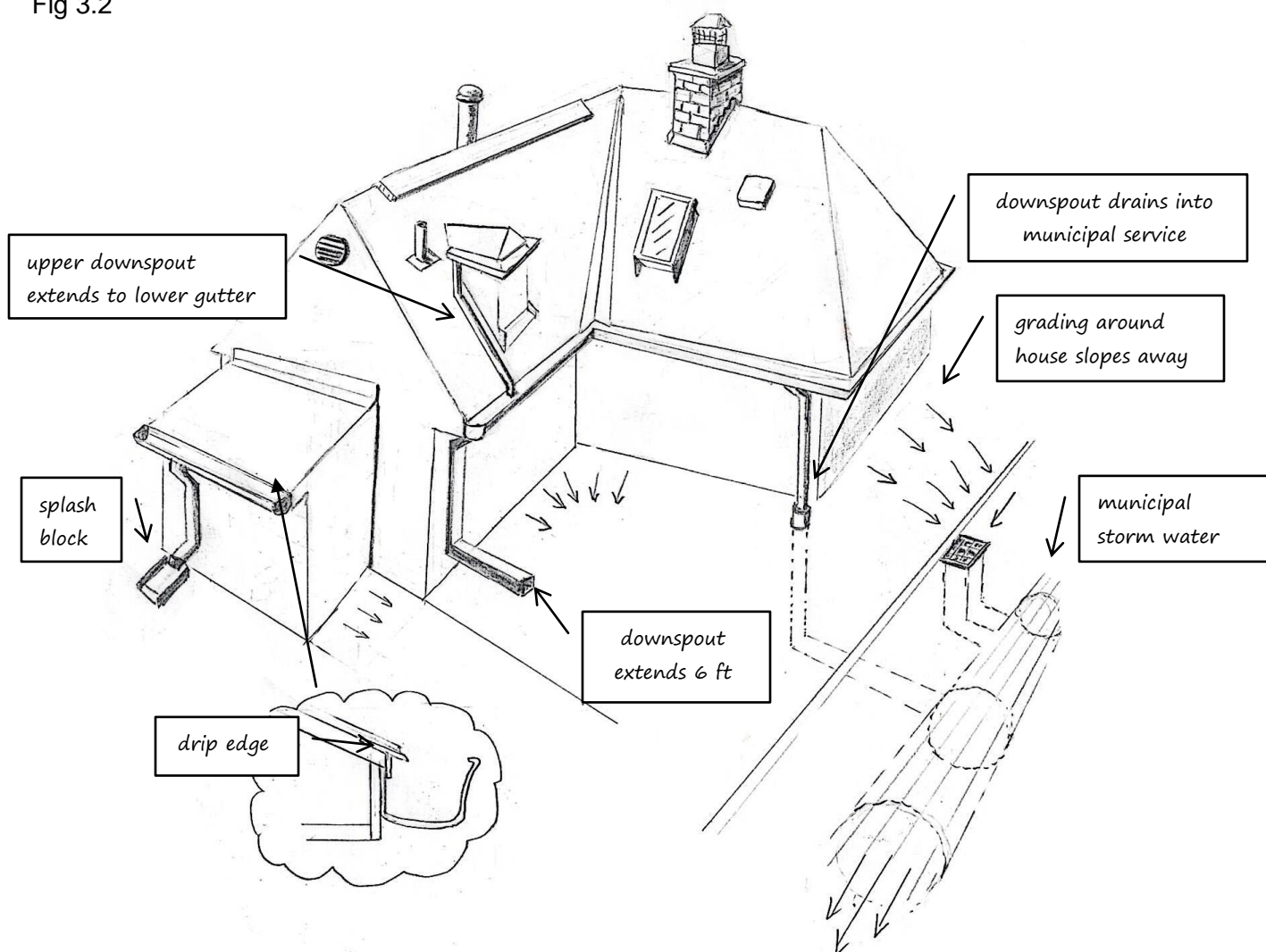
**Garage /Carports:** The more obvious limitations are the presence of vehicles and storage. Access to the space might be restricted due to locked or inoperative doors. Vehicle door openers are sometimes disconnected or locked by controls.

**Other Limitations:** Historical clues can be important in providing a proper Home Inspection. Absence of historical clues is often due to newly installed finishes and/or recent painting to finishes. Storage against and/or inaccessible walls as well as flora (vines, shrubs, etc.) against buildings will limit an Inspection.

### 3.3 Observations/Recommendations

#### 3.3.1 Drainage

Fig 3.2



Inadequate gutter and downspout maintenance can result in damage to the house and leaking in the basement. In cold climates this can also result in slippery walkway and driveway areas posing safety concerns.

The purpose of gutters and downspouts is to collect and divert roof water away from the structure. They are used in the majority of homes built today and are usually mandatory due to building codes especially in climates prone to temperatures that may fall below 0°C (32°F) the point of water freezing.

For homes located in southern regions (temperatures remain above freezing) gutters and downspouts may not be necessary though caution should be observed especially if there is a risk of soil erosion.

Sometimes gutters will be installed with screens that are designed to repel falling leaves and debris. Many types of products are available. The options vary from do-it-yourself low quality products to professionally installed sophisticated systems that claim zero-maintenance.

Low quality options may include screens that are installed on top of the gutter. The screen can often get dislodged and fall into the gutter thus creating blockage and worsening the problem.

Downspouts will often drain into a municipal system which is adequate as long as the system is in good working order. Otherwise there is the risk of backup which can result in water accumulating around the foundation and hence basement leaking.

Downspouts may also discharge into a **collection system** where the water can be used for various purposes. Rain barrels are common though overflow drains are required as they can fill up quickly even during moderate precipitation. Caution should also be used to ensure the barrel is covered to minimize **risk of mosquito** breeding conditions. Also if the water is not used frequently or the barrel is not cleaned decomposing materials may cause undue odours (methane) that are a potential health concern.

### 3.3.2 Lot Grading

Grading refers to how the land is levelled. The direction of the slope affects the direction of run-off water flow.

Grading should generally slope away from the house. This minimizes moisture infiltration to the basement or crawl space areas.

Under certain conditions the grading will slope towards the house in which case the installation of catch basins and drainage tiles are required.

Grading repairs or improvements can become expensive depending on the size of the lot or if access is difficult for equipment.

In zones that are exposed to freezing, directing water away from the house will minimize risk of damage due to freeze-thaw cycles and improve drying potential of cladding materials.

### 3.3.3 Wall Surfaces

The following provides a brief description of the most common types of walls and typical maintenance.

Description	Maintenance
Brick	Low maintenance as long as drying potential is adequate. Units should not be in contact with ground (6-8 inch clearance recommended). Mortar repairs, spalling (damaged) units should be replaced as required.
Stone	Low maintenance. Resistant to freeze/thaw cycles. Mortar repairs, spalling units should be replaced as required.
Concrete Block	Low maintenance. Resistant to freeze/thaw cycles. Mortar repairs, spalling units should be replaced as required.
Stucco	Low maintenance as long as drying potential is adequate. Surface should not be in contact with ground (6-8 inch clearance recommended).
Synthetic Stucco	Low maintenance as long as drying potential is adequate. Surface should not be in contact with ground (6-8 inch clearance recommended). All wall penetrations must be sealed (caulked) properly.
Wood Siding	Moderate maintenance as long as drying potential is adequate. Staining or painting required every 3-5-years. Units should not be in contact with ground (6-8 inch clearance recommended).
Plywood	Moderate maintenance as long as drying potential is adequate. Staining or painting required every 3-5-years. Units should not be in contact with ground (6-8 inch clearance recommended).
Hardboard	Moderate maintenance as long as drying potential is adequate. Units should not be in contact with ground (6-8 inch clearance recommended).
Metal Siding	Low maintenance. Prone to denting though usually cosmetic.
Vinyl Siding	Low maintenance. Prone to bulging if fasteners are installed too tight.

Wood Shingles	Moderate maintenance as long as drying potential is adequate. Staining or painting required every 3-5-years. Units should not be in contact with ground (6-8 inch clearance recommended).
Board and Batten	Moderate maintenance as long as drying potential is adequate. Staining or painting required every 3-5-years. Units should not be in contact with ground (6-8 inch clearance recommended).
Asphalt Shingles	Low maintenance. Prone to damage due to high winds.
Fiber Cement	Low maintenance. Older units (pre. 1980's) may contain asbestos fibres. Disposal fee is high if removing.
Clay Shingles	High cost. Low maintenance.
Slate Shingles	High maintenance and typically expensive if units are older. Many newer slate or slate-like products are usually low maintenance.
Artificial Stone	Low maintenance.
Insulbrick	Approx. 2'x4' foot panels that have the appearance of brick but made with the same materials used for asphalt shingles. Generally no longer in use though present in many older homes. Often covered with newer type of cladding such as metal, vinyl or stucco. Can be an insurance issue in some areas.

### 3.3.4 Doors/Windows

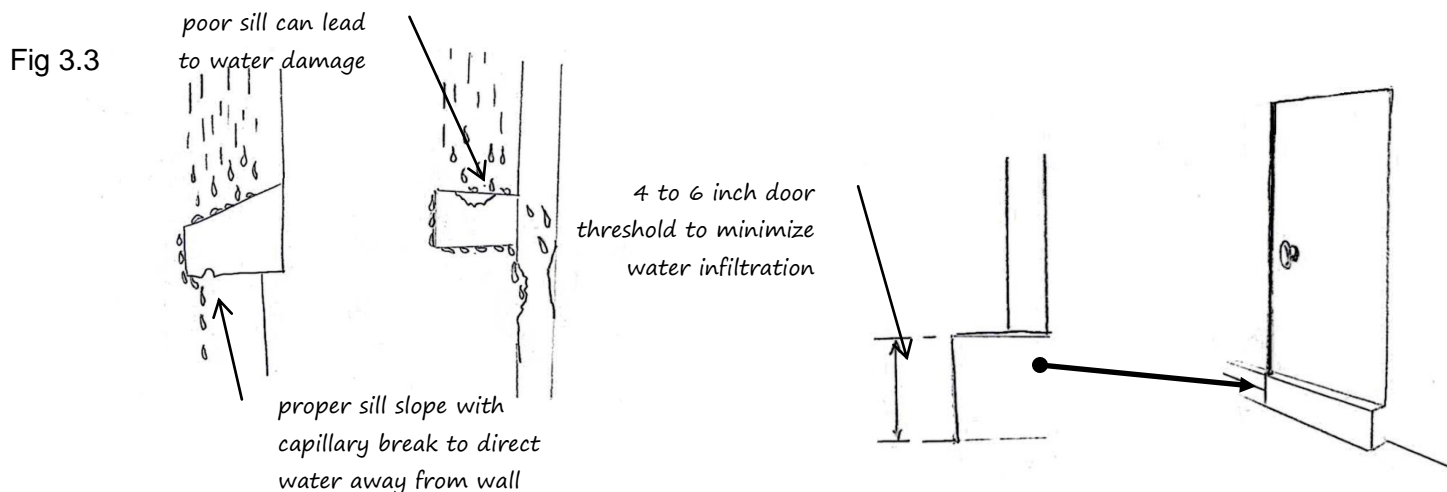
The following provides a brief description of the most common types of doors and windows with typical maintenance.

Description	Maintenance
Wood	High maintenance and drying potential is important. Typically staining or painting required every 3-5-years including caulking.
Metal	Low maintenance. Typically caulking repairs required every 3-5-years. Often older wood frames around the opening will be capped with metal flashing and newer windows installed. This is adequate as long as the wood frame is in good repair.
Vinyl	Low maintenance. More common in recent construction history since the production of vinyl (plastic) has improved. Typically caulking repairs required every 3-5-years. Before vinyl windows are installed often older wood frames around the opening will be capped with metal flashing. This is adequate as long as the wood frame is in good repair.



**Window sills/ Door Threshold:** For proper drainage window sills should slope away from the house and include a drip edge. Inadequate drainage can result in:

- water damage to the sills, windows, interior walls and finishes
- structure damage if condition is long term
- potential for mould growth

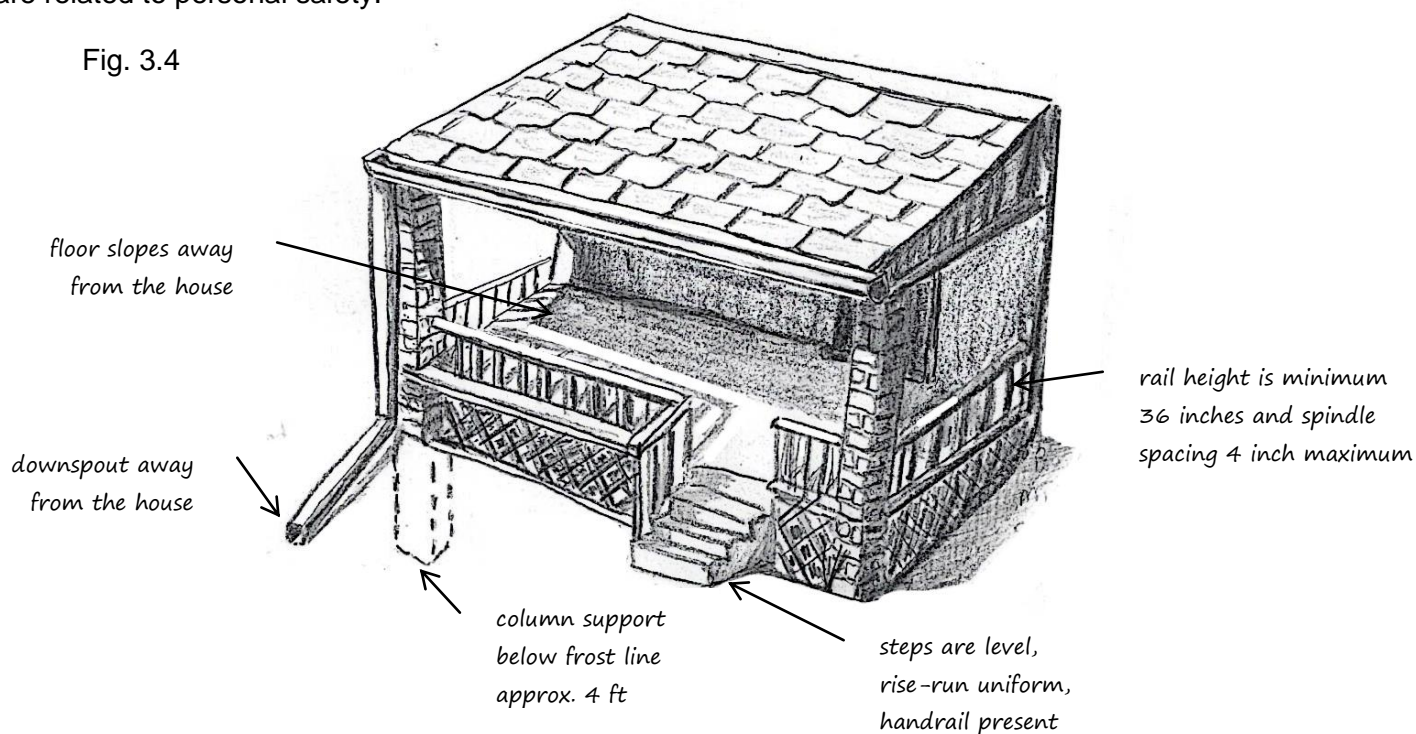


### 3.3.5 Exterior Structures

#### 3.3.5.1 Porch/Deck/Balcony

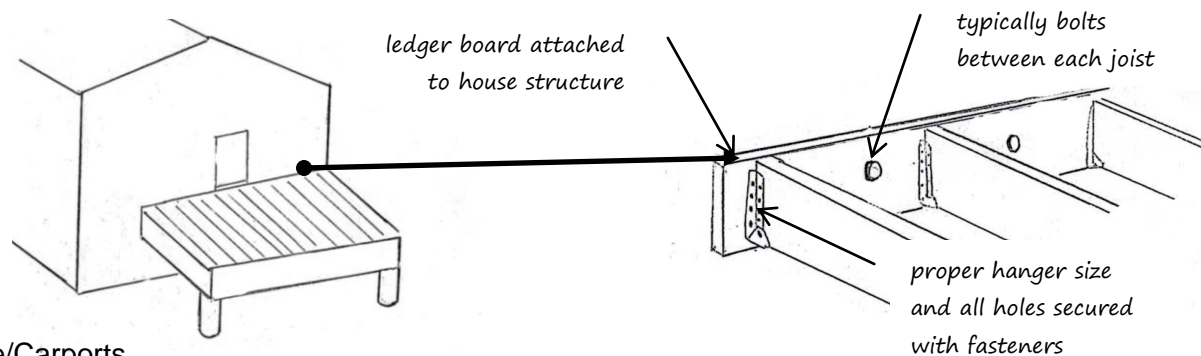
General requirements for porches, decks and balconies are meant to protect the home from the elements and are related to personal safety.

Fig. 3.4



Description	Maintenance
Wood	High maintenance and drying potential is important. Typically staining or painting required every 3-5-years. Life expectancy can be indefinite as long as maintenance is adequate. Pressure treated wood typically lasts 20 years or more. Wood columns should be supported by masonry columns that extend below frost line.
Masonry (i.e. Concrete or brick)	Generally lower maintenance. Masonry in contact with soil with poor drying potential can result in damage to the materials. Footings should extend below the frost line. Concrete floor slabs require proper reinforcing bars and surface may require sealing.

Fig. 3.5



### 3.3.5.2 Garage/Carports

#### Attached Garage Requirements

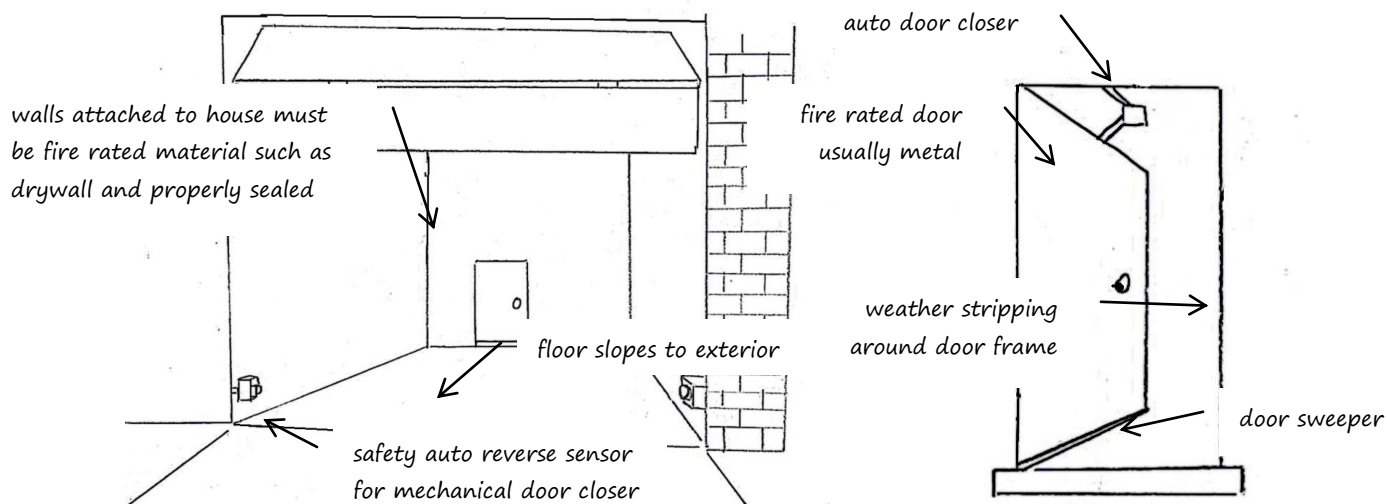
##### Life safety requirements:

- Proper fire rated material (i.e. drywall, masonry) required between garage and house wall
- Drywall must be sealed properly (fire and gas proofed)
- Door to interior must be fire rated, weather-stripped and have auto door closer
- Automatic car door openers must have auto reverse sensor

To minimize water-ponding and accumulation of street salts and chemicals the floor must

- slope away from the house

Fig. 3.6





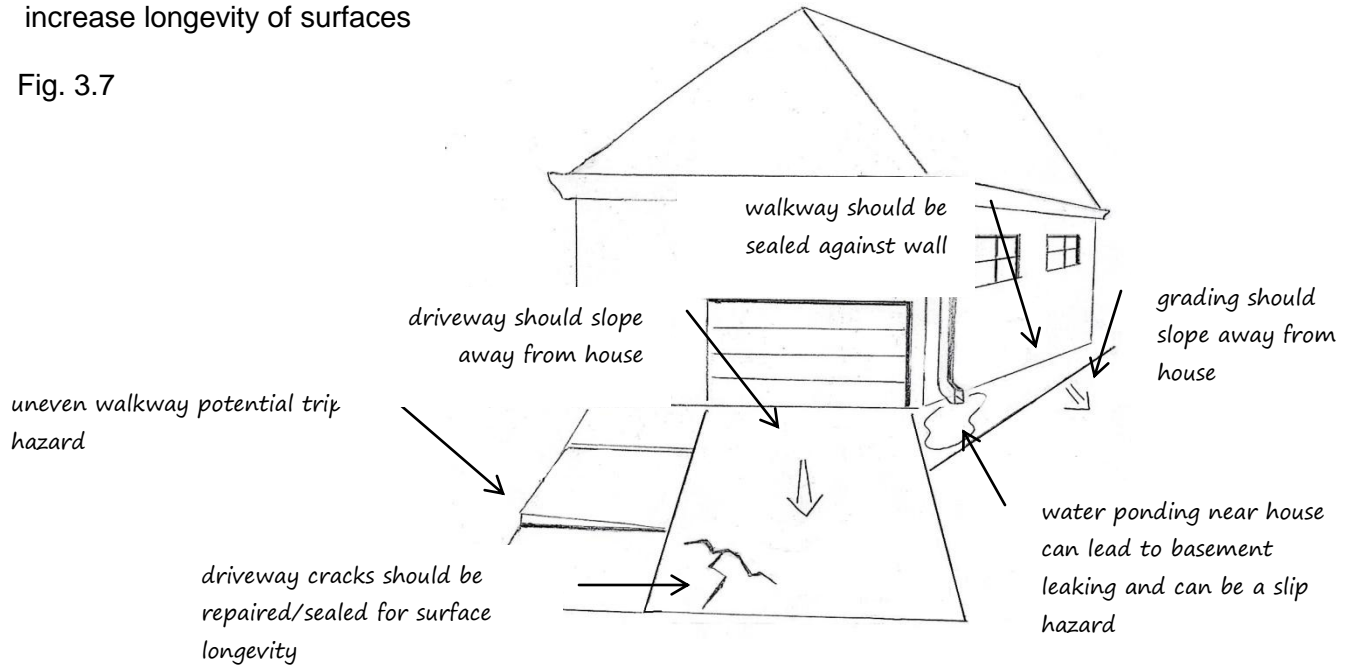
### 3.3.6 Landscaping

#### 3.3.6.1 Walks/Driveways/Patios

Proper installation and maintenance of walks, driveways and patios will:

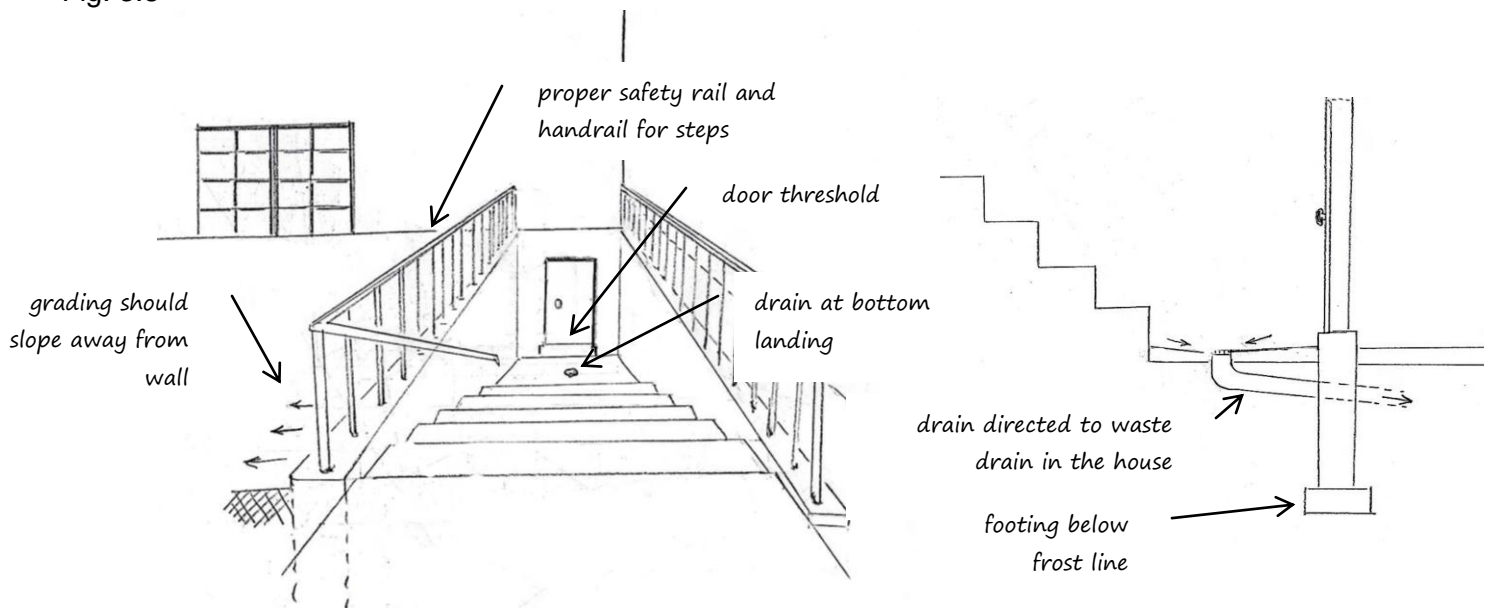
- remove water runoff from around the house
- provide safe walking surfaces
- increase longevity of surfaces

Fig. 3.7



#### 3.3.6.2 Basement Walkout

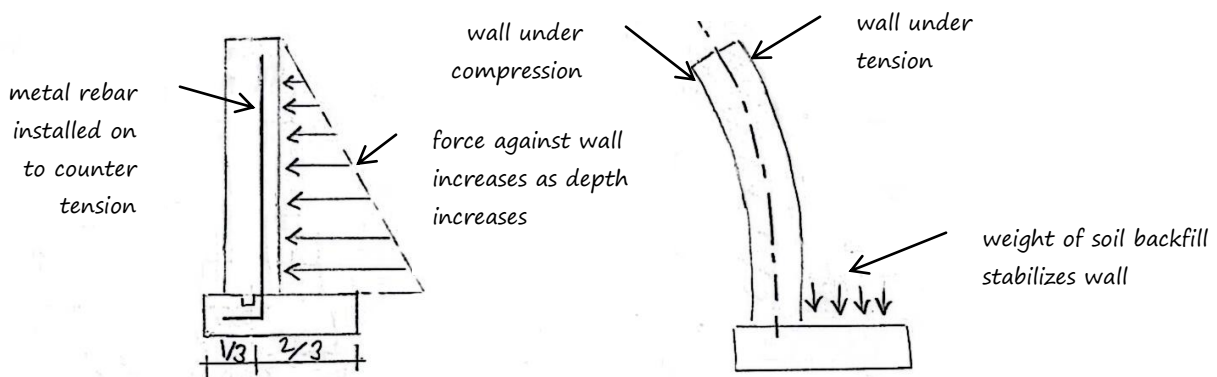
Fig. 3.8



### 3.3.6.3 Retaining Wall

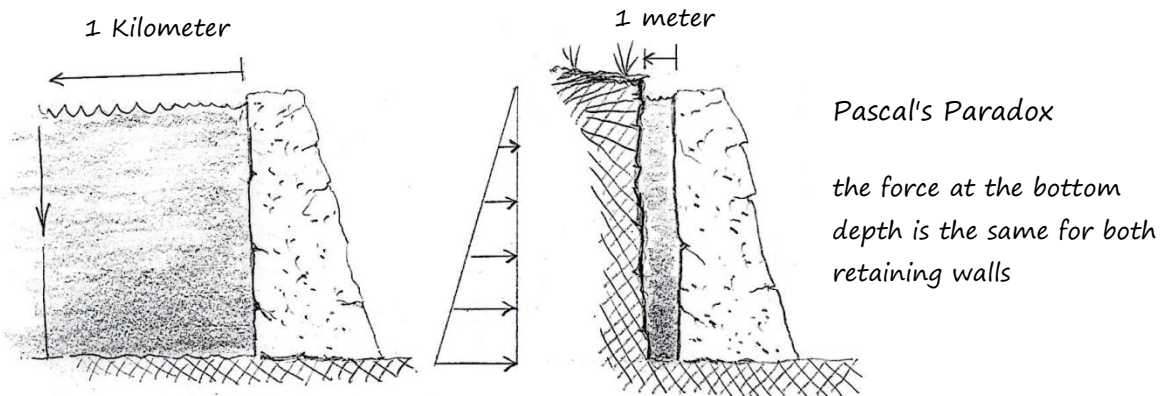
General mechanics of a retaining wall.

Fig. 3.9



Water pressure against a retaining wall can be significant. The illustration below demonstrates that even a small amount of water against the wall has the equivalent pressure as a large amount of water at the same depth. This is counter intuitive and referred as Pascal's Paradox after the scientist who defined it.

Fig. 3.10



It is therefore paramount that proper drainage be installed and surface water drain away from the retaining wall.

As the name implies the wall *retains* soil and rocks in a vertical position between two different levels resisting lateral forces. Soil erosion control might also be a main function of a retaining wall.

A specialist (i.e. an engineer) should be consulted if installing or repairing a retaining wall.

The following describes the most common types of retaining walls.

Fig. 3.11 Stone retaining wall

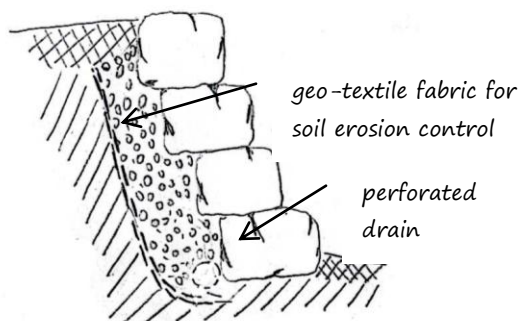


Fig. 3.12 Concrete retaining wall

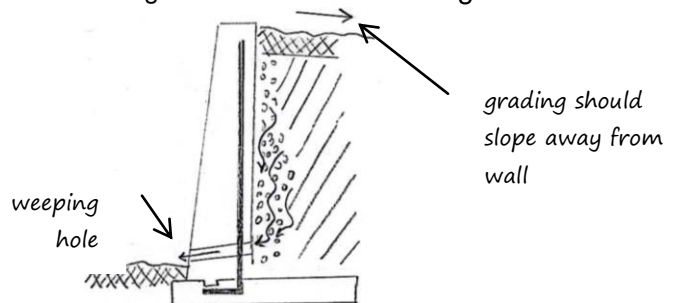


Fig. 3.13 Wood Retaining Wall

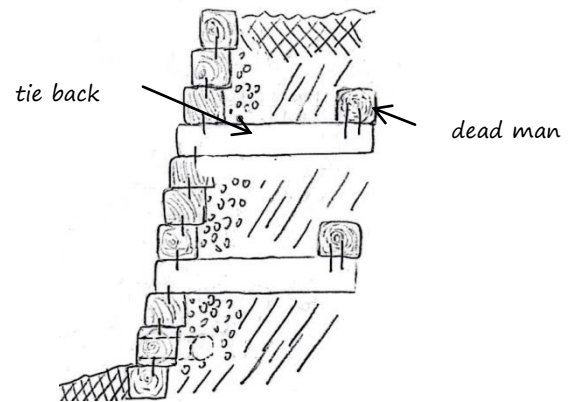
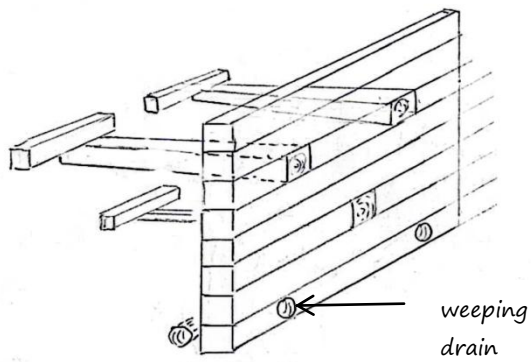


Fig. 3.14 Artificial stone retaining wall

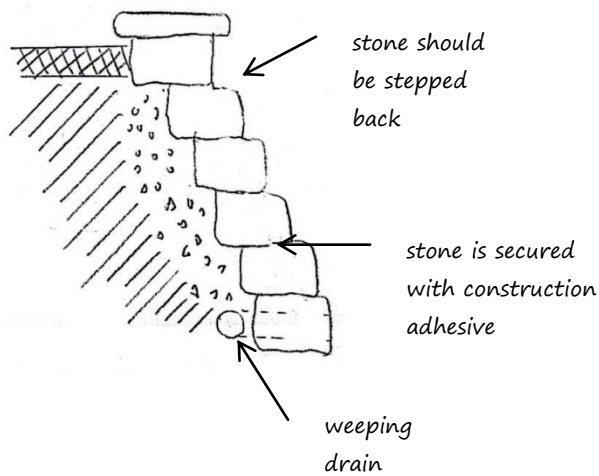


Fig. 3.15 Masonry block retaining wall

