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While doing depreciation reports, reserve fund studies or building condition assessments, we often get asked how we can determine the age of a building component by looking at it. Although not without aberrations, there are some tell-tale signs that indicate the age and the remaining life of features such as windows, claddings and veneers, roofs and fencing. Architectural styles and innovations in manufacturing will also have an influence on how long certain components may last. We have written a series of articles explaining what signs we look for to determine age and remaining lifespan for our depreciation reports, reserve fund studies, or building condition assessments. The first article of this series talks about determining the age of the exterior cladding in Strata and Condo Corporations.

The exterior cladding is, in almost all cases, the most expensive component of a building. While they are long-lasting (typically in the range of 25-40 years), there are many factors that may increase their apparent age, and in turn, reduce their remaining useful life. These factors may include general wear-and-tear as well as the quality of workmanship of the original installation.
The most common materials for exterior cladding in a strata building include: stucco, wood, fiber-cement, vinyl, and brick/stone veneer. With the exception of vinyl and brick/stone veneer, the other materials generally require paint coating to provide an additional layer of protection against the elements. While re-painting projects can serve to preserve the condition and maintain the longevity of the cladding system, this cannot be expected to remedy pre-existing deficiencies. The presence of any deficiencies will negatively affect the observed conditions such as:

- **Cracks** – If left unattended, cracks may expand over time through water entry and freeze-thaw cycles. Any water ingress is likely to deteriorate components behind the surface layer.

- **Stains** – While lighter-coloured surface stains can usually be remedied through cleaning, darker stains may be an indication of sustained concealed damage. Such damage is normally caused by water penetration, and if left unattended, will often lead to mold.

- **Peeling/Chipping Paint Coat** – Peeling and chipping may be due to varying factors. If the paint coat is relatively new, the surface may not have been properly prepared. A new paint coat is typically applied to a cleaned surface after a combination of sanding, scraping, and chiseling in addition to the application of a suitable primer. If the paint coat is fairly old, the cause of paint loss is likely a matter of weathering.

It is generally recommended that vinyl siding not be painted, primarily because vinyl expands and contracts quite significantly according to temperature changes. As a result, many paint products do not adequately bond to the vinyl material. Moreover, vinyl typically comes in solid colours and is generally not affected if it happens to be scratched. However, the heat sensitivity of vinyl siding is a major drawback. As a result, it is susceptible to warping, particularly where there is constant sun exposure. In addition, warping may also occur if a barbecue is used too close to the vinyl siding.

**Photo 1:** A horizontal crack near the stucco reveal/expansion joint.

**Photo 2:** A stained stucco area which may indicate some form of concealed damage.
EXTERIOR CLADDING (cont’d)

Brick/stone veneers can generally last the life of a building but the mortar joints used to bond these materials does not last as long. Deficiencies, typically in the form of cracks in the mortar joints, will develop over time and must be repaired to keep the cladding system safe and intact. If cracks are not attended to in a timely manner they will often cause veneers to detach from the subsurface. In some instances, the scratch coat may not have been prepared sufficiently during original installation, resulting in inadequate adhesion between a veneer and the substrate material. Deficiencies in a localized area are often indicative of the level of wear or sub-par workmanship of a larger wall region, which will have a negative impact on the observed age of the cladding system.

Photo 3: The paint coat is peeling at numerous locations, leaving the wood bare and exposed to the elements. Green and black stains are apparent and have likely developed mold.

Photo 4: Warping and curling of some vinyl siding sections due to constant sun exposure.

Photo 5: Detached brick veneers. Fortunately, in this case, the veneers were located close to the ground and are unlikely to fall on any pedestrians.
While doing depreciation reports, reserve fund studies or building condition assessments, we often get asked how we can determine the age of a building component by looking at it. Although not without aberrations, there are some tell-tale signs that indicate the age and the remaining life of features such as windows, claddings and veneers, roofs and fencing. Architectural styles and innovations in manufacturing will also have an influence on how long certain components may last. We have written a series of articles explaining what signs we look for to determine age and remaining lifespan for our depreciation reports, reserve fund studies, or building condition assessments. The second article of this series talks about determining the age of windows in Strata and Condo Corporations.

The windows are, in almost all cases, one of the most expensive component of a building. While they are long-lasting (typically in the range of 25-40 years), there are many factors that may increase their apparent age, and in turn, reduce their remaining useful life. These factors may include general wear-and-tear as well as the quality of workmanship of the original installation.
The observed age of windows generally depends on several factors including the frame material, the flashing details, and the architectural style.

Window frames are typically made from wood, aluminum, or vinyl. Among these, the upkeep of wooden window frames is the most demanding and is not generally achieved in strata buildings. As a result, many wooden frames observed are in poor condition, often containing some form of rot and decay. Aluminum window frames are not likely to decay but they do deteriorate. Specifically, early aluminum windows consist of uncoated natural aluminum which is subject to pitting and corrosion. In addition, putty was used to hold the glass in these aluminum frames. Over time, putty hardens and pieces fall out causing a loss of air tightness and loose glass panes. With the advance in technology, modern aluminum windows, vinyl windows, and hybrid windows are free from many such issues and are generally low-maintenance. The edge seals of modern windows are good but they are not perfect. Failure of the seal often results in fogging of insulating glass units (IGU). While one or two window seal failures in a large complex can be viewed as localized events and not reflective of the overall condition, a considerable percentage of failures may be considered as a systemic issue that negatively affects the observed age.

With wind-driven rain, wall surfaces and windows will get wet throughout the course of their lifespan. As a result, the observed condition will be largely dependent on how well the system was designed and installed. Water resistance is particularly important to the interface between the window frame and the wall. Head flashings are installed above windows to help keep water away from this vulnerable area. However, to be effective, flashings must extend past the sides of windows and must slope downward and outward away from the wall surface. Unfortunately, flashing is often missing in older buildings that have yet to replace or retrofit their windows. Sometimes in newer construction, building settlement (often in the first few years) or physical damage (due to excessive pressure from power washing) can cause deformation and warping of the head flashing which sometimes slopes back towards the building, directing water to the window frame rather than away from it, as intended.
The architectural style of a building also has a large impact on the windows (and the exterior cladding). Studies have shown that overhangs have a significant impact on the reduction in driving rain on the corresponding building face. The observed age of identical windows, installed on different buildings with different overhangs, can therefore vary significantly. The Californian-style architecture (flat roofs with no overhangs) that coincided with the urban boom of the 1970’s is not suitable for the coastal climate of British Columbia. On buildings of this type, windows and exterior cladding often age faster than anticipated as a result.

**Photo 2**: Water ingress at the window/wall interface on a building with minimal overhang. Staining of the window frame and window-sill, and the peeling of paint at the inner wall are notable.
Determining the Age of Roofing in Multi-Resident Buildings

While doing depreciation reports, reserve fund studies or building condition assessments, we often get asked how we can determine the age of a building component by looking at it. Although not without aberrations, there are some tell-tale signs that indicate the age and the remaining life of features such as windows, claddings and veneers, roofs and fencing. Architectural styles and innovations in manufacturing will also have an influence on how long certain components may last. We have written a series of articles explaining what signs we look for to determine age and remaining lifespan for our depreciation reports, reserve fund studies, or building condition assessments. This article of this series talks about determining the age of the sloped roofing and flat roofing in Strata or Condo Corporations.
SLOPED ROOFING

The observed age of sloped roofing generally depends on many factors including material, workmanship, roof pitch, exposure and maintenance efforts.

Photo 1: Moss growth on shingles

Photo 2: Shingles curled at bottom edge

ASPHALT COMPOSITION SHINGLES

Asphalt shingles typically last 20-25 years, assuming preventative maintenance is done on a regular basis. Watch for the signs -mentioned below-, as they will provide an indication that the asphalt roofing is approaching the end of its useful life.

The amount of granules remaining on the shingles typically can indicate the age or remaining useful life of the asphalt shingles. The longer the shingles have been exposed to the environment, the fewer granules they will retain. Hail, windstorms and frequent running water from precipitation can cause shingles to lose their granules. Such loss will allow UV exposure, causing deterioration, reducing the shingles’ remaining life.

As asphalt shingles age and over time the bond of the adhesive might become brittle due to wetting and drying cycles as well as temperature swings. This can allow gusts of wind to lift shingles and cause them to crease or become loose. Temperature fluctuations can also cause shingles to crack and split, eventually to the point that moisture will get in. If many shingles are damaged or missing, the roof will soon require replacement.

The lifespan of asphalt shingles is also shortened when organic matter is allowed to grow on them, as such matter retains high levels of moisture and keeps the shingles too wet for too long. This issue can occur as early as a couple of years after installation. Organic matter such as moss, should be cleaned from the shingles. If excessive organic matter is observed over most of the roof, the asphalt shingle roofing is unlikely to be well maintained and will likely see a shorter lifespan.
WOOD SHAKES/SHINGLES

Wood shakes, or wooden shingles, used in the roofing industry are often cedar. Although this type of wood is known for its resistance to decay, local environmental factors such as heat, humidity, precipitation, and hail will eventually wear out the material. Cracks and splits will form as the shakes/shingles experience cycles of expansion and contraction from fluctuating moisture content, as well as freeze/thaw cycles. Wood stress caused by UV rays and rain will also cause the wood to curl or cup. These deficiencies will expose the roofing felt or deck, compromising its water-shedding function.

As with asphalt shakes/shingles, organic growth on the wood shakes can accelerate its degradation. Rot caused by microorganisms, like moss, lichen or algae will often leave the bottom edge of the shakes/shingles frayed.

As natural weathering takes place over time, wood shakes/shingles will need to be replaced. However, their lifespan is often determined by the local climate and maintenance efforts. They can last as little as 20 years or as long as 50 years. If the majority of the roof area shows the deficiencies mentioned above, this indicates the roof is at an advanced age and replacement is imminent.

**Photo 3:** Moss growth on shingles

**Photo 4:** Splits and cracks on discoloured shingles
METAL ROOFS

The useful life of a metal roof can range from 30 to 60 years, depending on materials, workmanship and maintenance efforts. Metal panels and sometimes metal shingles, are usually coated with liquid-applied polymer or paint to protect the metal from rusting. Rusty fasteners and localized rusting may indicate the metal roof’s age but, as long as they are replaced/repaired in a timely manner, they should not greatly affect the roof’s overall lifespan. However, missing fasteners can allow the panels to be loosened from the framing, allowing wind damage. Damaged panels can affect the seams between panels and allow leaks to occur. Periodic painting and sealing of metal roofing as well as replacement of damaged panels and rusted fasteners can ensure the longevity of the component. Metal panels should not be exposed to the environment unless they are treated to prevent oxidation. Scaly rust is an indication that the oxidation has been present for an extended period of time and has chemically eaten through layers of the metal. If the majority of the metal roof has scaly rust it is advisable to have a roofing service provider inspect the thickness of all the metal panels to ensure their integrity before choosing between a coating restoration or replacement.

Photo 5: Rusty fasteners

Photo 6: Scaly metal roof panels
(How to paint a Metal – Tin Roof, n.d.)

FLAT ROOFING

Flat or low-slope roofs make up a significant portion of the external enclosure of a building. If failure occurs the potential for extensive damage, makes this component one of the most important expenditures to be considered by the Strata or Condo Corporations when planning for the future.

When preparing for a roof replacement, it is more important to determine the remaining useful life than to determine when the roof was installed. Regardless of the type of flat roofing installed, its useful life varies greatly based on the quality of material, environment, foot traffic, and especially workmanship and maintenance.
Determining the Age of Wood Fencing in Multi-Resident Buildings

While doing depreciation reports, reserve fund studies or building condition assessments, we often get asked how we can determine the age of a building component by looking at it. Although not without aberrations, there are some tell-tale signs that indicate the age and the remaining life of features such as windows, claddings and veneers, roofs and fencing. Architectural styles and innovations in manufacturing will also have an influence on how long certain components may last. We have written a series of articles explaining what signs we look for to determine age and remaining lifespan for our depreciation reports, reserve fund studies, or building condition assessments. This article of this series talks about determining the age of wood fencing in Strata or Condo Corporations.
WOOD FENCING

Wood fencing is commonly used around the perimeters of properties and between individual yards. They generally consist of either vertical or horizontal panels held between two rails attached to support posts that are secured to the ground. Like other building components, the observed age of wood fencing generally depends on many factors including material, workmanship, exposure and maintenance efforts.

As wood ages it begins to crack and deteriorate due to expanding and contracting due to moisture and drying cycles. The fencing will often start to lean and panels can fall out of place as the framing becomes fragile. Support posts are the most susceptible to deterioration as they are in direct contact with the ground. Moisture from precipitation and damp soil also accelerate the deterioration process of the support posts and bottom rails. Severe rotting of the wood components, especially the support posts, will indicate that the fencing is approaching the end of its useful life. Aging wood fencing will often have a greyish-brown colour as well. Painting, installation of post caps, and utilizing pressure-treated wood are some of the ways to extend the lifespan of wood fencing.

Photo 1: Deterioration and moss growth at support posts

Photo 2: Fencing rotted and leaning
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FOUNDATIONS

Typically and as expected, foundations should last the life of a building provided the appropriate design specifications have been met. Since the early 1900’s foundations have evolved from a combination of brick, stone, rubble and concrete to being primarily composed of reinforced concrete today. Often, a visual review of a building’s foundations are not possible due to their placement below grade. Therefore determining when the building was constructed by reviewing as-built construction drawings is often the only way to determine the specification, materials, and age of the foundations.

In some cases isolated repairs are necessary to ensure the foundation remains in functional condition throughout its life. These may include making drain tile repairs to protect the foundations from flooding during times of high precipitation and below-grade damp/waterproofing membrane repairs to prevent moisture from making contact with the reinforcement within the foundation walls. Considering the majority of a building’s foundations are under the ground, signs of structural defects are not usually visible until an issue arises in the superstructure.

There are some things that we look for during our reviews to give us indications of issues that may be present including, but not limited to, bowing, bulging, or leaning of the foundation walls, concrete spalling, and significant vertical, horizontal or stepped cracks which may appear outside the typical building settlement cracking.

Photo 1: Typical with today’s construction practices, the interior side of reinforced concrete foundation walls and columns viewable from within the parkade.

Photo 2: Note the presence of a waterproofing course installed along the exterior of the below-grade foundation walls.

Photo 3: Early 1900’s foundation wall consisting of a brick course overlying a concrete strip foundation.
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