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Guideline for Engineers Conducting Performance Audits and Reserve Fund Studies

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ABSTRACT

The purpose of this guideline is to define best practices for engineers carrying out reserve fund studies and performance audits for condominium corporations with special emphasis on their duties to their employers, clients and the public. This guideline applies to reserve fund studies and performance audits for all condominium types (standard, leasehold, vacant land, commercial, industrial and common element) and all building styles (high-rise, mid-rise, low-rise and townhouse).

1.

PURPOSE OF PEO GUIDELINES

Professional Engineers Ontario (PEO) produces guidelines to educate licensees and the public on best practices.

For more information on PEO's guideline and development process, including our standard form for proposing revisions to guidelines, please refer to the Guideline Development and Maintenance Processes document, available at <https://peo.on.ca/sites/default/files/2020-03/guideline-dev-maintenance-process.pdf>.

To view other PEO guidelines, please visit the Practice Advice Resources and Guidelines section of our website at: <https://peo.on.ca/index.php/knowledge-centre/practice-advice-resources-and-guidelines>.

2.

PREFACE

Publication of this guideline was initially delayed pending the anticipated enactment of new regulations to the *Condominium Act*. However, due to the change of provincial government in late 2018, publication of the new regulations has been delayed. Therefore, this guideline is being published based on the current *Condominium Act* and regulations. Some of the changes that are anticipated in the new regulations are outlined in the guideline and are clearly indicated as such. Readers are cautioned, however, that such changes are the “best guess” of the authors of this guideline and are provided simply to give a “heads up” to users of this guideline as to changes that may occur. A new version of this guideline will be published once the new regulations are published.

3.

PURPOSE AND SCOPE OF THIS GUIDELINE

The purpose of this guideline is to define best practices for engineers responsible for reserve fund studies and performance audits for condominium corporations. The *Condominium Act, 1998, S.O. 1998, c. 19* (Act) and the associated Ontario Regulation 48/01 defines the minimum requirements for reserve fund studies and performance audits for Ontario condominiums.

In addition, engineers responsible for performance audits are expected to be familiar with the requirements of the following:

- *Ontario New Home Warranties Plan Act*, R.S.O. 1990, c. O.31 and the associated regulations, RRO 1990, 892, O.Reg. 522/17 and 520/17.

The expectation is that readers of this guideline have familiarized themselves with the requirements of the *Condominium Act* and regulations, and the *Ontario New Home Warranties Plan Act* and regulations, and have determined that they have the skills and general knowledge of the subject matter and key factors upon which future results depend to competently provide the required services.

At the time of writing of this guideline, the *Condominium Act* was in the midst of amendments, with many not yet proclaimed, and the *Ontario New Home Warranties Plan Act* appeared slated for replacement by the *Protection for Owners and Purchasers of New Homes Act, 2017* and the *New Home Construction Licensing Act, 2017*. These also had not yet been proclaimed. Once proclaimed, the practitioner should become familiar with these documents. They may change the recommendations of this guideline.

Other documents with which the engineer responsible for a reserve fund study or a performance audit should be familiar include:

- The *Building Code Act* and the Building Code applicable to the construction;
- Various standards referenced under the Building Code;
- Various municipal standards and codes applicable to the construction of buildings; and
- Tarion's *Common Element Construction Performance Guidelines* and *Construction Performance Guidelines for Freehold Homes and Condominium Units*.

Readers are also directed to the bibliography of recommended reading in Appendix A to this guideline.

This guideline is not intended to replicate the requirements in the *Condominium Act* and regulation, but rather to provide engineers who provide these services with some guidance with respect to reasonable expectations for service delivery as well as enhanced practices. It is also hoped that this guideline will be read by condominium boards of directors and condominium property managers so they understand the services they should expect to receive

from engineers responsible for providing performance audit and reserve fund study work.

In some cases, an “enhanced practice” is described. An enhanced practice is a task that might not normally be considered part of a reserve fund study or performance audit but is a service that may be added by an engineering firm. In most cases, there will probably be additional expense to the condominium corporation involved.

4.

PROFESSIONAL RESPONSIBILITY AND LIABILITY

Engineers are expected to exercise due diligence in the execution of their work. That expectation includes practicing in accordance with federal, provincial and municipal laws, established standards and the code of ethics of the association through which they are licensed. Engineers are also expected to restrict their practice to areas of personal expertise. At all times, the primary duty of engineers is to hold paramount the safety, health and welfare of the public, the protection of the environment, and to promote health and safety within the workplace.

Conducting performance audits is deemed to fall within the practice of professional engineering and architecture since they are: 1) acts of evaluating, advising and reporting; 2) wherein the safeguarding of life, health, property or the public welfare is concerned; and 3) require the application of engineering and architecture principles. As per PEO’s *Assuming Responsibility and Supervising Engineering Work Guideline*,¹ a non-engineer may be involved in the work of a performance audit when properly supervised by an engineer.

While the regulations in force at the time of publication of this document allow non-engineers to conduct reserve fund studies, it is the position of the Professional Standards Committee that under the following circumstances, a comprehensive reserve fund study or a reserve fund study with a site visit should be conducted by an engineer within the meaning of the *Professional Engineers Act*:

- Buildings four or more storeys in height;
- Buildings with suspended structural slabs that support parking, driveways, or landscaping²;
- Buildings with balconies, other than wood balconies that are fully exposed³;
- Post-tensioned structures; and
- Other high-risk structures⁴.

Anticipated Change to the Condominium Regulations:

As part of the regulation development under Bill 106, it is anticipated that the Ministry may shorten the list of individuals qualified to conduct a reserve fund study.

Engineers must bear in mind that their duty to protect the public welfare is their highest duty. This duty could involve not following a direction from the client, where the direction would conflict with the duty to protect the public welfare.

In this document, the term “engineer” is used to refer to a holder of a licence, temporary licence or limited licence who is practicing under a certificate of authorization. The term “practitioner” is used to refer to the individual conducting the performance audit or reserve fund study who may be either an engineer or someone working under the supervision of an engineer. The term “client” is used to refer to the condominium corporation or an agent acting on behalf of the condominium corporation, such as the property manager.

5.

PERFORMANCE AUDITS

A performance audit is conducted during the first year after a condominium with at least one residential unit is registered. The main purpose of the performance audit, as per the *Condominium Act*, is to develop a list of deficiencies in the performance of the common elements that may give rise to a claim for payment under the *Ontario New Home Warranties Plan Act*. The first-year warranty: 1) requires the common elements to be constructed in a skilful manner (the act uses the term “workmanlike manner”) and free from defects in material; 2) requires the common elements to be fit for habitation; 3) protects against Ontario Building Code violations; and 4) protects against unauthorized substitutions. The builder of the condominium is expected to rectify identified deficiencies. However, Tarion will get involved if the builder fails to do so. The performance audit deals only with common element issues; unit owners are responsible for filing their own warranty claim for deficiencies in their personal units.

In addition to the one-year warranty, Tarion also offers a two-year warranty that covers: 1) water penetration; 2) defects in work or materials of the electrical, plumbing, and heating delivery and distribution systems; 3) deficiencies in the building cladding that result in detachment, displacement or deterioration; 4) violations of the Ontario Building Code affecting health and safety; and, 4) major structural defects. Tarion also has a seven-year major structural defect warranty. The practitioner who conducts the

¹ Professional Engineering Ontario, “Assuming Responsibility and Supervising Engineering Work Guideline,” February 2018.

² This includes parking structures either above or below-ground.

³ Engineers should also be engaged for townhouse complexes that include wood balconies with finished soffits that conceal the structure, for example.

⁴ Reference can be made to the “Report of the Building Safety Technical Advisory Panel (BSTAP)” for a discussion of high-risk structures (see Appendix A for the full bibliographic reference).

performance audit is not expected to include a two-year or a seven-year warranty observation in their scope of work for the performance audit. However, as enhanced practice, the practitioner should make mention of these additional warranty periods in the performance audit report. These services may also be offered as part of the performance audit proposal as enhanced practice. However, the review for the second-year or seven-year warranties are not mandated in the *Condominium Act* and are not specifically covered in this guideline.

Enhanced Practice: *The performance audit proposal may include a fee for conducting the second-year warranty review and filing the claim, if necessary. The performance audit report should make mention of the additional warranty periods.*

The *Condominium Act* requires that the following be included in the scope of work of a performance audit:

- Owner survey;
- Review of documents; and
- Physical observations.

Each of the above are discussed in further detail below.

In addition, there are a number of optional services that a practitioner may offer in the course of conducting the performance audit. These are also discussed in further detail below.

Owner Survey

The *Condominium Act* requires that the practitioner conduct a survey of the unit owners regarding deficiencies they have noticed in their exclusive-use common elements or damage to their units that was caused by defects or deficiencies in the common elements. Examples of common element issues within their units that the owner survey should identify include:

- Water leakage through windows, doors, walls or roofs;
- Windows that are difficult to operate or that experience excessive air leakage or condensation;
- Balconies with loose railings or material deterioration;
- Balcony or unit exterior doors that are difficult to operate or experience excessive air leakage;
- Suite entry doors that are difficult to operate;
- Problems with heating, ventilation, air-conditioning or electrical systems that relate to the common element portions of these systems.
- Noise and odour transfer.

The owner survey is not intended to identify deficiencies in their units not caused by a defect or deficiency in the common elements. This fact must be made clear to the unit owners in the instructions to the survey so that they do not assume that completing the survey will address their unit deficiencies or constitute a warranty claim to Tarion under their unit warranty.

The manner in which the owner survey is conducted is left to the practitioner. The survey can be prepared on paper and distributed

to the owners, it can be an on-line survey, or the practitioner could conduct a door-to-door survey. In determining the way in which to administer the survey, consideration should be given to the clientele in the building. For example, if a majority of the residents do not have English as their first language, an English-language written survey may not be ideal.

Enhanced Practice: *At a condominium where the majority of residents do not have English as their first language, the practitioner may offer translation of the unit owner survey as an additional service.*

It is preferable that the results of the survey be evaluated before the physical observation of the building by the practitioner. The survey results are critical in that they may indicate a systemic problem throughout the building that should be examined during the physical observation. The survey may also identify a specific suite that should be physically observed by the practitioner.

A copy of the survey and a summary of the results must be included in the performance audit report.

Review of Documents

The performance audit includes a physical observation of the condominium property. It is recommended that the practitioner complete a review of documents and the survey of owners prior to conducting the physical observation.

The regulations specify the documents that are to be reviewed in conducting a reserve fund study but do not specify which documents are required to be reviewed for a performance audit, other than all final reports of inspections that were carried out during the construction of the property (i.e., Tarion Builder Bulletin 19 reports). The list of turnover documents identified in section 43 of the *Condominium Act* contains many of the documents that a practitioner might review. The practitioner has full discretion in selecting documents to be reviewed. One of the powers of a person conducting a performance audit is to require any person to produce any drawings, specifications or information that may, on reasonable grounds, be relevant to the audit. Most practitioners typically have a list of documents they expect to see; an example list can be found in Appendix B.

Reviewing the declarations and descriptions for the condominium corporation is critical to identifying the unit boundaries, which in turn defines the common elements. In most cases, the declaration is readily available from the condominium corporation. In some cases, the condominium corporation may not have the description (survey drawings). The survey drawings are needed to help understand the limits of the condominium corporation, particularly in the case of a shared facility. In cases where the condominium corporation does not have the survey drawings, the practitioner should request that the condominium corporation obtain these drawings; the drawings should be readily available, as they are registered on title.

Enhanced Practice: *The practitioner completing the study could offer, as an additional service, to obtain the survey drawings by downloading them from ONLAND, the Ontario Land Registry Access website at: <https://www.onland.ca/ui>.*

The building design drawings are typically used to understand the various constructions and systems that make up the building. The as-built drawings should be reviewed. As-built drawings are those marked up by the contractor during construction of the project and upon which the actual locations of the building components and changes to the original contract documents are documented.⁵

Enhanced Practice: *The as-built drawings must be turned over to the condominium corporation within 30 days of turnover. If as-built drawings are not provided, the practitioner could notify the client and advise them of the remedies provided to them under section 43(8) of the Condominium Act, which allows them to make an application to the Superior Court of Justice for an order to comply.*

It is recommended that the Bulletin 19 reports be reviewed prior to the site observations as the reports will provide an indication of problem areas during construction that should then be a focus of the performance audit observations. A final Bulletin 19 report that lists no deficiencies that required correction during construction should be viewed with skepticism and should not be grounds for assuming less vigilance is required in the performance audit observations. The firm that conducted the Bulletin 19 reviews is restricted from also preparing the performance audit by Tarion's Builder Bulletin 19R.

The one-year Tarion warranty protects against unauthorized substitutions made during the construction. Substitutions may be made, but the substituted component must be of equivalent or better quality. For example, a substituted boiler must be of equal or better efficiency. An example of a lesser-quality substitution would be a sealant in a garage expansion joint instead of the specified preformed rubber gland joint seal. Therefore, it is important to review the specifications prior to the site observations to identify where lesser-quality substitutions have been made.

Some substitutions or other warranty claims may require testing to confirm the substitution, such as a membrane being thinner than specified⁶, or water velocity in pipes being higher than specified. This testing would typically only be called for by the practitioner in the event that there is physical evidence of a problem (for example, leakage due to an inadequate membrane, or premature pinhole leaks in the case of the water velocity). There is no expectation that the practitioner will complete an exhaustive series of tests when there is no visible or anecdotal evidence of a concern. Even where there is a concern, the performance audit can be submitted based on the performance concerns alone, without having done the testing to determine the cause of the concern; however, as an enhanced practice, the claim may be clearer and more likely to be successful, if these tests are completed in time to be submitted with the audit.

Enhanced Practice: *If there is visible or anecdotal evidence of a potentially warrantable deficiency, additional testing may be conducted for confirmation, as an additional service.*

A performance audit is not intended to be a design review, although design deficiencies may be identified in the course of conducting the performance audit. If a code deficiency is noted, it should be included in the performance audit report, even if it is built according to the design drawings, as the one-year warranty covers Ontario Building Code violations even if they are according to the design.

Physical Observations

The physical observations of the property must include the landscaped areas of the property and all the major components of the buildings on the property, including the foundations, parking garage, wall construction, air and vapour barriers, windows, doors, elevators, roofing, mechanical system, electrical system, fire protection system, sprinkler system, elevators and any other components that may be prescribed in the regulations to the *Condominium Act*. The physical observations are expected to identify symptoms representative of a deficiency in design or construction; in conducting a performance audit, the practitioner is not expected to determine the cause of the deficiency, nor to formulate corrective options. Responsibility for correction of warrantable issues remains with the builder. However, following completion of the performance audit, the condominium corporation often retains the services of the performance audit practitioner to act as their agent in dealing with the builder to ensure the deficiencies are corrected. The performance audit practitioner will also typically be retained by the condominium corporation to liaise with Tarion and to ensure Tarion's Performance Audit Tracking System (PATS) is kept up to date⁷.

The physical observations must be sufficient, on a rational sampling basis, that the practitioner is satisfied that they have a thorough understanding of the building construction and its deficiencies. This means that 100% of some components will be observed, while a lesser number of other components will be observed. A performance audit should clearly indicate the extent of sampling that was completed.

⁵ Care should be taken in use of the as-built drawings in case they do not reflect all changes made during construction. Reference may be made to PEO guideline, Preparing As-Built and Record Documents, March 2020, for an understanding of the difference between as-built drawings and record drawings.

⁶ Making a test cut in a waterproofing membrane may invalidate the warranty. If a test cut is required, it is recommended that the contractor that originally installed the membrane be retained to complete and repair the test cut to maintain the warranty.

⁷ The Performance Audit Tracking Summary (PATS) is a tool that vendors, owners and Tarion use to track the status and resolution of warranty claims documented in a performance audit under Tarion's Builder Bulletin 49 (BB49), a completed PATS is required to be submitted with every performance audit.

The components in the building that pose a greater risk should they fail should be subject to a higher standard of care, and therefore, will typically require more sampling. It is recommended that 100% of the garage, service rooms and central heating plant be observed. It is also recommended to observe as much of the cladding as possible, from the ground using binoculars or other optical devices, from roofs or accessed terraces, from accessed balconies, and from interior windows; it is understood that not every part of the cladding will be observed with the same clarity.

For widespread components, such as balconies, a practitioner might observe only a sample of the balconies on a building. If no deficiencies are identified on the balconies observed, the practitioner may be satisfied that there are no material issues with respect to the balcony construction. If, however, deficiencies are found on some of the balconies observed, the practitioner must use his or her professional judgement to determine what, if any, additional observation is necessary to determine the extent of the issues. The practitioner should proceed in a way that a reasonably prudent peer would under similar circumstances with respect to the extent of the physical observation. The practitioner is advised to contact Tarion to get their advice as to the number of components that need to be observed to ensure coverage. This is especially important if the deficiency is concealed and requires destructive testing to determine its extent.

A performance audit should specifically identify, and describe the locations of all identified deficiencies to allow the builder to locate the deficiencies so that they can be rectified. In cases where the practitioner suspects that a deficiency is systemic throughout the building, it may not be practical to identify each specific deficiency, but the practitioner should clearly state that they believe the issue to be systemic and the reasons why they believe this. Example locations should be identified so they can be readily located.

The client should be made aware that any sampling or testing over and above that anticipated in the performance audit proposal will incur additional fees; for this reason, the performance audit proposal should be specific with respect to the sampling that will be conducted. If the client does not approve fees related to the additional work, the report should clearly state the limitations of the observations.

It is important that the physical observations be conducted by an individual with sufficient experience examining buildings so that there is a reasonable likelihood that all critical deficiencies are identified. In some cases, the practitioner may be able to obtain valuable information from service contractors familiar with the building. Alternatively, a subconsultant practitioner may be retained to observe specific components. The Act specifically requires that the elevators be observed, which requires the services of an elevator subconsultant licensed by the Technical Standards and Safety Authority (TSSA), as they are the only parties allowed to access the hoist way, car tops and pits. The performance audit report should state clearly the part of the work that was completed by or under the supervision of

another practitioner; the subconsultant practitioner retains responsibility for their part of the services.

Optional Services

A number of optional investigative services may be proposed to the condominium client as part of the performance audit, including the following:

- A thermographic scan of the electrical system;
- A thermographic scan of the roof or exterior walls;
- Measurement of the force required to open exit doors in an emergency situation;
- Measurement of the force required to open doors within barrier-free paths of travel;
- Test cuts in roofs to verify construction;
- Test cuts in walls and ceilings to verify construction, such as exterior walls, interior walls and fire stopping⁸;
- Test pits in the landscaping to verify the overburden and waterproofing on the roof of an underground garage or similar buried space;
- Investigation of noise complaints by a specialist consultant;
- Measurement of light levels in hallways and the underground parking garage;
- Investigation of odour transfer complaints; and
- Specialist review of suspended access systems (roof anchors), mechanical systems, electrical systems, life safety systems, etc.

The practitioner should clearly outline the purpose of such additional services and should provide their advice as to the necessity of such additional services for the client's condominium. If the client elects not to proceed, this should be noted in the report.

Shared Facilities

Many condominium properties incorporate facilities, such as a parking garage or recreation complex, that are shared with one or more other entities. For the purpose of the performance audit, any shared facilities constructed within the property boundaries of the corporation carry the same warranty as the common elements. As such, they should be included in the same report, and are typically resolved by that condominium corporation. A practitioner may elect to provide a separate report for the shared facilities but must take care to understand where the property boundaries lie, so that the claims for each area are made within the appropriate warranty periods.

Performance Audit Report

The final performance audit report must be submitted by the practitioner to both the condominium corporation and to Tarion before the expiry of the one-year warranty. The *Condominium Act* is

⁸ The Condominium Act requires review of air and vapour barriers, which are generally not visible without wall openings. This is generally seen as a hold-over from the time when the Act was first drafted and air barriers were new to the Ontario Building Code. Currently these do not tend to give rise to claims. Some practitioners, therefore, treat wall openings as mandatory scope items. Others treat them an optional service. If not included, the report should indicate that only visible portions of these elements were observed.

specific with respect to the information to be included in the performance audit report and when it is to be submitted. Practitioners are reminded that they are required to include in the report a copy of their certificate of authorization, a statement by the responsible engineer that all materials required to be observed by the *Condominium Act* have been observed, a copy of the condominium's declaration and description, and the unit owner survey. The performance audit should include a list of all observed deficiencies that may have warranty coverage.

For protection of the engineer, the performance audit report must clearly state any limitations encountered in performing the performance audit, such as:

- Assumptions about the extent of the common elements and, possibly, the extent of a shared facility;
- That the observations are visual in nature and that hidden elements could not be observed, except where sampled via testing;
- The unit numbers of the units that were accessed to observe the exclusive-use common elements;
- A statement that not every instance of a component was observed; and
- A statement if the client refused additional services that were offered.

The final performance audit report must be signed and sealed by the engineer responsible for the work. The final report can include reports prepared by other practitioners; such other practitioners maintain professional responsibility for their work.

A Common Elements Performance Audit Tracking Summary (CE PATS) must be submitted to Tarion in addition to the performance audit.

The work of the performance audit is complete once the report is submitted to the client and to Tarion. Unless the practitioner proposed additional services in the performance audit proposal, such as follow-up with the builder or Tarion, or conducting a second-year warranty review, the practitioner's services are complete when the report is submitted.

The *Ontario New Home Warranties Plan Act* requires the final performance audit to be submitted by the first anniversary of the registration of the declaration. On the other hand, the *Condominium Act* requires that the performance audit report be submitted before the end of the 11th month following registration of the declaration. Practitioners should seek to take full advantage of the 12-month warranty while staying in compliance with the *Condominium Act*. As such, they either submit a report by the end of the 11th month with an addendum at the end of the 12th month, or a placeholder report at the end of the 11th month replaced by a full report at the end of the 12th month.

Anticipated Change to the Condominium Act: *When proclaimed, subsection 44(9) will remove the 11-month requirement*

and specify that a performance audit shall be submitted before the first anniversary of the date of registration of the declaration.

Condominium Conversions

A condominium conversion is the development of an existing non-residential building, such as a church, factory or warehouse and converting it into a condominium. Tarion provides some warranty coverage for conversion projects; however, the process involved in establishing warrantability is complex and beyond the scope of this document. Readers are referred to Tarion's Builder Bulletin 51.

6.

RESERVE FUND STUDIES

A reserve fund is a separate fund, or funds, to be used solely for the purposes of paying for the major repair/replacement of the common elements and assets of the condominium corporation. The intent of putting away funds for major repair/replacement is to distribute the burden of such major repair/replacement costs over all condominium owners—past, present and future. The fact that no wear may be exhibited in the first few years after a condominium is built does not mean that the usage in those years has not contributed to deterioration that will become more evident in later years.

6.1. Eligible Reserve Fund Expenditures

It is sometimes difficult to delineate between repairs which would be considered maintenance paid from operating funds from major repairs/replacements that can be paid for using reserve funds. The condominium's operating funds should cover maintenance expenditures that will generally repeat on an annual basis or more frequently. The reserve fund, therefore, should cover other expenses that would not be considered maintenance. For example, changing filters in an air handling unit would be considered maintenance, whereas replacing the heating coil in the same air handling unit after 15 years of service would be considered a reserve fund project. That being said, there is some maintenance, such as cleaning make-up air shafts, which occurs less frequently than every year but which clearly does not constitute a major repair/replacement. As another example, cleaning aluminum siding every few years to remove dirt would be considered maintenance, while repainting faded siding would be considered a valid reserve fund expenditure.

Additions, alterations and improvements cannot generally be made to a condominium without the notification and/or approval of the owners. The general consensus in the industry at the time of writing this guideline is that even the owner's approval of an addition, alteration or improvement does not make the expenditure an eligible reserve fund expenditure. This is a logical conclusion because no funds have accumulated in the reserve fund to cover such a cost. So, for example, the reserve fund cannot be used to add features to the

common elements (such as installing a new tennis court), even with proper approval by the owners. However, the reserve fund can be used to pay for the future major repair/replacement of the addition, alteration or improvement after it exists. Section 97(1) of the *Condominium Act* notes that a major repair/replacement that differs from the existing component is not an addition, alteration or improvement provided that the new equipment is current construction standard. Therefore, for example, changing an atmospheric boiler to a mid-efficiency boiler would be considered an eligible reserve fund expense. For controversial components, where the corporation and the practitioner are unsure if an expenditure is reserve eligible, the corporation may need to be asked to have their auditor and/or legal counsel provide an opinion.

Warrantable deficiencies described in the performance audit are typically assumed to be rectified by the builder, so the cost of repair should not be budgeted in the first reserve fund study.

6.2. Purpose and Types of Studies

The purpose of a reserve fund study is to determine the amount of money required in the reserve fund to meet the estimated costs of the anticipated major repair/replacement of the common elements and assets of the condominium corporation throughout the study period. In its essence, a reserve fund study requires the practitioner to gain sufficient knowledge of the common elements and assets of a condominium corporation to be able to provide forecasts of the projects likely to be charged to the reserve fund over the term of the study. This knowledge comes from a variety of sources, including a documentation review, interview(s) of individuals who are knowledgeable about the property, site observations, and the practitioner's own knowledge of the service lives and failure mechanisms likely to drive the major repair/replacement of the common elements and assets.

There are three types of reserve fund studies:

- Comprehensive study;
- Updated study with a site inspection; and
- Updated study without a site inspection.

Although these studies are often referred to as Class 1, 2, 3 respectively, practitioners should avoid this nomenclature and provide more clarity by referring to the type of study by its name.

The first study undertaken for a condominium corporation after registration is the comprehensive study, which involves a thorough review of documents and a site visit. After the first study, updated studies are undertaken, alternating every three years between an updated study without a site inspection and an updated study with a site inspection.

When a practitioner completes a study for a corporation but did not prepare the prior study, the nomenclature “updated study” is misleading, as the new report author typically has no reliance on the previous study and must start anew. As such, they are not updating, but rather authoring a new report. The new study is effectively a

new comprehensive study; however, the definition of a comprehensive study in the *Condominium Act* refers to the first study undertaken after registration. Practitioners might simply use “reserve fund study based on a site review” as appropriate terminology.

6.3. Component Inventory

The starting place in a reserve fund study is to develop an understanding of the components that form the common elements and assets of the condominium corporation. The list of the common elements and assets of the condominium corporation that will require replacement over the life of the condominium is referred to as the component inventory. The *Condominium Act* specifies that the component inventory shall include all the common elements and assets of the condominium corporation that require or are expected to require major repair/replacement within at least 30 years of the date of the reserve fund study where the estimated cost of replacement is not less than \$500. This \$500 threshold is practically too low for all but the smallest condominiums, so most clients agree to use a higher threshold. For example, replacement of failed insulating glass units might be considered to be a maintenance cost by one client, but a reserve fund cost for another client, depending on the annual estimated cost and their reserve threshold.

The practitioner completing the reserve fund study must be assured that all major repair/replacements are covered by the study. While a board may choose to pay for reserve-eligible, above reserve-threshold work using operating funds, this should not influence the component inventory going forward, as future boards may make different decisions.

The full picture of the component inventory is assembled by combining information from a variety of sources.

Development of the component inventory should start with a review of the declaration and description (survey plans) that define both the unit boundaries and the repair and maintenance obligations of the condominium corporation. This will help the practitioner determine the extent of the units; building elements that are not included in the units are the common elements that must be considered in the reserve fund study. Some declarations require the corporation to repair or replace some components even though they form part of the unit. An example might be, in some circumstances, the windows, or the HVAC units that are located within the boundaries of the residential units. Under the current Act, the corporation should not really be paying for these replacements from the reserve fund; however, as a practical matter, this is the easiest way for them to plan for and fund these expenditures. As such, there are typically no objections from lawyers or auditors if this type of expenditure is covered by the corporation's reserve fund study. The proposed amendments to the Act, when proclaimed, will clarify this point, allowing the study to cover major repair/replacement of the units, where the corporation has the obligation to repair something in the Units.

Anticipated Change to the Condominium Act: *When proclaimed, subsection 93(2) will specify that a reserve fund “shall be used solely for (a) the purpose of major repair of a unit, the common elements or assets, if any, of the corporation, if the corporation has the obligation to repair in that regard under this act...”*

As noted previously in the discussion of performance audits, if the declaration and description are not provided by the client, the condominium should be advised to get this information, or the practitioner could offer to coordinate this service as an enhanced practice. Working without this information risks errors in the study.

For a comprehensive study or an updated study with a site visit, site observations are used to supplement this knowledge and to help identify deviations from the drawings. Site observation also permits an inventory of the assets that will not be shown on the building drawings, such as furnishings and equipment.

Developing a complete component inventory is an important step in the reserve fund study process and one which requires professional judgment; missing components is one of the most common mistakes made when completing a reserve fund study.

The building must be broken down into a sufficient number of components that allow future major repair/replacement costs and timing to be reasonably predicted but must not be broken down into so many components, that the component inventory becomes unwieldy. For example, carrying the electrical system as a single component in the component inventory would not be appropriate, as there are many parts of the electrical system with different life expectancies. However, carrying each panel board as a separate component would also not be practical, as there could be dozens of panel boards in a large condominium, each with the same life expectancy and similar unit cost.

It is recommended that the component inventory be developed as a hierarchical list, such that the components are grouped according to the major systems and subsystems in the building. The manner in which the components are broken out can be adapted to suit each particular property and should consider the following:

- The extent of an anticipated major repair/replacement. Some major repairs/replacements may naturally involve several building components and so they should logically be grouped together. For example, replacement of a boiler would probably need to include components that might otherwise be considered immaterial, for example, new valves, piping, controls, etc.; all such components could be considered one component within the reserve fund study.
- Parts of the same component may have different life expectancies. For example, the waterproofing on an underground parking garage roof typically has a shorter life expectancy under paved areas versus under landscaped areas, so the waterproofing may be carried in the reserve fund study as two separate components.

- The total estimated cost of the major repair/replacement. As the reserve fund is intended to be used for major repairs/replacements rather than maintenance, it may be reasonable to establish a minimum cost, below which the component would be excluded from the component inventory. The regulations only establish a minimum threshold for major repair/replacement costs below which components must not be included in the reserve fund. However, the practitioner must ensure that the condominium understands that major repair/replacement of all components that are estimated to cost less than the established threshold will need to be paid for from their operating funds.
- The size of the building. A larger building may have more components than a small townhouse complex. A larger condominium may also establish a higher dollar threshold before components are included in the reserve fund.
- The frequency of the major repair/replacement of the component. The replacement of a component on a regular basis, such as annually, should be considered maintenance rather than a reserve fund requirement. An exception would be a component that lasts for a number of years before partial repairs or replacements are required on a regular basis. Replacement of failed insulated glass units is a good example of such a component; individual units often fail and require replacement before all windows are due to be replaced. The total annual amount spent on these replacements can be significant and can reasonably be charged to the reserve fund.
- The life expectancy of a component. Where there are a number of components with the same life expectancy, the components may be grouped together. For example, where a building has pumps for circulating domestic hot water and for circulating hydronic heating hot water, “pumps” could be considered one component. Conversely, similar components with different life expectancies should be kept separate. For example, a wood fence and a metal fence at a townhouse complex would likely be considered separate components.
- How a major repair/replacement is likely to be carried out. If two or more components will be repaired or replaced as part of the same project, even though their normal life expectancies are different, they could be combined as one line item in the component inventory. For example, a concrete sidewalk may need to be replaced if it is over the waterproofing membrane on an underground garage roof slab that is being replaced.
- Components that would be considered immaterial individually but which, if purchased as a group of multiple components would, in the aggregate, constitute a material expenditure. For example, replacement of the door hardware on an individual suite would not normally be considered as a reserve fund component. However, replacement of the door hardware on every suite door at the same time would constitute a major repair/replacement.

The component inventory may be augmented by including multiple major repair/replacement “projects” for a component.

For example, asphalt pavement may be listed as a component, but separate “projects” may be included in the component inventory for work that is required at different times during its life expectancy, such as major asphalt repair, asphalt overlays and complete replacement of the asphalt pavement.

Depending on the scope of a major repair/replacement anticipated in the reserve fund study, some work may be phased over one or more years. For example, on a large multi-storey building or in a large townhouse development a window replacement project may require many months to complete. It may be practical to split the work up and have it completed over more than one year. This may also help with cash flow. The total cost of a phased project may sometimes be higher due to the need for the contractor to mobilize more than once. This will need to be considered when phasing a major repair/replacement project.

The *Condominium Act* states that the component inventory must include components that will require major repair/replacement within at least 30 years of the date of the reserve fund study. In many cases, there are major repairs/replacements that will fall outside that 30-year time span. If such costs are not included in the reserve fund study, the current owners benefit from the use of those building elements without incurring any of the long-term major repair/replacement costs, which is against the basic premise of reserve fund planning, which is to ensure that all owners—past, present and future—share in the long-term upkeep of the property. Therefore, it is expected that a reserve fund study will consider a longer term as required to include all components that will require major repair/replacement within the life of the condominium.

Some building components might be considered “lifetime” components. An example would be the internal building structure, like the interior portions of the wood frame in a townhouse complex or the interior portions of the concrete structure in a multi-storey building. These components are expected to last the life of the building without requiring replacement. However, there may be occasion that a “lifetime” component requires repair, such as where a roof leak leads to deterioration of the roof framing of townhouse complex or the concrete of an exposed shear wall on a multi-storey building requires crack repair. It is recommended that even “lifetime” components be carried in the component inventory and that, if deemed appropriate by the practitioner, that a repair allowance or contingency be carried for their repair. It is not appropriate to assume a finite “lifetime” for a condominium, such as 50 or 100 years; as the *Condominium Act* requires that the condominium be regularly maintained and renewed, the basic premise is the expectation that a condominium building will last indefinitely.

Major repair/replacement projects often require thorough “preparatory work,” such as condition surveys, engineering investigations and/or repair designs done by the appropriate discipline prior to the work being undertaken. Such “preparatory work” should be included as a cost in the reserve fund in advance of the required work. Some of the projects where preparatory engineering costs

should be carried in a reserve fund study include: balcony repairs, balcony railing replacements, pipe replacements, window replacements, parking garage repairs, asphalt replacements, roof replacements and retaining wall repair or replacement. Engineering or other design fees related to the implementation of reserve fund eligible projects are reserve fund eligible. They can be budgeted within each project budget or as a separate cost.

The cost of conducting a reserve fund study is considered a valid reserve fund expense.

Appendix C provides a sample component inventory for a townhouse complex and Appendix D provides a sample component inventory for a multi-storey building. These component Inventories can be used as guidance, but should not be assumed to cover all components that might be found in a given condominium corporation.

6.4. Document Review

The regulations specify the documents that are to be reviewed in conducting a reserve fund study, such as the as-built drawings. The importance of reviewing the declaration and description was covered in the previous section. The Act indicates that the service contracts for the building should be reviewed. It seems to imply that this is done to avoid duplication of costs. However, most industry participants understand that a service contract typically has a 60-day cancellation policy and that there is no guarantee that the next contract will cover similar terms. As such, it seems prudent to always budget for the major repairs/replacements in the reserve fund study, in spite of the wording of the service contracts. A review of maintenance records, such as those for generators and fire alarm systems that are mandated by code, can also provide valuable information about the condition of those building elements. It is not practical, nor enlightening to review all service records, so the practitioner needs to use their judgement to determine which they deem material to the evaluation.

Sometimes major components may be leased or rented. Such components, even if a major repair/replacement cost does not need to be carried in the reserve fund study, should still be listed in the reserve fund study component inventory to ensure that the condominium corporation is aware of the component and as evidence that the component was not missed in performing the study. Some leases have a buy-out after a period of time. The study should cover the major repairs/replacements of the bought-out equipment after the lease term.

The regulation requires that, among other specifics, a comprehensive study or updated study with a site inspection shall be “based on ...a verification of records of the condominium corporation.” The regulation is not specific as to what records need to be verified, nor how the verification is to be accomplished. However, it is generally understood in the industry that this requirement refers to financial records and that receipt of such records prepared and signed by an accountant is sufficient verification.

6.5. Condition Evaluation and Time to Major Repair/Replacement

A comprehensive reserve fund study and an updated study with a site Inspection both require the practitioner to develop an opinion of the current condition of the common elements and assets through visual observation, and use this information to forecast the major repair/replacement projects that are likely to be required and when those projects will be required. There are no prescriptive requirements in the *Condominium Act* defining the level of detail of site observation needed to evaluate the condition of the components covered by the study. The practitioner is, therefore, required to use their professional judgement to arrive at a level of evaluation that will provide an opinion of the likely timing and estimated cost of the forecasted projects.

Practitioners are expected to restrict their practice to areas of personal expertise. This does not limit, for example, a practitioner from observing the mechanical systems, provided the practitioner has sufficient expertise to evaluate the condition, remaining life expectancy and estimated cost to repair the systems. While a reserve fund study requires knowledge of repair and replacement techniques, a reserve fund study does not extend to the actual design of repair or replacement projects. In some instances, when the practitioner's personal experience is insufficient, a subconsultant will need to be retained. It must be made clear in the final report when the practitioner is relying on a subconsultant's report.

In some instances, 100 per cent of a given component can be readily observed (e.g. the central plant equipment) and in other instances, the practitioner can only reasonably observe a sample (e.g. distributed heat pumps). In some cases, very little, if any, of a component can be seen (e.g. domestic water piping, or drainage piping), and the practitioner may be limited to isolated views and anecdotal reports related to past repairs. The practitioner has to use their judgement to gather the information required to permit an opinion to be formed and describe limitations on that opinion, if pertinent.

While the site observation is intended to be entirely visual with no intrusive observation, minimally intrusive observation may be undertaken, such as removal of a suspended ceiling tile to observe the type of piping installed.⁹

If a major repair/replacement project is not expected for many years, then the degree of refinement of the opinion of the likely cost can be less than if the project is anticipated in the near term. If, in the practitioner's opinion, a visual observation alone provides insufficient understanding to refine the budget of a near-term project, then additional evaluation should be recommended to the client as an optional service. An example where additional evaluation might be required is where important elements are hidden from view, such as balcony slabs that are covered by soffits

⁹ Opening electrical panels to observe their components is not recommended due to the possibility of stray current.

and slab edge covers. Examples of additional evaluations include a garage condition survey, a balcony survey, destructive test cuts and/or thermographic scans of roofs, suspended access wall test openings, etc. Ideally, the refined budget developed through the additional evaluation will be integrated into the study; however, timing sometimes dictates that the reserve fund study must be finalized before the further evaluation is completed. In this case, the forecasted repairs should be clearly identified as a "placeholder budget" until the additional evaluation is complete and a refined budget is established.

Enhanced Practice: *Additional evaluations, such as a garage condition survey, a balcony survey, destructive test cuts, thermographic scan, suspended access wall test openings, etc., may be offered as an additional service to provide a better estimate of repair extent and timing than can be provided by visual observations alone.*

The site observation is not intended to provide a review of health and safety issues. However, if a health or safety concern is noticed, the client should be made aware of the issue. If the issue is of an immediate safety concern, such as flammable materials stored too close to a transformer, the client should be notified immediately, followed up by written confirmation.

Except in the case of a newer component, the opinion of the remaining life of a component should not be based solely on the age of the component; wherever possible, the remaining life should be based on the observed condition. However, in many instances, the age of the equipment and reports provided during interviews (of site personnel, unit owners or service practitioners) may need to be used to develop the opinion. For example, a practitioner cannot develop much insight into the condition of an inverted roof through site observation only. Therefore, their prediction of the time to next major repair/replacement will more likely be determined based on the age of the roof and reports regarding the number of incidences of leakage, and perhaps the conditions seen during prior repairs.

Prior year financial statements can provide information regarding when past expenditures from a reserve fund were made. For an older building where the current age of a component may not be equal to the age of the building, getting financial statements as far back as possible can help identify when major repair/replacements were last completed to help in predicting the time to the next major repair/replacement. If the age of a component is given in the reserve fund study and the date the component was installed or replaced is not known, the age should be stated as estimated.

Components may not always have a predictable life, nor may it always be possible to predict the extent of repair required. In such cases, it is acceptable to provide an allowance or contingency in the reserve fund study for full or partial repair or replacement. An allowance is typically used when the time range for a major repair/replacement can reasonably be predicted, but the extent of the repair or replacement cannot and therefore the future cost cannot

be reasonably estimated. An example is repair of a brick wall. A contingency is used for unanticipated costs.

The study can include an overall contingency, perhaps determined as a percentage of the anticipated costs for the year or based on the history of past “contingency-type” spending. In this case, the contingency is not associated with a particular component in the component inventory. Individual project budgets can also include contingencies related to that project.

If some common elements are accessible only from the suites, then suite access should be included in the scope of work. This will permit observation of windows, balconies and terraces only accessible from the suite as well as permitting observation, in some instances, of the exterior wall elements surrounding the balcony. Sample size is not dictated by the *Condominium Act*, so the number of suites accessed should be sufficient on a rational sampling basis to provide the practitioner a realistic sense of the current condition to allow estimation of the time to replacement and the extent of work required (cost). In some instances, it may be necessary to access more suites than originally anticipated in the reserve fund study proposal. Such a situation may arise if the conditions observed vary significantly between suites and a larger sample is required to assess whether the condition is widespread or localized. In such a situation, the practitioner should offer to review additional suites as an enhanced service. Should the client not approve the review of additional suites, the reserve fund study report should indicate that further review of the element in question is recommended.

Enhanced Service: *Where it is necessary to enter more suites than anticipated at the proposal stage to evaluate common element components only visible from within the suites, the practitioner may offer to access additional suites for an additional fee.*

Where information obtained from visual observations does not provide sufficient understanding to allow forecasting of future major repair/replacement needs, conversations with people familiar with the performance of the building may provide key information. This might include the property manager, the building superintendent and major service contractors (HVAC, fire, plumbing, generator, elevator, etc.). The relevant people might vary by building as sometimes the practitioner might encounter a building with a new property manager and a new superintendent, in which case discussions with a board member or other long-standing unit owner may help fill in the missing information gaps.

Defining the time to the next major repair/replacement of aesthetic elements, such as corridor painting or carpet replacement, is rarely an engineering decision. An exception may be where a parking garage requires painting to improve safety or where a carpet presents a tripping hazard due to tears. Therefore, the practitioner may take direction from the client regarding the life expectancy or time to next replacement for aesthetic components. It should be stated in the report if the client has specified

a life expectancy to be used. Clients may sometimes suggest that the practitioner extend the time to next replacement of a building element in an effort to minimize the required contributions to the reserve fund. The practitioner must resist taking unreasonable direction from the client with respect to major repair/replacement timing of non-aesthetic building elements, particularly those that relate to health and life safety as doing so could constitute professional misconduct.

Enhanced Practice: *Contact with major service contractors (HVAC, fire, plumbing, generator, elevator, etc.) can provide additional information about the condition and history of some of the major building components. While contacting all such service contractors is considered enhanced practice, the practitioner must still exercise his/her judgment of the condition of the components and anticipated timing and estimated cost of major repairs/replacements.*

A site visit should always be included in the scope of work the first time a practitioner conducts a reserve fund study for a client. Providing an update to another practitioner’s reserve fund study is not recommended because generally the practitioner does not have legal reliance on the report. However, prior reserve fund studies can provide useful information about the timing of past major repairs/replacements and other history.

6.6. Opinion of Likely Cost

Forming opinions of the likely cost of forecasted major repairs/replacements requires both an understanding of the likely scope of work and the cost-basis for the work. This may require involvement from multiple disciplines.

The cost basis for the work varies by component and project type. In some instances, a simple count of equipment along with sizing information is needed (for example, two 1,500,000 BTU boilers, or 48 townhouse garage doors). In other instances, the practitioner will need to estimate the affected area (for example, square metres of roof replacement or asphalt driveway replacement). In still other instances, other cost bases may be appropriate (or example, the estimated cost to remove loose concrete from the walls of a building, or to complete minor masonry repairs may be more related to the number of suspended stage drops and the time likely to be spent on each drop). How the costing is done is left to the practitioner’s professional judgment.

In all instances, the practitioner must consider all costs related to the projects, including soft costs. These include costs such as engineering or other designer involvement (specifications and tendering, construction observation, contract administration and project management), contractor mobilization costs, access costs and other costs which may apply depending on the type of project (such as permits, bonding, hoisting, site/overhead protection, power line protection and building modifications needed to permit access to make the replacement). If appropriate, engineering costs for design, specifications and tendering may need to be included in the year preceding the repair work.

Estimated costs should allow for removal and disposal of existing equipment prior to replacement.

In residential condominiums, the budgets should include HST in the forecasted costs. In commercial condominiums or other situations where the flow through of HST is a consideration, the practitioner should obtain guidance from the client as to whether HST should be included in forecasted budgets.

In many instances, the scope of work budgeted will be the practitioner's opinion of the likely work to be undertaken, selected from a group of possible options. This is a serious limitation of a reserve fund study. To illustrate this point, consider a deteriorated parking garage. A range of repair options may be available to the client: they could complete local concrete repair and patch the waterproofing; they could complete full top-side removal and replacement; or they could completely replace the full depth of the slab. When an engineer completes a garage condition survey, this range of options, the related forecasted budgets, and the pros and cons of each option would typically be presented to the client for their consideration. However, when developing the reserve fund study, the practitioner essentially pre-selects from amongst these options and carries the single project budget. When the project is expected to happen far into the future, any strategy changes can be accommodated during future study updates. If, however, the project is expected in the near-term, the strategy becomes more critical to current funding levels. In these cases, the practitioner should recommend the more detailed garage condition survey and consideration of options. If the reserve fund study must be completed before this decision-making is completed, then the assumptions used must be clearly noted in the study, as well as a warning that alternate strategies may be selected that might impact the required contributions; the estimate cost in the reserve fund study should be noted as a "placeholder" budget.

Enhanced Practice: *Detailed repair recommendations are not generally provided in a reserve fund study, except to the extent necessary to describe the option considered in predicting a future cost where multiply options are possible. As enhanced practice, practitioners may provide more detailed repair recommendations; however, such an additional service would typically involve additional fees.*

Cost information is typically obtained from a variety of sources. Practitioners can use published cost data, cost data they track themselves from similar work they tendered or from the records of the same or other condominiums who have completed similar work. In some instances, the practitioner may feel it is prudent to speak to specialty contractors who might be able to help quantify likely costs.

6.7. Cash Flow Analysis

The purpose of the cash flow analysis is to predict the balance of the reserve fund for each year of the study considering anticipated expenditures, contributions and interest earned on the fund.

As per the *Condominium Act* and regulations in effect at the time this document was published, the minimum study period for a reserve fund study is 30 years. However, limiting the study period to 30 years often results in the estimated costs of some components in the component inventory having no impact on the required contributions to the reserve fund. This can result in underfunding, especially if the missed costs are substantial. As a minimum, therefore, the study period should be long enough to include all components that will require major repair/replacement at any time in the future; a study period of 45 years is often used.

Anticipated Change to the Condominium Regulations: *As part of the regulation development under Bill 106, it is anticipated that the Ministry will require the study period of a reserve fund study to be a minimum of 45 years.*

For each forecasted major repair/replacement project, the practitioner will predict the year of first occurrence of the project, the number of years between subsequent occurrences and any limitations on the number of occurrences that should be planned. Simplistically, one could call the number of years between subsequent occurrences the "normal service life," which is the language used in the *Condominium Act*; however, in many instances, this poorly defines what is really being communicated to the client.

For example, a study may include an annual budget for replacement of insulated glazing units and ultimately for full replacement of the same windows, including the window frames. The insulated glazing unit replacement project will have a year of first occurrence (usually some time after the windows were initially installed), a number of years between occurrences (typically one year) and a limitation (replacement stops when the windows are fully replaced). One cannot say that one year is the normal service life because different windows are being replaced each year. In an instance such as roof replacement, the time between occurrences will indeed be the normal service life for the roof.

Using the year of first occurrence, the number of years between occurrences, and any limitations on the number of occurrences, the practitioner inflates the estimated cost of each of the major repairs/replacements into the future year when they are expected to occur, permitting the total forecasted expenditure budget for each year in the study period to be determined.

The total forecasted expenditure budget feeds into the cash flow analysis; this tabular analysis is well defined by the *Condominium Act*, which specifies the required headings as follows:

- The estimated cost of major repairs/replacements of the common elements for the year in which the study is conducted, typically referred to as current cost;
- The estimated cost of major repairs/replacements of the common elements at the estimated time of the major repair/replacement based on an assumed annual inflation rate (future or inflated costs);
- The annual inflation rate used for estimating future costs;

- The opening balance of the reserve fund;
- The recommended amount of contributions to the reserve fund, determined on a cash flow basis, that are required to offset adequately the expected cost in the year of the expected major repair/replacement of each component in the component inventory;
- The estimated interest that will be earned on the reserve fund based on an assumed annual interest rate;
- The annual interest rate used to determine the interest earned on the reserve fund;
- The sum of the contributions and interest earned;
- The percentage annual increase in the recommended amount of contributions to the reserve fund over the recommended amount of contributions for the immediately preceding year; and,
- The estimated closing balance of the reserve fund.

6.7.1. Inflation

The forecasted expenditures in the cash flow table must be inflated to the year in which they are expected to occur. There are no published indices that relate directly to the estimated cost of restoration of existing buildings and the *Condominium Act* does not provide guidance regarding which index should be used. The practitioner should use their judgement and knowledge of the marketplace in selecting an inflation rate. Use of the StatsCan building construction price index for residential buildings may be deemed reasonable, recognizing that this reflects new construction, rather than the restoration work involved in a reserve fund study. Both rely on the same materials, but use different trades, methods and means.

6.7.2. Opening Balance

The opening balance in every year but the first year is equal to the closing balance of the immediately previous year; the closing balance for each year is determined by adding in any contributions made, adding interest earned and deducting expenditures. The opening balance in the first year, which is the current fiscal year of the condominium corporation, should be taken from the financial statements of the condominium corporation. These are typically audited statements except in the case of some small condominiums who have waived the requirement for an audit. In some cases, the audited financial statements may not be available at the time the reserve fund study is being prepared and the opening balance may need to be estimated. The report should state if the opening balance has been estimated. However, if at all possible, the opening balance from financial statements should be obtained prior to finalization of the study.

6.7.3. Interest

The *Condominium Act* specifies that interest or other income earned from the investment of money in the reserve fund becomes part of the reserve fund. Therefore, it is necessary to predict the amount of interest income that might be earned in the reserve fund using assumed interest rates. The interest rate to be used in the reserve fund study needs to consider that there are limitations on the types of investments that the condomini-

um corporation can make, based on the restrictions imposed by section 115 of the *Condominium Act*.

In the near term, the interest-earned assumptions should be based on the current level of interest being earned on the condominium corporation's investments. This can be calculated using the condominium corporation's financial statements. Further out in the analysis, it may be reasonable to use a different assumption for interest earned. The use of Bank of Canada historical interest rates is recommended. However, factors that should be considered in establishing the interest rate to be used include the predicted balances in the fund, and when the money is being spent. For example, a condominium corporation that has several million dollars in the fund that are not earmarked to be spent in the near term is likely to earn a higher interest rate than a condominium corporation that is spending almost everything they contribute and not gathering a significant balance.

While contributions to the reserve fund should be made on a monthly basis, it is reasonable for the amount of interest likely to be earned to be calculated on an annual basis. Each year's interest should be calculated using the opening balance for the year, with allowances made for contributions and expenditures for that year. Some practitioners use the average balance for a given year to calculate the amount of interest likely to be earned. Practitioners should use their best judgment in determining how to calculate the interest likely to be earned on the reserve fund based on the fund balance and the expenditures expected.

Anticipated Change to the Condominium Regulations: *As part of the regulation development under Bill 106, it is anticipated that the Ministry will define the method to be used to calculate the interest earned in each year.*

6.7.4. Adequate Funding and Minimum Balance

While the *Condominium Act* requires that the amount of money in the reserve fund be "adequate" to cover anticipated future costs, the *Condominium Act* has not clearly defined what adequate means, leaving practitioners free to provide clients with a variety of cash flow scenarios. However, it is generally accepted in the industry that the goal of an ideal reserve fund study is that the rate of escalation of contributions should not exceed the assumed rate of inflation used in the study. Where this is not possible because the change between the current contribution and the required contribution is too much to implement in one step, it is reasonable to inflate contributions at a greater rate than the rate of inflation for the period of time until the next study will be completed (three years), after which time the contribution rate should match the rate of inflation.

For new condominiums, the first-year contribution to reserve is often set at 10% of the operating budget which is typically too low by a factor of two or three. As such, for new condominiums, the phase-in period might reasonably be extended to as long as six years. Longer phase-ins for new condominiums are not advised.

Anticipated Change to the Condominium Regulations: *It is anticipated that the Ministry will provide a definition of “adequate funding.”*

In some cases, the condominium board may elect to use a special assessment or loan to ensure adequate funds are available for work required in the immediate to near future. However, special assessments should not be planned more than three years in the future unless there are extreme extenuating financial reasons; planning a special assessment much past three years places an additional burden on future owners, which is contrary to the key tenet of reserve fund planning, that the cost of major repairs/replacements should be shared fairly by all owners—past, present and future.

The client has an inherent bias in favour of a study that minimizes current contributions. This often results in a situation where the practitioner is threatened with loss of future business if a longer phase-in or longer than normal service life assumptions are not accommodated upon the request of the client. Longer phase-in periods and longer service life assumptions are detrimental to the long-term financial well-being of the condominium and should be avoided. Ideally this concept will be enshrined in the amended legislation. Until then, the intent of the Act must be interpreted and practitioners should use best efforts to explain to their client that the interest of future owners must be considered, in addition to the interests of current owners.

The concept of adequate funding also encompasses the concept of maintaining a minimum balance in the reserve fund as a factor of safety against the need for unexpected major repairs/replacements. The minimum balance is the lowest level to which the closing balance in any year of the cash flow is permitted to drop. It is typically approved by the client but recommended by the practitioner. In providing this guidance, the practitioner should consider when the minimum balance year (or critical year) occurs. If it is in the very near term, then the minimum balance should be set relatively high (perhaps 25% of the highest annual expenditure year in the next five years). If the critical year is distant, say 25 years out, then the minimum balance becomes much less critical, as many study updates will be completed before that time. In the middle term, judgement must be used on the part of the practitioner and the client to arrive at a minimum balance that makes the client comfortable. Other factors that might affect the target minimum balance are the number of units, the type of condominium, the expenditures that create the minimum balance, the maximum expenditure year and the age of the condominium.

6.7.5. Recommended Contributions

It is anticipated that practitioners will utilize a customized spreadsheet to calculate the recommended contributions to the reserve fund that will ensure the minimum balance is maintained over the study period, considering the opening balance, interest and inflation rates, and necessary expenditures. It is fully expected that the cash flow analysis and recommended contributions will vary between practitioners, even for the same building. Generation of

the cash flow analysis involves many assumptions about future events. It is inevitable that practitioners will not make all the same assumptions regarding major repair/replacement needs and timing, and inflation and interest rates. However, to help minimize variations between reserve fund studies done by different practitioners, all practitioners should follow the same general calculation method—the cash flow method¹⁰—in generating the cash flow plan.

The cash flow method assumes that money required for major repair/replacement of all the components is pooled together, such that the money in the reserve fund can be used for expenses related to any component, even a specific component that requires major repair/replacement sooner than anticipated in the reserve fund study. The cash flow method involves an iterative approach to determine the contribution and the contribution escalation rate necessary to ensure the minimum balance is maintained throughout the study period.

The funding plan must show the percentage increase of the contributions year over year. As noted previously, to be “adequately funded” the contribution escalation rate should not be greater than the cost inflation rate assumed in the study after the fourth year of the study. Following a critical year, the contribution escalation rate may have to decrease to avoid future over-funding of the reserve fund.

6.7.6. Loans to Cover Reserve Fund Expenditures

In some cases, condominium corporations may need to incur loans to cover immediate major repairs/replacements where the reserve fund does not have a sufficient balance. The accounting for the loan can be handled in different ways, including considering the loan as a contribution to the reserve fund. If handled in this way, then a line item must be added to the component inventory to recognize the loan repayment amounts that will need to be made from the reserve fund. Most accountants will not permit the interest portion of the payment to be paid from reserve. Alternatively, if the loan is not considered as a contribution to the reserve

¹⁰ There are some reserve fund study planners that do not use the cash flow method but rather use a straight-line approach to reserve fund planning, sometimes also referred to as the component method. The straight-line approach should NOT be used as it typically over-estimates, sometimes significantly, the required contribution levels. Overestimating contribution levels creates an unfair burden on current owners. Further, the Condominium Act specifically states in article 29.3(b)(v) that the funding plan shall show for each projected year, “the recommended amount of Contributions to the Reserve Fund, determined on a cash flow basis, that are required to offset adequately the expected cost in the year of the expected Major Repair/Replacement of each Component in the component inventory.” Using the straight-line approach, required funding is calculated for each individual element. For example, if townhouse windows have a 30-year life expectancy with a current replacement cost of \$900,000, then this method determines that \$30,000 should be allocated to the reserve fund each year for the windows. Using this approach for all components in the component inventory, the total required reserve fund balance is determined for each year. The ratio of the balance in the fund to the calculated required amount is expressed as the “percent funded;” reference to a “per cent funded calculation” is a signal that the reserve fund study planner is inappropriately using the straight-line method for the cash flow analysis.

fund but is instead handled via a separate fund, then payments for the major repair/replacement project that the loan is covering should not be made from the reserve fund. Adjustments will need to be made to the reserve fund study to reflect how the loan has been handled. The practitioner is not expected to advise the condominium corporation how to account for a loan; the condominium corporation should consult their accountant in this matter.

6.8. Financial Updates—Updated Studies Without a Site Inspection

An updated study without a site inspection is primarily a financial update, including interviews with the client (including directors, officers, employees and agents) as considered appropriate by the practitioner. Such updates are typically completed after a comprehensive study and between updated studies with a site inspection. A practitioner should not undertake an updated study without a site inspection unless the same practitioner prepared the previous reserve fund study.

A financial update should recognize any expenditures from the reserve fund and any contributions to the reserve fund that have occurred since the last reserve fund study was completed. The timing of planned work should be adjusted to reflect the time that has passed since the previous study was completed and changes to the underlying unit costs. There are different approaches that can be taken to updating the costs.

The simplest method of updating costs is simply to inflate costs calculated in a prior study using an assumed inflation rate. While it is tempting to use such a simple method to update costs, it is unlikely that all costs inflate at the same rate. For example, a major hurricane in the southern United States may disrupt oil production, which in turn has a disproportionate effect on petroleum-based products, such as roofing and waterproofing materials. The result is that the rate of inflation on a roofing project is higher than the average rate of inflation. Therefore, the practitioner should consider the underlying unit costs that drive the most significant major repair/replacement projects (e.g. those that have an estimated cost over approximately \$50,000 or that represent more than 10% of the reserve fund) and major repair or replacement projects that are required in the near future (e.g. within six years) and update these to current costs at the time of the update.

Enhanced Practice: *As an enhanced practice, when conducting an updated study without a site inspection, rather than simply inflating the estimated costs used in a financial update, new costs should be used for all components in the component inventory. Such costs should reflect the practitioner’s best estimates of current costs based on recent experience or up-to-date published cost data.*

6.9. Updated Studies with a Site Inspection

When conducting an updated study with a site inspection, the costs should not simply be inflated from a previous study as is sometimes done for an updated study without a site inspection. It is anticipated that reserve fund practitioners maintain a database

of costs that is regularly updated to reflect current economic conditions. Such current costs should be used when completing an updated study with a site inspection. However, if a cost in the practitioner’s database has not recently been updated, consideration may be given to the materiality of the component with respect to the overall analysis. Where the cost of a major repair/replacement is not material to the overall cash flow analysis, it may be acceptable to simply inflate an older cost to the current time. If, however, the cost will be material to the overall cash flow analysis, it is recommended that the cost be re-estimated, including confirming the cost basis (e.g. the area of repair).¹¹

6.10. Shared Facilities

In addition to wholly owned common elements and assets, the condominium corporation will need to consider the need for major repair/replacement of shared facilities. The practitioner must review the shared facility agreement(s) or reciprocal agreement(s) to understand how the shared facilities are funded; the practitioner should not prepare a study simply based on hearsay information about the sharing obligations. In some instances, there is an independent reserve fund study for the shared facilities. In other instances, each corporation collects funds towards their shared obligations in their own reserve fund, either based on their independent component inventory or based on a common component inventory prepared for the shared facilities. Some corporations participate in both sorts of sharing. Some shared facility agreements are inordinately complex, unclear or missing components and assumptions may need to be made. All assumptions must be stated and the practitioner may recommend that the client obtain legal advice if sharing is too unclear. The corporation’s percentage obligation for shared components should be identified in the report.

6.11. The Reserve Fund Study Report

The format of the reserve fund report is left to the practitioner but it must be written using language that the client will understand. It is recommended that the report include a statement of limitations similar to those in the performance audit report. The report should also include a statement regarding the interest and inflation rates used for the study period (these may vary with time).

A description of the components in the component inventory, such as the number and size of boilers, or window material and operation style, should be included in the report. In addition, it is recommended that a description be provided of all major repair/replacement projects of a significant nature, as well as detailed descriptions of all projects required within the next six years.

It is recommended that the engineer(s) stamp all reserve fund study reports. However, if the reserve fund study involves any of

¹¹ Even where a practitioner completed a previous comprehensive study or updated study with a site inspection for a client, it is a good idea to re-check all calculations previously made to reduce the risk of errors that might be carried forward.

the following, the engineer(s) must stamp the reports, as per the *Use of the Professional Engineer's Seal* practice guideline:

- Buildings four or more storeys in height;
- Buildings with suspended structural slabs that support parking, driveways or landscaping;
- Buildings with balconies, other than wood balconies that are fully exposed;
- Post-tensioned structures; and
- Other high-risk structures.

6.12. Finalizing the Reserve Fund Study

Before the cash flow plan is finalized, submitting a draft to the client is recommended. This gives the client the opportunity to identify any changes that should be made, such as correcting the year a component was last replaced or to comment on the minimum balance, interest or inflation assumptions. If the client is concerned about the rate of escalation of the contributions, it is sometimes possible to adjust the timing of major repairs/replacements. As the life expectancy and time to next replacement are estimates, this is an acceptable practice, provided:

1. The timing on the major repair/replacement is not adjusted more than a few years;
2. Delaying the major repair/replacement of the component would not constitute a health or safety issue; and
3. Consideration is given to how far into the future the adjusted major repair/replacement occurs (estimating the time to next major repair/replacement is more precise for components needing repair or replacement in the immediate or near future than in the far future).

Consideration should be given to whether or not repair programs need to be added in order to defer a replacement. For example, a roof or waterproofing can often be deferred provided money is available to complete repairs prior to replacement.

Ultimately, the client is responsible for deciding how much money will be contributed to the reserve fund. The plan decided upon by the client (the condominium board of directors) is the “funding plan” and it must indicate if the plan adopts or does not adopt the recommendations of the reserve fund study. After the funding plan is finalized, the *Condominium Act* requires that a “Notice of Future Funding of the Reserve Fund” be prepared for distribution to all unit owners.

Enhanced Practice: *While preparation and distribution of the notice of future funding is the responsibility of the client, as enhanced practice, the practitioner can prepare the document for the client. The format for the notice of future funding is prescribed in the regulations; a copy of the form is provided on the Government of Ontario web site: https://files.ontario.ca/notice_of_future_funding_of_the_reserve_fund_under_subsection_94_9_of_the_condominium_act_1998.pdf.*

The client typically desires to keep the increase in the reserve fund contributions to a minimum and may ask the practitioner to prepare a funding plan that the practitioner feels is inadequate to

cover anticipated future major repair/replacement costs or which places an unreasonable burden on future owners by delaying contributions to future years. Under no circumstances should the practitioner agree to prepare a such a financial plan, even if the plan is accompanied by a caveat that the practitioner does not agree with the plan and considers it inadequate.

The practitioner is not responsible for monitoring or ensuring that the client follows either the plan the practitioner prepared or the plan the client decided to adopt as the funding plan. When the client decides on a funding plan that does not match the plan recommended by the practitioner, the *Condominium Act*, requires a statement in the notice of future funding that the plan does not match the plan provided by the reserve fund study practitioner.

7.

DEFINITIONS

Act: See *Condominium Act*.

Allowance: An amount of cash carried in the reserve fund study for a future major repair/replacement where the need for the work can be predicted with some certainty, but the extent of the work cannot be predicted with any certainty.

Assets: Non-fixed components owned by the condominium corporation not shown on building drawings, for example, exercise equipment or furniture.

Bulletin 19 Report: A summary of the third-party inspections carried out during construction as required by Tarion for all condominiums enrolled under the *Ontario New Home Warranties Plan Act*.

Cash flow analysis: A prediction of the changes in the amount of cash in the reserve fund based on anticipated expenditures, recommended contributions and interest earned.

Common elements: All of the property except the units. See also **Exclusive-Use Common Element**.

Component: A part of the common elements and assets of the corporation that can be repaired or replaced independently.

Component inventory: A list of the common elements and assets of the corporation that requires or is expected to require major repair/replacement at some time in the future.

Condominium Act: For the purpose of preparing a performance audit or a reserve fund study, reference to the *Condominium Act* or *Act* means the most current *Condominium Act* and its regulations in place at the time of the study.

Contingency: An amount of cash carried in the reserve fund for a future major repair/replacements that cannot be predicted.

Contribution: The amount that the condominium corporation contributes to the reserve fund from funds received from the unit owners as part of their monthly fees. Used as a positive item of cash flow in the cash flow analysis.

Contribution escalation rate: The annual percentage change in the contributions to the reserve fund.

Critical year: A year in which the cash flow analysis predicts that the reserve fund balance falls to the minimum balance.

Current cost: The major repair/replacement cost for a component as of the date the reserve fund study is conducted, in Canadian dollars.

Declaration: The legal document that establishes the condominium corporation.

Deficiency: A defect in the design, materials or handiwork of a component.

Description: The legal document that defines the physical boundaries of the condominium corporation and defines the boundaries of the units.

Engineer: For the purpose of this document, the term “engineer” applies equally to professional engineers, temporary licence holders, provisional licence holders and limited licence holders.

Enhanced practice: A task that might not normally be considered part of a reserve fund study or performance audit but is a service that may be added by an engineering firm.

Exclusive-use common element: Part of the common elements that, per the declaration and description, is for the use of a single unit or group of units.

Funding plan: The amount of contributions to be made to the reserve fund formalized through the notice of future funding of the reserve fund.

Interest rate: The rate used in the cash flow analysis to determine the income on the unused balance of the reserve fund, stated as a per cent.

Life expectancy: The number of years a component is expected to perform before requiring major repair/replacement.

Maintenance: Upkeep to the common elements and assets that is completed on a regular basis and that is paid for using operating funds.

Major repair/replacement: Any intervention to a component that is not considered to be maintenance, an addition, an alteration or an improvement.

Minimum balance: The lowest level to which the closing balance in any year of the study period is permitted to drop, reported in Canadian dollars (See also critical year).

Normal life expectancy: See life expectancy.

Notice of future funding of the reserve fund: A document required by the *Condominium Act* to be prepared by the condominium board of directors that outlines the contributions that will be made to the reserve fund in the current year and the increase in contributions over the next three years.

Operating funds: The monies used for the day-to-day running of the condominium corporation that is not part of the reserve fund.

Practitioner: The individual conducting a performance audit or reserve fund study who may be either an engineer or someone working under the supervision of an engineer.

Reciprocal agreement: See shared facility agreement.

Registration: The date the condominium corporation is formed by the filing of paperwork at the land registry office.

Regulation: The general regulation under the most current Condominium Act in place at the time of the study.

Reserve fund: A fund to be used solely for the purposes of paying for the major repair/replacement of the common elements and assets of the corporation.

Shared facility: Property shared by two or more condominium corporations or legal entities, for example, a recreation centre or a parking garage.

Shared facility agreement: A legal document that allocates the use and the financial responsibilities for maintenance and major repair/replacement of a shared facility. Also referred to as a reciprocal agreement.

Site inspection: A visual review of the common elements and assets of the condominium corporation and/or the shared facilities for which the corporation is responsible.

Special assessment: A demand for unit owners to pay a lump-sum additional contribution to the common expenses over and above their regular monthly contributions.

Study period: The number of years over which the cash flow analysis is projected.

Turnover: The transfer of management of the condominium from the developer-controlled board of directors to an elected board of directors.

Unit: That part of a condominium owned by an individual(s) and as defined in the description.

APPENDIX A.

REFERENCES OF INTEREST

Note that this list is provided for information only and should not be considered a comprehensive list. This list in no way limits the responsibility of an engineer or the scope of this guideline. Further, the hyperlinks provided were valid only at the time of publication and may change over time. These references are presented in no particular order.

- Structural Condition Assessments of Existing Buildings and Designated Structures. PEO, 2016, 24 pp. <https://www.peo.on.ca/sites/default/files/2019-11/structuralconditionassessmentsorexistingbuildingsanddesignatedstructuresguidline.pdf>
- Report of the Building Safety Technical Advisory Panel (BSTAP), January 27, 2016, 54 pp. <http://www.mah.gov.on.ca/AssetFactory.aspx?did=14963>
- Construction Performance Guidelines (CPG) for Freehold Homes and Condominium Units, Tarion, June 1, 2019, 303 pp. https://www.tarion.com/sites/default/files/2019-06/CPG_Freehold_June1_2019.pdf
- Construction Performance Guidelines for Common Elements of Residential Condominiums (CE CPG), Tarion, October 9, 2012, 140 pp. https://www.tarion.com/sites/default/files/2019-09/CE_CPG_09_19_0.pdf
- ASTM E1557-09(2020)e1, Standard Classification for Building Elements and Related Sitework—Uniformat II.
- Uniformat, A Uniform Classification of Construction Systems and Assemblies, The Construction Specification Institute and Construction Specifications Canada, 2010, 196 pp.
- ASTM E2018-15, Standard Guide for Property Condition Assessments: Baseline Property Condition Assessment Process.
- CSA S478:19, "Durability in Buildings".
- Assuming Responsibility and Supervising Engineering Work Guideline, Professional Engineers Ontario, February 2018, 7 pp. <https://peo.on.ca/sites/default/files/2019-11/Assumingresponsibilityandsupervisingengineeringworkguideline.pdf>
- Builder Bulletin 19R, Condominium Projects Design and Field Review Reporting, Tarion, January 1, 2017, 71 pp. https://www.tarion.com/sites/default/files/2018-01/Builder-Bulletin-19R-D5-Dec-19-2017_0.pdf
- Builder Bulletin 49, Claims Process - Condominium Common Elements, Tarion, June 2010, 12 pp. <https://www.tarion.com/sites/default/files/2017-08/BB49-Claims-Process-Condominium-Common-Elements.pdf>
- Builder Bulletin 51, Residential Condominium Conversion Projects, Tarion, January 1, 2018, 37 pp. <https://www.tarion.com/sites/default/files/inline-files/Draft-BB51-Residential-Condo-Conversion-Projects.pdf>

APPENDIX B.

LIST OF DOCUMENTS THAT MAY BE REVIEWED DURING A PERFORMANCE AUDIT

ITEM	REC'D
Declaration	
Survey drawings (aka the "Description")	
Bylaws	
As-Built Drawings and As-Built Specifications <ul style="list-style-type: none"> • Architectural • Structural • Mechanical • Electrical • Plumbing • Interior design • Landscaping • Site servicing 	
Equipment manuals <ul style="list-style-type: none"> • Mechanical and maintenance manuals • Electrical and maintenance manuals • Plumbing and maintenance manuals 	
All existing plans of television, radio or other communications services	
Proof of enrollment with Tarion	
Letters from the design team <ul style="list-style-type: none"> • Confirmation from the structural engineer that the structure including elements such as parapets, has been designed to withstand loads applied by the suspended access system when deployed. This should be part of the roof anchor logbook. • Confirmation from the mechanical engineer of the smoke control measures used, that they comply with code and outlining the specific devices on site and the maintenance/testing requirements with the frequency for each system. 	
Construction shop drawings: <ul style="list-style-type: none"> • Window systems • Precast concrete • Balcony guards • Ramp heating cable layouts 	
TSSA inspection and acceptance of the boilers, chillers, generators and elevators	
Roof anchor / suspended access drawings	
Fire alarm system verification	
Balancing reports (air handling units make-up air units, other fans and domestic water)	

ITEM	REC'D
Commissioning reports	
Agreements binding the corporation (that might be relevant to the audit—such as storm water discharge, other monitoring agreements)	
Servicing reports for the site (functional servicing report, storm water management report, initial water quality testing)	
Warranties and guarantees for all equipment, fixtures, chattels, etc.	
Certificate of Compliance with Model National Energy Code (ASHRAE 90.1)	
Bulletin 19 Final Report, which should include: <ul style="list-style-type: none"> • All milestone reports • Design certificates • Field review declaration • Design team final clearances 	
Other documents required by Bulletin 19 (which should have been provided by the builder within 30 days of turnover): <ul style="list-style-type: none"> • Window test report • Balcony guard load test • TSSA approvals • Acoustic test report 	

APPENDIX C.

SAMPLE COMPONENT INVENTORY FOR TOWNHOUSE COMPLEX

1.		BUILDING ELEMENT	NOTES
1.		Site	
1.	1	Curbs	
1.	2	Interlock/Unit paving/Concrete paving	The practitioner may want to differentiate paving on grade from paving located over a buried roof deck as related repairs are likely to differ.
1.	3	Asphalt paving	
1.	4	Fencing	The practitioner may need to differentiate fencing types due to different service lives.
1.	5	Retaining walls (concrete, precast, timber, stone, etc.)	The practitioner may need to differentiate retaining wall types due to different service lives.
1.	6	Planters	
1.	7	Site stairs—Concrete, wood, steel	Include garage exit stairs under Site or Parking Garage. Some stairs may incorporate snow melting system, which must be considered.
1.	8	Site railings (stairs, ramp edges, etc.)	
1.	9	Site/street furnishings (benches, tables and chairs, BBQ, etc.)	
1.	10	Wood decking	
1.	11	Signage	
1.	12	Vehicles and site equipment	Some corporations' own buses, tractors, etc.
1.	13	Trees	
1.	14	Soft landscaping	Periodically sites require landscape renewal of a scale greater than normal maintenance, such as renewal of shrubs.
1.	15	Tennis/Basketball/Shuffleboard etc. courts	
1.	16	Playground equipment	
1.	17	Outdoor pool/whirlpool	
1.	18	Outdoor pool mechanical equipment (boilers, heaters, heat exchangers, pumps, filters, brominators, etc.) and piping	

		BUILDING ELEMENT	NOTES
1.	19	Gazebos/Pergolas/Trellises	
1.	20	Gatehouses, sheds and outbuildings	
1.	21	Fountains	
1.	22	Gate arms	
1.	23	Hydro vault	These are often buried rooms that house transformers, and are the responsibility of the corporation to maintain. Practitioners should consider what structural and waterproofing repairs the vault will need over its service life. The corporation may also own the transformers, in which case they should be covered as electrical components.
2.		STRUCTURAL ELEMENTS	
2.	1	Foundation walls	In many cases, the buried walls are in the garage of a high-rise, but townhouses and some buildings have foundation walls as walls of occupied basements .
2.	2	Foundations—Footings, caissons, raft slabs, tie-down anchors, etc.	Most building foundations don't require renewal. Some specialty systems might.
2.	3	Structural frame/Building structure	
2.	4	Special structural systems (post-tensioning)	
2.	5	Waterproofing on structural slabs (garbage rooms, mechanical rooms)	
3.		BALCONIES, DECKS AND OTHER STRUCTURAL ELEMENTS EXPOSED TO THE WEATHER	
3.	1	Balcony slab/Deck/Sub-structure	
3.	2	Guards/Railings/Dividers	
3.	3	Balcony/Deck waterproofing/ Sealer	
3.	4	Balcony finishes—painted soffits, slab edges, balustrades	
3.	5	Exposed shear walls and exposed floor slab edges	

		BUILDING ELEMENT	NOTES
3.	5	Parapets	
3.	6	Balcony/Exposed structural element condition survey	
4.		PARKING GARAGE	
4.	1	Garage condition survey	
4.	2	Walls	See also foundation walls under Structural Elements. Painting of garage walls and parking stall stripes should be considered.
4.	3	Suspended slab	
4.	4	Suspended slab—Waterproofing/Traffic surface	
4.	5	Garage roof lab	Some occupied basement areas may also have buried roof decks.
4.	6	Garage roof deck waterproofing and overburden	The Practitioner may choose to separate waterproofing under paving from waterproofing under soft landscaping as these often have different service lives.
4.	7	Ramp slab	
4.	8	Ramp waterproofing/Traffic surfacing and snow-melt system	
4.	9	Garage drainage (area drains, catch basins, trench drains, piping)	
4.	10	Slab on grade	
4.	11	Expansion joint seals	
4.	12	Soffit (T-bar, drywall, faced insulation, etc.)	
4.	13	Garage exit stairs	Include garage exit stairs under Site or Parking Garage
5.		WALLS AND SEALANTS	
5.	1	Wall condition survey	
5.	2	Cladding (precast, masonry, stucco, EIFS, etc.)	Different cladding systems usually have different service lives and repair needs.
5.	3	Sealants/Caulking	
5.	4	Soffits (under overhanging spaces)	

		BUILDING ELEMENT	NOTES
6.		DOORS	
6.	1	Public entrance doors	
6.	2	Service doors	
6.	3	Balcony/Patio doors	
6.	4	Overhead doors	
7.		GLAZING SYSTEMS	NOTES
7.	1	Windows/Window wall/Glazed curtainwall systems	The practitioner should consider if the system will require interim repairs such as metal-to-metal joint sealing, or frame painting, as well as replacement.
7.	2	Glazing (insulated glass unit replacement)	
7.	3	Weatherstripping and window hardware	
8.		ROOFING	
8.	1	Roof condition survey	
8.	2	Sloped roofing (asphalt shingles, metal, tile, soffit, fascia, eavestrough, downspouts, etc.)	
8.	3	Low slope/Flat roofing (including drains, membranes, counter flashings, insulation, ballast, hatches, etc.)	Consider if the substrate might require repair (examples: steel deck exposed to phenolic foam insulation, aerated concrete, wood decking with rot etc.). Terrace roofing should be considered.
8.	4	Skylights	
8.	5	Rooftop walkways	
8.	6	Ladders	
8.	7	Canopies	
9.		SUSPENDED ACCESS EQUIPMENT	Include garage exit stairs under Site or Parking Garage
9.	1	Tie-back anchors, rope guides, tie-back buttons, static lines, monorails, etc.	
9.	2	Outriggers, davit arms and bases	
9.	3	Cranes and stages	Different cladding systems usually have different service lives and repair needs.
10.		PLUMBING SYSTEMS	
10.	1	Irrigation systems	Often irrigation systems are replaced when garage roof deck waterproofing is replaced.

		BUILDING ELEMENT	NOTES
10.	2	Water mains (domestic and fire), wells, filtration, backflow prevention	
10.	3	Buried sewers, catch basins, manholes	
10.	4	Fire hydrants	
10.	5	Septic systems, water treatment plants	
10.	6	Drainage piping system (sanitary, storm)—piping, clean-outs, heat tracing, etc.	
10.	7	Storm water cisterns, grey water recovery	
10.	8	Sumps, sump pumps, discharge meters	
10.	8	DHW boilers, heater tanks, heat exchangers	
10.	9	DHW storage tanks	
10.	10	Domestic water pumps (booster, circulating, recirculating)	
10.	11	Domestic water piping (hot supply, recirculation, cold supply)	Different usages and pipe types may result in different service lives. In copper systems, recirculation pipes typically have a shorter service life than hot water. Hot water piping typically has a shorter service life than cold water.
10.	12	Mixing valves	
10.	13	Pressure reducing stations	
11.		HEATING AND COOLING	
11.	1	Heating boilers, heat exchangers	
11.	2	Chiller, refrigerant detection system	
11.	3	Cooling tower	
11.	4	Terminal units (fan coils, heat pumps, baseboard heaters, cabinet heaters, radiators, unit heaters, split AC, air handling units, etc.)	Suite HVAC equipment is typically unit-owned, but may be common element.

		BUILDING ELEMENT	NOTES
11.	5	Packaged rooftop unit	
11.	5	HVAC distribution piping systems (piping, valves, expansion tanks, chemical treatment, etc.)	
11.	6	Circulating pumps (building pumps, condenser pumps etc.)	
11.	7	Solar panels and related equipment (tanks, pumps)	Note: these may belong under Domestic Water, Heating or Electrical, depending on usage and type.
11.	8	In-floor radiant heating (hydronic or electric)	
11.	9	Electric baseboard heaters	
11.	10	Chimneys/flues	
11.	11	Building automation system	
12.		VENTILATION	
12.	1	Make-up air units, air handling units	
12.	2	Central exhaust fans	
12.	3	Parking garage exhaust Fans	
12.	4	CO/NO detection systems for fan control	
12.	5	Pressurization fans (smoke control)	These could be reported here or under Fire and Life Safety.
12.	6	Kitchen and bathroom exhaust fans, suite ERV/HRV	Suite HVAC equipment is typically unit-owned, but may be common element.
12.	7	Humidification/Dehumidification systems	These systems are often used in pool areas.
12.	8	Ductwork (including diffusers/ grilles/balancing louvers, fire dampers)	
13.		WASTE DISPOSAL	
13.	1	Garbage compactor/sorter	
13.	2	Garbage chute, chute doors, chute controls	

		BUILDING ELEMENT	NOTES
13.	3	Disposal bins, bin puller	
14.		ELECTRICAL SYSTEMS	
14.	1	Electrical system condition survey	
14.	1	Main building transformer	These are often utility-owned, but not always.
14.	3	Main panel/switch gear	
14.	2	Interior transformers	
14.	3	Power distribution (wiring, bus ducts, tap boxes, distribution panels, disconnects)	
14.	6	Motor control centres (MCC)	
14.	4	Suite electrical panels	Suite panels are typically unit-owned, but may be common element.
14.	5	Interior lighting	Interior lighting can often be included in refurbishment budgets.
14.	6	Exterior lighting (poles, bollards, wall- or soffit-mounted, etc.)	Could be considered a site component.
14.	7	Garage lighting	Could be considered a parking garage component.
15.		SECURITY/ACCESS CONTROL	
15.	1	Intercom system	
15.	2	Enterphone/Video concierge	
15.	3	Access control system (fob readers, card readers and related head-end equipment)	
15.	4	CCTV (cameras, wiring, head-end equipment)	
15.	5	Suite security system (wiring, head-end equipment)	Suite panels are typically unit-owned, but may be common element.
16.		FIRE AND LIFE SAFETY SYSTEMS	
16.	1	Fire alarm head-end equipment (main panels, annunciators, fire-fighter handsets, voice communication, fan controls, etc.)	

		BUILDING ELEMENT	NOTES
16.	2	Fire alarm wiring and devices (detectors, speakers/horns, end-of-line devices, pull stations, valve monitoring, etc.)	
16.	3	Automatic electronic defibrillator (AED)	
16.	4	Suppression systems (main header, fire pump, fire water storage tanks, fire hose cabinets and related heat tracing, fire sprinkler heads, piping, valves, standpipes, compressors, fire department connections, etc.)	Dry systems typically require replacement sooner than wet systems, so are often separated out.
16.	5	Generator and related fuel systems (tanks, fill stations, pumps)	
16.	6	Invertor and related batteries	
16.	7	Battery-pack emergency lighting systems	
16.	8	Exit signs	
16.	9	Automatic transfer switches	
16.	10	Co-generation equipment (turbines, batteries, and related storage cabinets, wiring to building electrical system, etc.)	Practitioner to clarify where other related equipment (distribution panels, domestic water preheat equipment, batteries, etc.) are covered if not covered here.
17.		ELEVATORS, LIFTS AND ESCALATORS	
17.	1	Elevator condition survey	
17.	2	Elevator cab finishes	
17.	3	Elevator equipment (controls, drives, call buttons, motors, machines, etc.)	
17.	4	Door safeties/Door operators/Door catches	
17.	5	Elevator hydraulic cylinders	
17.	6	Lifts (wheelchair lift, waste lift, etc.)	

		BUILDING ELEMENT	NOTES
17.	7	Escalator equipment (stairs, handrails, skirt panels, brushes, controls, etc.)	
18.		FINISHES, FURNISHING AND EQUIPMENT	
18.	1	Lobby FF&E	
18.	2	Above-grade corridor FF&E	
18.	3	Interior doors (suite doors, electrical closets, stairwells, garbage chute room, etc.)	
18.	4	Interior door hardware (power door operators, closers, hinges, locksets for suite doors, electrical closets, stairwells, garbage chute room, etc.)	
18.	5	Garbage chute room FF&E	
18.	6	Stairwell FF&E	
18.	7	Below-grade corridor/Elevator lobby FF&E	
18.	8	Service room FF&E	
18.	9	Exercise equipment	
18.	10	Office equipment (computers, printers, etc.)	
18.	11	Amenity room FF&E	In some cases, all amenity rooms are refurbished at one time, in which case one project may suffice. More commonly, they are handled separately, in which case one line item per room may be needed. Amenity rooms might include party room, billiards, library, golf, laundry, theatre, etc.
18.	12	Guest suite/Superintendent suite FF&E	
18.	13	Court FF&E (squash, basketball, etc.)	
18.	13	Common area washroom FF&E	
18.	14	Indoor pool shell, deck and related FF&E	Change rooms are sometimes completed with the pool area, or sometimes separated out. Similar for saunas and steam rooms.

		BUILDING ELEMENT	NOTES
18.	15	Indoor pool mechanical equipment (boilers, heaters, heat exchangers, filters, pumps, chlorinator/ brominator) and piping	
18.		CONSULTING	
18.	1	Reserve fund studies	
18.	2	Other consulting	Consulting costs related to reserve fund projects can be built into the individual projects, or carried as a separate line item.
19.		OTHER COSTS	
19.	1	Contingency for other reserve-eligible work	
19.	2	Current year spending	The report will need to cover current year spending that it not itemized in another item above in order for the closing balance for the current year to align with the financial statements.

APPENDIX D.

SAMPLE COMPONENT INVENTORY FOR A MULTI-STOREY BUILDING

		BUILDING ELEMENT	NOTES
1.		SITE	
1.	1	Curbs	
1.	2	Interlock/Unit paving/Concrete paving	The practitioner may want to differentiate paving on grade from paving located over a buried roof deck as related repairs are likely to differ.
1.	3	Asphalt paving	
1.	4	Fencing	The practitioner may need to differentiate fencing types due to different service lives.
1.	5	Retaining walls (concrete, precast, timber, stone, etc.)	The practitioner may need to differentiate retaining wall types due to different service lives.
1.	6	Planters	
1.	7	Site stairs—concrete, wood, steel	Include garage exit stairs under Site or Parking Garage. Some stairs may incorporate snow melting system which must be considered.
1.	8	Site railings (stairs, ramp edges, etc.)	
1.	9	Site/Street furnishings (benches, tables and chairs, BBQ, etc.)	
1.	10	Wood decking	
1.	11	Signage	
1.	12	Vehicles and site equipment	Some corporations' own buses, tractors, etc.
1.	13	Trees	
1.	14	Soft landscaping	Periodically sites require landscape renewal of a scale greater than normal maintenance, such as renewal of shrubs.
1.	15	Tennis/Basketball/Shuffleboard etc., courts	
1.	16	Playground equipment	Change rooms are sometimes completed with the pool area, or sometimes separated out. Similar for saunas and steam rooms.

		BUILDING ELEMENT	NOTES
1.	17	Outdoor pool/Whirlpool	
1.	18	Outdoor pool mechanical equipment (boilers, heaters, heat exchangers, pumps, filters, brominators, etc.) and piping	
1.	19	Gazebos/Pergolas/Trellises	
1.	20	Gatehouses, sheds and outbuildings	
1.	21	Fountains	
1.	22	Gate arms	
1.	23	Hydro vault	These are often buried rooms that house transformers, and are the responsibility of the corporation to maintain. Practitioners should consider what structural and waterproofing repairs the vault will need over its service life. The corporation may also own the transformers, in which case they should be covered as electrical components.
2.		STRUCTURAL ELEMENTS	
2.	1	Foundation walls	In many cases, the buried walls are in the garage of a high-rise, but townhouses and some buildings have foundation walls as walls of occupied basements.
2.	2	Foundations—footings, caissons, raft slabs, tie-down anchors, etc.	Most building foundations don't require renewal. Some specialty systems might.
2.	3	Structural frame/Building structure	
2.	4	Special structural systems (post-tensioning)	
2.	5	Waterproofing on structural slabs (garbage rooms, mechanical rooms)	
3.		BALCONIES, DECKS AND OTHER STRUCTURAL ELEMENTS EXPOSED TO THE WEATHER	
3.	1	Balcony Slab/Deck/Sub-structure	
3.	2	Guards/Railings/Dividers	
3.	3	Balcony/Deck waterproofing/Sealer	
3.	4	Balcony Finishes—painted soffits, slab edges, balustrades	

		BUILDING ELEMENT	NOTES
3.	5	Exposed shear walls and exposed floor slab edges	
3.	6	Parapets	
3.	7	Balcony/Exposed structural element condition survey	
4.		PARKING GARAGE	
4.	1	Garage condition survey	
4.	2	Walls	See also foundation walls under Structural Elements. Painting of garage walls and parking stall stripes should be considered.
4.	3	Suspended slab	
4.	4	Suspended slab—Waterproofing/Traffic surface	
4.	5	Garage roof slab	Some occupied basement areas may also have buried roof decks.
4.	6	Garage roof deck waterproofing and overburden	The practitioner may choose to separate waterproofing under paving from waterproofing under soft landscaping as these often have different service lives.
4.	7	Ramp waterproofing/Traffic surfacing, ramp slab and snow-melt system	
4.	8	Garage drainage (area drains, catch basins, trench drains, piping)	
4.	9	Slab on grade	
4.	10	Expansion joint seals	
4.	11	Soffit (T-bar, drywall, faced insulation, etc.)	
4.	12	Garage exit stairs	Include garage exit stairs under Site or Parking Garage
5.		WALLS AND SEALANTS	
5.	1	Wall condition survey	
5.	2	Cladding (precast, masonry, stucco, EIFS, etc.).	Different cladding systems usually have different service lives and repair needs.
5.	3	Sealants/Caulking	

		BUILDING ELEMENT	NOTES
5.	4	Soffits (under overhanging spaces)	
6.		DOORS	
6.	1	Public entrance doors	
6.	2	Service doors	
6.	3	Balcony/Patio doors	
6.	4	Overhead doors	
7.		GLAZING SYSTEMS	
7.	1	Windows/Window wall/Glazed curtainwall systems	The practitioner should consider if the system will require interim repairs, such as metal-to-metal joint sealing or frame painting, as well as replacement.
7.	2	Glazing (insulated glass unit replacement)	
7.	3	Weatherstripping and window hardware	
8.		ROOFING	
8.	1	Roof condition survey	
8.	2	Sloped roofing (asphalt shingles, metal, tile, soffit, fascia, eaves-trough, downspouts, etc.)	
8.	3	Low slope/Flat roofing (including drains, membranes, counter flashings, insulation, ballast, hatches, etc.)	Consider if the substrate might require repair (e.g. steel deck exposed to phenolic foam insulation, aerated concrete, wood decking with rot, etc.). Terrace roofing should be considered.
8.	4	Skylights	
8.	5	Rooftop walkways	
8.	6	Ladders	
8.	7	Canopies	

		BUILDING ELEMENT	NOTES
9.		SUSPENDED ACCESS EQUIPMENT	
9.	1	Tie-back anchors, rope guides, tie-back buttons, static lines, monorails, etc.	
9.	2	Outriggers, davit arms and bases	
9.	3	Cranes and stages	
10.		PLUMBING SYSTEMS	
10.	1	Irrigation systems	Often irrigation systems are replaced when garage roof deck waterproofing is replaced.
10.	2	Water mains (domestic and fire), wells, filtration, backflow prevention	
10.	3	Buried sewers, catch basins, maintenance hole	
10.	4	Fire hydrants	
10.	5	Septic systems, water treatment plants	
10.	6	Drainage piping system (sanitary, storm)—piping, cleanouts, heat tracing, etc.	
10.	7	Storm water cisterns, grey water recovery	
10.	8	Sumps, sump pumps, discharge meters	
10.	9	DHW boilers, heater tanks, heat exchangers	
10.	10	DHW storage tanks	
10.	11	Domestic water pumps (booster, circulating, recirculating)	
10.	12	Domestic water piping (hot supply, recirculation, cold supply)	Different usages and pipe types may result in different service lives. In copper systems, recirculation pipes typically have a shorter service life than hot water. Hot water piping typically has a shorter service life than cold water.
10.	13	Pressure reducing stations	
10.	14	Mixing valves	

		BUILDING ELEMENT	NOTES
11.		HEATING AND COOLING	
11.	1	Heating boilers, heat exchangers	
11.	2	Chiller, refrigerant detection system	
11.	3	Cooling tower	
11.	4	Terminal units (fan coils, heat pumps, baseboard heaters, cabinet heaters, radiators, unit heaters, split AC, air handling units, etc.)	Suite HVAC equipment is typically unit-owned, but may be common element.
11.	5	Packaged rooftop unit	
11.	6	HVAC distribution piping systems (piping, valves, expansion tanks, chemical treatment, etc.)	
11.	7	Circulating pumps (building pumps, condenser pumps, etc.)	
11.	8	Solar panels and related equipment (tanks, pumps)	These may belong under Domestic Water, Heating or Electrical, depending on usage and type.
11.	9	In-floor radiant heating (hydronic or electric)	
11.	10	Electric baseboard heaters	
11.	11	Chimneys/flues	
11.	12	Building automation system	
12.		VENTILATION	
12.	1	Make-up air units, air handling units	
12.	2	Central exhaust fans	
12.	3	Parking garage exhaust fans	
12.	4	CO/NO detection systems for fan control	
12.	5	Pressurization fans (smoke control)	These could be reported here or under Fire and Life Safety.
12.	6	Kitchen and bathroom exhaust fans, suite ERV/HRV	Suite HVAC equipment is typically unit-owned, but may be common element.

		BUILDING ELEMENT	NOTES
12.	7	Humidification/Dehumidification systems	These systems are often used in pool areas.
12.	8	Ductwork (including diffusers/grilles/balancing louvers, fire dampers)	
13.		WASTE DISPOSAL	
13.	1	Garbage compactor/Sorter	
13.	2	Garbage chute, chute doors, chute controls	
13.	3	Disposal bins, bin puller	
14.		ELECTRICAL SYSTEMS	
14.	1	Electrical system condition survey	
14.	2	Main building transformer	These are often utility-owned, but not always.
14.	3	Main panel/Switch gear	
14.	4	Interior transformers	
14.	5	Power distribution (wiring, bus ducts, tap boxes, distribution panels, disconnects)	
14.	6	Motor control centres (MCC)	
14.	7	Suite electrical panels	Suite panels are typically unit-owned, but may be common element.
14.	8	Interior lighting	Interior lighting can often be included in refurbishment budgets.
14.	9	Exterior lighting (poles, bollards, wall- or soffit-mounted, etc.)	Could be considered a site component.
14.	10	Garage lighting	Could be considered a parking garage component.
15.		SECURITY/ACCESS CONTROL	
15.	1	Intercom system	
15.	2	Enterphone/Video concierge	
15.	3	Access control system (fob readers, card readers and related head-end equipment)	

		BUILDING ELEMENT	NOTES
15.	4	CCTV (cameras, wiring, head-end equipment)	
15.	5	Suite security system (wiring, head-end equipment)	Suite panels are typically unit-owned, but may be common element.
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