

RESERVE FUND STUDY

Prepared for:

KEEHNER MEADOWS HOMEOWNERS ASSOCIATION WEST CHESTER, OH 45069

Prepared by:



**9069 ARROWHEAD COURT
CINCINNATI, OHIO 45231
(513) 474-9600**



On-site Inspection performed August 3, 2023
Submitted August 2023

Revision 0

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1.0 INTRODUCTION

Following authorization by the Keehner Meadows Homeowners Association's Board of Directors, Criterium-Cincinnati Engineers has conducted a Reserve Fund Study of your 122 unit residential community located in West Chester, Ohio. Our work is consistent with our proposal dated July 6, 2023.

This report must be reviewed in its entirety to understand our findings and their limitations. The Appendices are an integral part of this report and must be included in any review. Please refer to Appendix D for definitions of common terms of reference used herein.

We have conducted the study in general accordance with the National Reserve Study Standards published by the Community Association Institute (CAI). Please refer to Appendix D which contains a copy of the CAI standard.

This study was conducted by licensed Professional Engineers and other qualified staff working under the responsible charge of a CAI-certified Reserve Specialist. Please refer to Appendix E for the qualifications of the project team.

Scott Schaffer, E.I.T. of Criterium-Cincinnati Engineers performed this study. This report is principally based on our visual site inspection on August 3, 2023.

Mr. Schaffer prepared this report and the attached financial analysis. Matt Klein, P.E., R.S. of Criterium-Cincinnati Engineers reviewed their findings.

Criterium-Cincinnati presents this confidential report for the Board's review and use.

In reviewing the engineering assumptions, cost estimates and projected fund values herein, please understand that their accuracy diminishes greatly beyond Year Five. Long range facility maintenance projections are intended only to indicate the likely pattern of reserve expenditures and to guide financial planning.

Criterium-Cincinnati agrees with CAI's recommendation that reserve studies should be updated regularly to allow periodic adjustment of facility plans and funding strategies.

2.0 EXECUTIVE SUMMARY

In summary, as a result of our on-site inspections and other investigations, we find the common components of the property to be in good general condition and well-maintained.

We have identified an inventory of Association-responsible common components which are likely to require periodic repair or replacement or other recurrent reserve investment.

We have formed an opinion of the remaining useful life of each component. We have estimated the current cost of required reserve expenditures for their repair or replacement. We have projected annual reserve budgets over a 20-year planning period.

In summary, the 20-year total of projected reserve expenditures, (current dollar cost), is \$72,146. The Board has provided us with information on the Association's Reserve Fund and the current funding plan. Our initial financial analysis was based on the data supplied.

Our projections indicate that the current reserve fund contributions will be adequate.

3.0 PURPOSE & SCOPE

3.1 OBJECTIVES

The purpose of this reserve study is to determine a reserve needs plan for the Association, to evaluate the current rate of contribution to the reserve fund, and, if required, to suggest alternate funding strategies.

This report is intended to be used as a tool by the Association's Board for considering and managing its future financial obligations, for determining appropriate reserve fund allocations, and for informing the individual Owners of the Association's required reserve expenditures and the resulting financial plan.

For purposes of financial planning, Association-responsible expenses are typically divided into two categories:

- Operation and maintenance (O&M) of commonly-held elements of real property and other assets. These O&M expenses usually include taxes, insurance, property management costs and other service fees.
- Reserve expenditures for major periodic repairs or replacement of commonly-held elements.

Long-term reserve expenditures, the funding plan and ensuring adequate Reserve Fund balances are the focus of this Reserve Study.

History demonstrates that, as time progresses, property conditions and management strategies will change. As a result, planned scopes of work may be altered or deferred. Actual cost in the marketplace will vary from estimates. Actual rates of inflation and returns on investment will vary from projections.

For these reasons, we concur with the Community Association Institute guidelines and recommend that this reserve study be updated every three to five years.

3.2 LEVEL OF SERVICE

The Community Association Institute (CAI) identifies three levels of service for Reserve Studies:

- I. Full Reserve Study, with site visit
- II. Reserve Study Update, with site visit
- III. Reserve Study Update, without site visit
- IV. Preliminary, Community Not Yet Constructed

All may be appropriate for a community, depending on the condition of the facility and the phase of their planning cycle. The CAI National Reserve Study Standard in Appendix D contains more detail on these levels of service and the scope of study of each of them.

Our current study is a Level I – Full Reserve Study.

Criterium-Cincinnati's actual scope of service is enhanced and exceeds the CAI standard in the Amount principal ways:

- Our investigation and evaluation of the property is performed by experienced professional engineers
- After preparing and submitting our initial analysis, we engage in a collaborative review process with the Board, toward developing a financial plan more responsive to the needs of the community.

3.3 SOURCES OF INFORMATION

The following people were interviewed during our study:

- Thomas Doddy, Board Treasurer

The following was provided to us and reviewed:

- Current financial Status of the Association's reserve fund
- Access to the property
- Description of capital items in the community

4.0 PHYSICAL ANALYSIS

4.1 PROPERTY DESCRIPTION

Please refer to the Appendices for captioned photographs and available graphic exhibits.

Keehner Meadows is a residential community consisting of 123 single-family buildings that

began development in 2000. We estimate the community occupies a total area of 63 acres of fairly level ground. The homeowners are responsible for their own grounds, building exteriors, and building interiors. The Association is responsible for common site elements in the community which includes sidewalks, stone entry monument, light poles, and an irrigation system.

4.2 COMMON COMPONENTS

Please refer to Appendix A for the Common Component Inventory.

4.3 CONDITION ASSESSMENT

4.3.1 Site Improvements

Concrete Flatwork

Concrete flatwork includes all the concrete work in the community, which for Keehner Meadows HOA includes the concrete sidewalks. These items do not have a definite replacement period, but sections of concrete usually are repaired every few years after aging. For this element, we use an allowance every year that is based on the total area of all concrete in the Association. We calculate that annual allowance based on a useful life of 40 years. We have calculated the area of concrete as follows.

- Sidewalks – 1360 square feet

The Association's Manager and Board will evaluate concrete periodically and decide when to make needed repairs and the allowance we have used will be adequate to cover those costs. The Association has the option of spending the funded amount each year or let it accumulate for larger replacement projects.

Mailboxes

As we understand, the mailboxes are typically the responsibility of the homeowners, however the Association has decided to perform a one time replacement of all mailboxes. The community plans to use approximately \$32,000 from the reserve fund for the mailbox replacement. All future costs associated with the mailboxes are the responsibilities of the homeowner. We have included the one time expense in the reserve study.

Lighting

Lighting in this community consists of 2 street lights and 11 site lights near the entry monument in the form of uplighting. The two street lights are aluminum with concrete footings and were replaced in 2019 for \$12,000. We have included a cost to replace the

street lights with an expected life of 40 years. The street lights are in good condition. The 11 site lights illuminate the entry monument and the nearby trees. We have included a cost to replace the site lights based on a lifespan of 30 years.

Irrigation System

The Association has irrigation systems for watering the areas near the entry monument during dry periods. The expected useful life of buried irrigation systems is 25 years. We included a replacement cost in 10 years for the irrigation system. Regular maintenance and renewal programs can extend the lifespan of the irrigation system.

Stone Entry Monument

Stone entry monuments are located on both sides of Wintergreen drive. Stone entry monuments have a long life and rarely require replacement. The monuments are in good condition. As the monuments age, tuckpointing repairs are common. We have included costs to tuckpoint the entry monuments based on the total area. Small cracks were present in some of the stone mortar.

Signage

Signage includes the lettering and logo on the entry monument. We have included an allowance once every 20 years to refurbish or replace signage. The current condition of the signage is consistent with the normal performance and aging of this system. No unusual conditions were noted.

Common Components & Required Reserve Expenditures

Appendix A contains an inventory of all site improvements which are common components, and a detailed schedule of projected Reserve Expenditure budgets for these items.

4.3.2 Building Structure and Exterior

This section of the report does not address Owner-responsible Unit exteriors

4.3.3 Building Interior

This section of the report does not address Owner-responsible Unit interiors

4.3.4 Mechanical, Electrical and Plumbing (MEP) Systems

This section of the report does not address Owner-responsible mechanical, electrical and plumbing systems.

4.3.5 Amenities

No amenities are present in the community.

4.3.6 Other Items

Miscellaneous

An annual allowance has been included for miscellaneous asset repair and replacement. We recommend the Association conduct periodic Reserve Study Updates in accordance with CAI best practices.

Common Components & Required Reserve Expenditures

Appendix A contains an inventory of all atypical components and systems which are common components, and a detailed schedule of projected Reserve Expenditure budgets for these items:

4.4 PENDING WORK

At the time of our inspection, no capital improvements were pending.

4.5 LIFE & VALUATION

4.5.1 Opinions of Useful Life

Simply stated, for components which require periodic reserve expenditures for their repairs or replacement, the frequency of work equals the typical, industry accepted expected useful life (EUL) for the type of feature,

And, theoretically, the remaining useful life (RUL) of a component before the next reserve expenditure for its repair or replacement is equal to the difference between its EUL and its age:

$$\text{RUL} = \text{EUL} - \text{Age}$$

However, the condition and rate of deterioration of the association's assets rarely conform to such simple analysis. And, often, a property's history and available documentation does not provide any record of a particular component's actual age.

In our experience, the effective age and actual RUL of an installed item vary greatly from its actual age and calculated RUL. These variances depend on the quality of its original materials and workmanship, level of service, climatic exposure, and ongoing maintenance. As part of Criterium-Cincinnati's work on this reserve study, we have determined our opinion of the effective age, EUL and RUL of each common component based on our evaluation of its existing condition and considering those factors.

When it seems appropriate, we will spread some budgets over multiple years. However, it is beyond the scope of this reserve study to prioritize the need for work between a number of buildings or installed locations or to closely specify or breakdown phased work packages.

In summary, we have based our opinion of the remaining useful life and expected frequency and schedule of repair for each common component on some or all of the following:

- Actual or assumed age
- Observed existing condition
- Association's or Property Manager's maintenance history and plan
- Our experience with actual performance of such components under similar service and exposure
- Our experience managing the repairs and replacements of such components

We use the following documentation to guide our considerations:

- Fannie Mae - Expected Useful Life Tables National Association of Home Builders - Life Expectancy of Components
- Marshall & Swift Valuation Service Expected Life Expectancies

4.5.2 Cost Estimating

In developing our estimate of reserve expenditure for most common components, we have estimated a quantity of each item and also a unit cost for its repair or replacement. In some cases, it is more appropriate to estimate a lump sum cost for a required work package or 'lot'.

Unless directed to take a different approach, we assume that contract labor will perform the work and apply appropriate installer's mark-ups on supplied material and equipment. When required, our estimated costs include demolition and disposal of existing materials, and protection of other portions of the property.

When appropriate for large reserve projects, we will also include soft costs for design and project management, and typical general contractor's cost for general conditions, supervision, overhead and profit.

We have based our opinion of unit and lump sum costs on some or all of the following:

- Records of previous maintenance expenses
- Previously solicited Vendor quotations or Contractor proposals
- Provided reserve budgets developed by others
- Our project files on repairs and replacements at other properties

We use the following publications to guide our considerations:

- On-Line R S Means - Construction Cost Data

- Marshall & Swift Valuation Service – Facility Cost Index

Annual aggregated reserve expenditure budgets have been calculated for all years during the study period by inflating the annual tallies of current dollar cost estimates, and compounding for inflation at 3.1% per year.

Of course, it is impossible to accurately predict inflation fluctuation. Three percent is close to the average annual values of both consumer and construction cost increases since the US Bureau of Labor Statistics started publishing data approximately 85 years ago

5.0 FINANCIAL ANALYSIS

Please refer to Appendix A which contains tables and graphs illustrating the findings following below.

5.1 RESERVE EXPENDITURE PROJECTION

Based on our investigations and estimates described in Section 4 of this report, we have identified likely reserve expenditures throughout the study period.

For detailed information on projected reserve expenditures, please refer to the Appendix A tables and Appendix B graphs.

Please note that we have assumed that the cost of minor repair & replacement work will be covered by normal Operations & Maintenance budgets.

We have not included any reserve budget allowances for repair of casualty damage by vehicle impact, severe storm action, etc. It is assumed that such expenses would be defrayed by proceeds of insurance claims.

5.2 CURRENT FUNDING

5.2.1 Board-Provided Information

At the time we were retained to provide this study, we were provided with initial information on the Trust's Reserve Fund and its funding plan.

Our initial financial analysis was based on the information supplied.

- | | |
|------------------------------|-----------------|
| • Fiscal Year Starting Date: | January 1st |
| • For Designated Year: | 2023 |
| • Starting Fund Balance: | \$60,000 |
| • On Date: | January 1, 2023 |

- Current Annual Rate of Contribution: \$2,000
- Planned Increases: None
- Planned Special Assessments: None
- Projected Average Return on Investment: 3.1%
- Projected Rate of Annual Inflation: 3.1%

Financial data, records of past expenses, and cost estimates provided by others have been taken in good faith and at face value. No audit or other verification has been performed.

5.2.2 Current Funding Plan Projection

Our initial analysis was a projection of the Association's current rate of contribution forward over 20 years with no increases. For detailed data, please refer to the Appendix A tables and Appendix B graphs.

Given the reported \$60,000 starting balance of the Reserve Fund on January 1, 2023, the current ongoing rate of contribution of \$2,000, and an anticipated average rate of return on investment of 3.1% per year, our financial analysis indicates that the Association's current funding will prove sufficient to meet future needs. The projected year-end balance at the end of the 20-year planning period in 2042 will be approximately \$33,607.

5.3 ALTERNATE FUNDING PLANS

One strategy to ensure there will be sufficient funds available to cover unplanned emergencies is to maintain prudent minimum threshold reserve balances.

For your association, we suggest an initial threshold equal to 2.5 times the average annual reserve expenditure in current dollars. This equals \$9,018 in Year One. This current value is then adjusted for inflation over the study period leading to a future dollar threshold value of approximately \$16,108 in Year 20.

We have prepared no alternate funding plan(s) for the Board's consideration due to the current funding meeting the Associations suggested threshold.

5.4 FUNDING METHODOLOGIES (Background Information)

The Community Association Institute (CAI) recognizes several reserve funding methodologies, all of which may be used to satisfy these principles:

- Sufficient Funds When Required
- Stable Contribution Rate over the Years

- Evenly Distributed Contributions over the Years
- Fiscally Responsible

For the planning needs of your association, we have recommended a cash-flow projection approach. The projection considers anticipated annual expenditures and contributions to compute approximate year-end reserve fund balances throughout the study period. This methodology is approved by CAI.

There are other methods of determining appropriate reserve funding levels. If you are interested, these are set forth in CAI's National Reserve Study Standard attached in Appendix D.

6.0 LIMITATIONS

STANDARDS AND LIMITATIONS

Criterium-Cincinnati Engineers shall perform duties to at least the professional standards consistent with a licensed, Professional Engineer, but does not guarantee or warrant that all adverse conditions concerning the property can be or will be discovered and included in the report. The photographs are an integral part of this report and must be included in any review.

This study is limited to the visual observations made during our inspection. We did not undertake any excavation, conduct any destructive or invasive testing, remove surface materials or finishes, or displace furnishings or equipment. The observations described in this study are valid on the dates of the investigation.

Accordingly, we cannot comment on the condition of systems that we could not see, such as buried structures and utilities, nor are we responsible for conditions that could not be seen or were not within the scope of our services at the time of inspection.

We did not perform any computations or other engineering analysis as part of this study, nor did we conduct a comprehensive code compliance investigation.

This information in this study is not to be considered a warranty of condition, quality, compliance or cost. No warranty is implied.

Financial data, records of past expenses, and cost estimates provided by others have been taken in good faith and at face value. No audit or other verification has been performed.

Reserve budgets are opinions of likely expenses based on reasonable cost estimates. We

have not obtained competitive quotations or estimates from contractors. Actual costs can vary significantly, based on the specific scope of work developed, availability of materials and qualified contractors, and many other variables. We cannot be responsible for variances.

Criterium-Cincinnati Engineers does not offer financial counseling services. Although reasonable rates of inflation and return on investment must be assumed to calculate projected balances, no one can accurately predict actual economic performance. Although reserve fund management and investment may be discussed during the course of the study, we do not purport to hold any special qualifications in this area.

We recommend that the Board also seek other professional guidance before finalizing their current reserve fund planning activity. Depending on issues which may arise, an appropriate team of consultants to aid decision-making might include their property manager, accountant, financial counselor and attorney.

Criterium-Cincinnati Engineers prepared this confidential report for the review and use of the Board of the Association. We do not intend any other individual or party to rely upon this study without our express written consent. If another individual or party relies on this study, they shall indemnify, defend and hold Criterium-Cincinnati Engineers, its subsidiaries, affiliates, officers, directors, members, shareholders, partners, agents, employees and such other parties in interest specified by Criterium-Cincinnati Engineers harmless for any damages, losses, or expenses they may incur as a result of its use. Any use or reliance of the report by an individual or party other than shall constitute acceptance of these terms and conditions.

7.0 CONCLUSION

Criterium-Cincinnati Engineers appreciates this opportunity to assist the Board in support of the Keehner Meadows Homeowner Association facility and financial planning. We are pleased to present this report for the Board's consideration and use.

To the best of our ability, we have attempted to work in the best interest of the community and to aid the Board toward fulfillment of their fiduciary responsibilities and obligations to the individual Unit Owners who comprise the association's membership.

In our professional opinion, and within the limitations disclosed elsewhere herein, all information contained herein is reliable and appropriate to guide the Board's deliberations and decision-making.

All of Criterium-Cincinnati's work for this study has been carried out in strict accordance with the CAI Code of Ethics. We consider our report confidential and will not share its

content with anyone but the Board without its knowledge and release.

We are unaware of any other involvement or business relationship between Criterium-Cincinnati Engineers and the Developer, or individual Unit Owners, or members of the Board, or any other entities which constitutes any conflict of interest.

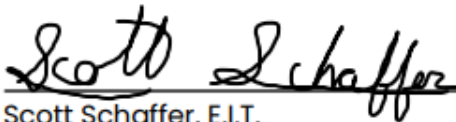
If you have any further questions or would like to direct additional, follow-on services, please contact us.

Criterium-Cincinnati Engineers appreciates this opportunity to assist the Board in support of the association's facility and financial planning. Thank you.

Thank you.

Respectfully submitted,

CRITERIUM-CINCINNATI ENGINEERS



Scott Schaffer, E.I.T.

Project Engineer – *(Investigating & Reporting)*



Matt Klein, P.E., R.S.

Senior Engineer – *(Reviewing)*



APPENDIX A

FINANCIAL EXHIBITS

Keehner Meadows HOA

Reserve Study Worksheet
Rev 0

General Information:

- 1 Organization: **Keehner Meadows HOA**
- 2 Address: **West Chester, Ohio**

3	Number of Units	122
4	Age of Building (in years)	23
5a	Study Period (in years)	20
5b	Normal Fiscal Year starts:	January 1, 2023
6	Site Inspection Date	August 3, 2023
7	Reserve Funds at start	\$60,000
8	Rate of Return on invested Reserve Funds (%)	3.1%
9	Inflation Rate (%)	3.1%

10 Current Funding Levels

Existing Funding Levels				
	Total/Month	Total Annual	Per Unit/Month	Per Unit/Year
Reserve Fund Contribution.....	\$167	\$2,000	\$1.37	\$16.39
Balance Computed.....	\$33,607			

Threshold balance 2.5 times the Average Capital Expenditure

Reserve Fund Worksheet

Fiscal Years:													
Normal: Jan 2023													
Partial: Jan 2023 (12 months)	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
	1	2	3	4	5	6	7	8	9	10	11	12	13
Existing Funding Levels													
Beginning Reserve Fund Balance:	\$60,000	\$30,157	\$31,814	\$33,482	\$33,460	\$35,091	\$35,226	\$36,820	\$38,415	\$40,010	\$41,602	\$29,270	\$30,422
Revenue:	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000
Investment Earnings:	\$907	\$957	\$1,007	\$1,006	\$1,055	\$1,059	\$1,107	\$1,155	\$1,203	\$1,251	\$880	\$915	\$949
Capital Expenditures:	\$32,750	\$1,299	\$1,339	\$3,028	\$1,424	\$2,924	\$1,513	\$1,560	\$1,609	\$1,658	\$15,212	\$1,763	\$1,818
Ending Reserve Balance	\$30,157	\$31,814	\$33,482	\$33,460	\$35,091	\$35,226	\$36,820	\$38,415	\$40,010	\$41,602	\$29,270	\$30,422	\$31,553
Percent Funded	352%	320%	294%	297%	274%	271%	251%	234%	218%	205%	330%	286%	253%
Average Cap Expendure	\$3,607	\$3,719	\$3,834	\$3,953	\$4,076	\$4,202	\$4,332	\$4,467	\$4,605	\$4,748	\$4,895	\$5,047	\$5,203
Threshold	\$9,018	\$9,298	\$9,586	\$9,883	\$10,190	\$10,505	\$10,831	\$11,167	\$11,513	\$11,870	\$12,238	\$12,617	\$13,008
Full Funding By Year	\$8,569	\$9,934	\$11,375	\$11,249	\$12,802	\$12,984	\$14,667	\$16,442	\$18,313	\$20,283	\$8,856	\$10,622	\$12,489
70 Percent Funding By Year	\$5,998	\$6,954	\$7,962	\$7,874	\$8,961	\$9,089	\$10,267	\$11,509	\$12,819	\$14,198	\$6,200	\$7,436	\$8,743
Full Funding Annual Req. Array	\$2,326												

Reserve Fund Worksheet

Fiscal Years:							
Normal: Jan 2023	2036	2037	2038	2039	2040	2041	2042
Partial: Jan 2023 (12 months)	14	15	16	17	18	19	20

Existing Funding Levels

Beginning Reserve Fund Balance:	\$31,553	\$32,661	\$33,744	\$32,761	\$33,721	\$34,646	\$32,847
Revenue:	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000
Investment Earnings:	\$982	\$1,015	\$985	\$1,014	\$1,042	\$988	\$1,010
Capital Expenditures:	\$1,874	\$1,932	\$3,968	\$2,054	\$2,117	\$4,787	\$2,251
Ending Reserve Balance	\$32,661	\$33,744	\$32,761	\$33,721	\$34,646	\$32,847	\$33,607
Percent Funded	226%	204%	195%	177%	162%	154%	141%
Average Cap Expendure	\$5,365	\$5,531	\$5,702	\$5,879	\$6,061	\$6,249	\$6,443
Threshold	\$13,412	\$13,827	\$14,256	\$14,698	\$15,154	\$15,623	\$16,108
Full Funding By Year	\$14,462	\$16,545	\$16,767	\$19,024	\$21,405	\$21,312	\$23,877
70 Percent Funding By Year	\$10,123	\$11,581	\$11,737	\$13,317	\$14,984	\$14,918	\$16,714
Full Funding Annual Req. Array							

Itemized Worksheet

Capital Item				Reserve	Frequency	Remaining	Full
To Be Replaced	Quantity	Unit cost		equirement (*)	(vrs**)	Life (vrs)	Funding
Site							Balance
Concrete flatwork	34	linear feet	\$15.00	\$510.00	1	1	\$0.00
Mailbox replacement	1	each	\$32,000.00	\$32,000.00	0	0	\$0.00
Site lighting replacement	11	each	\$200.00	\$2,200.00	30	10	\$1,466.67
Light pole replacement	2	each	\$7,250.00	\$14,500.00	40	36	\$1,450.00
Irrigation System	1	each	\$4,500.00	\$4,500.00	25	10	\$2,700.00
Stone entry monument tuckpointing	300	square feet	\$5.01	\$1,503.00	15	3	\$1,202.40
Signage refurbishment & replacement	1	each	\$2,000.00	\$2,000.00	20	10	\$1,000.00
Building Exterior							
Building Interior							
Mechanical							
Amenities							
Other							
Reserve Study	1	Each	\$1,250.00	\$1,250.00	5	5	\$0.00
Misc. Asset Replacement	1	Each	\$750.00	\$750.00	1	0	\$750.00
Totals				\$59,213.00			\$8,569.07
Total Over Term				\$72,146.00			

* Costs are typically 10%±

** Reserve study is based on a 20 year projection of non-annual maintenance

Annual Expense By Year

	Year:	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
	Year Number:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Site																					
Concrete flatwork		0	510	510	510	510	510	510	510	510	510	510	510	510	510	510	510	510	510	510	510
Mailbox replacement		32,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site lighting replacement		0	0	0	0	0	0	0	0	0	0	2,200	0	0	0	0	0	0	0	0	0
Light pole replacement		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Irrigation System		0	0	0	0	0	0	0	0	0	0	4,500	0	0	0	0	0	0	0	0	0
Stone entry monument tuckpointing		0	0	0	1,503	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,503	0
Signage refurbishment & replacement		0	0	0	0	0	0	0	0	0	0	2,000	0	0	0	0	0	0	0	0	0
Building Exterior																					
Building Interior																					
Mechanical																					
Amenities																					
Other																					
Reserve Study		0	0	0	0	0	1,250	0	0	0	0	1,250	0	0	0	0	1,250	0	0	0	0
Misc. Asset Replacement		750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750
Total Costs		32,750	1,260	1,260	2,763	1,260	2,510	1,260	1,260	1,260	1,260	11,210	1,260	1,260	1,260	1,260	2,510	1,260	1,260	2,763	1,260
Total Costs Adjusted For 3.1% Inflation		32,750	1,299	1,339	3,028	1,424	2,924	1,513	1,560	1,609	1,658	15,212	1,763	1,818	1,874	1,932	3,968	2,054	2,117	4,787	2,251

APPENDIX B

GRAPHIC EXHIBITS

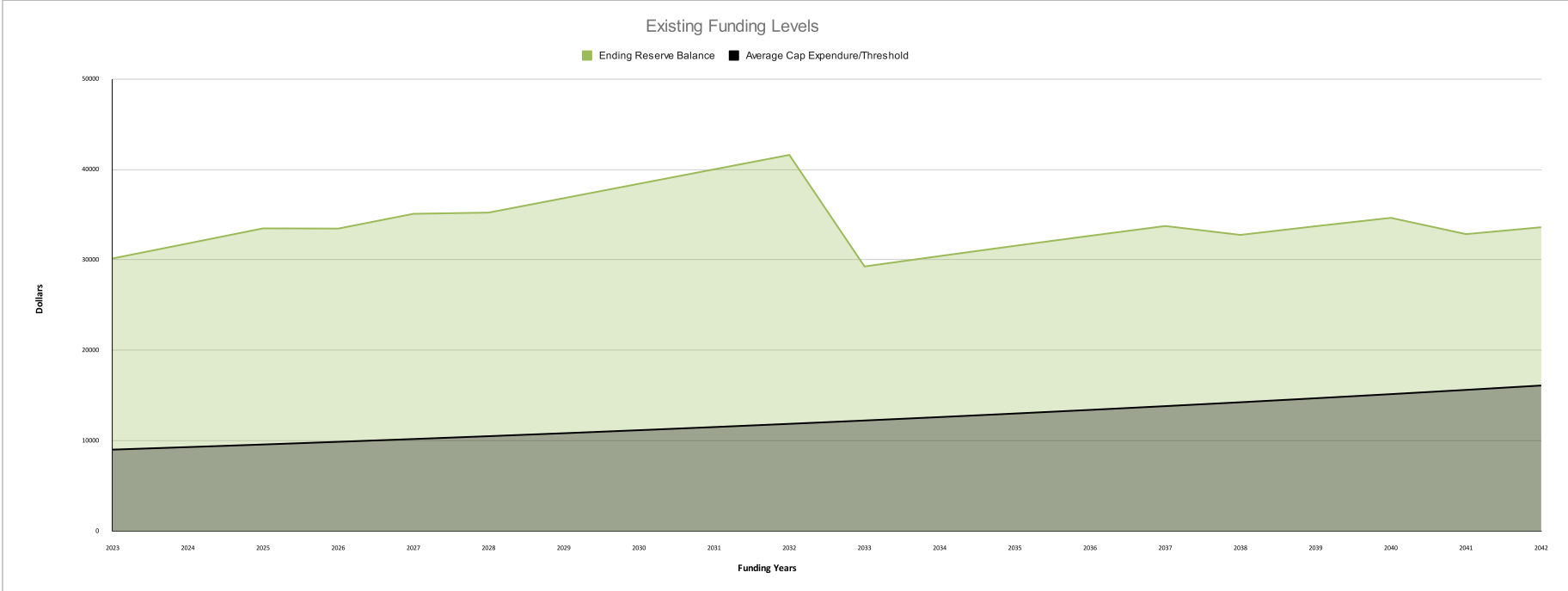
Existing Funding Levels

Beginning Balance as of start of year beginning Jan 2023: \$60,000

CONTRIBUTIONS	
AMOUNT	
\$2,000.00	per year
\$16.39	per unit per year
\$166.67	per month
\$1.37	per unit per month

SPECIAL ASSESSMENTS			
Totals			
Per Year	\$0	Per Unit	\$0

Projected Annual Funding and Expenditures:															
Year:	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
Year Number:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
End of Year Reserve Fund Balance	30,157	31,814	33,482	33,460	35,091	35,226	36,820	38,415	40,010	41,602	29,270	30,422	31,553	32,661	33,744
Capital Expenditures:	32,750	1,299	1,339	3,028	1,424	2,924	1,513	1,560	1,609	1,658	15,212	1,763	1,818	1,874	1,932
Total Revenue (all sources)	2,907	2,957	3,007	3,006	3,055	3,059	3,107	3,155	3,203	3,251	2,880	2,915	2,949	2,982	3,015
Percent Funded	352%	320%	294%	297%	274%	271%	251%	234%	218%	205%	330%	286%	253%	226%	204%
Year:	2038	2039	2040	2041	2042										
Year Number:	16	17	18	19	20										
End of Year Reserve Fund Balance	32,761	33,721	34,646	32,847	33,607										
Capital Expenditures:	3,968	2,054	2,117	4,787	2,251										
Total Revenue (all sources)	2,985	3,014	3,042	2,988	3,010										
Percent Funded	195%	177%	162%	154%	141%										



APPENDIX C

PHOTOGRAPHS

Location

Keehner Meadows HOA,
West Chester, Ohio

Photos Taken by:

Scott Schaffer,

Inspection Date:

August 3, 2023



Photo Number

1

Description:

Entry monument



Photo Number

2

Description:

Entry monument

Location
Keehner Meadows HOA,
West Chester, Ohio

Photos Taken by:
Scott Schaffer,

Inspection Date:
August 3, 2023



Photo Number
3

Description:
Cracks in the stone
monument mortar



Photo Number
4

Description:
Cracks in the stone
monument mortar

Location
Keehner Meadows HOA,
West Chester, Ohio

Photos Taken by:
Scott Schaffer,

Inspection Date:
August 3, 2023



Photo Number
5

Description:
Flowerbed near entry
monument



Photo Number
6

Description:
Irrigation and electrical
distribution equipment

Location
Keehner Meadows HOA,
West Chester, Ohio

Photos Taken by:
Scott Schaffer,

Inspection Date:
August 3, 2023



Photo Number
7

Description:
Site lighting



Photo Number
8

Description:
Street light

Location
*Keehner Meadows HOA,
West Chester, Ohio*

Photos Taken by:
Scott Schaffer,

Inspection Date:
August 3, 2023

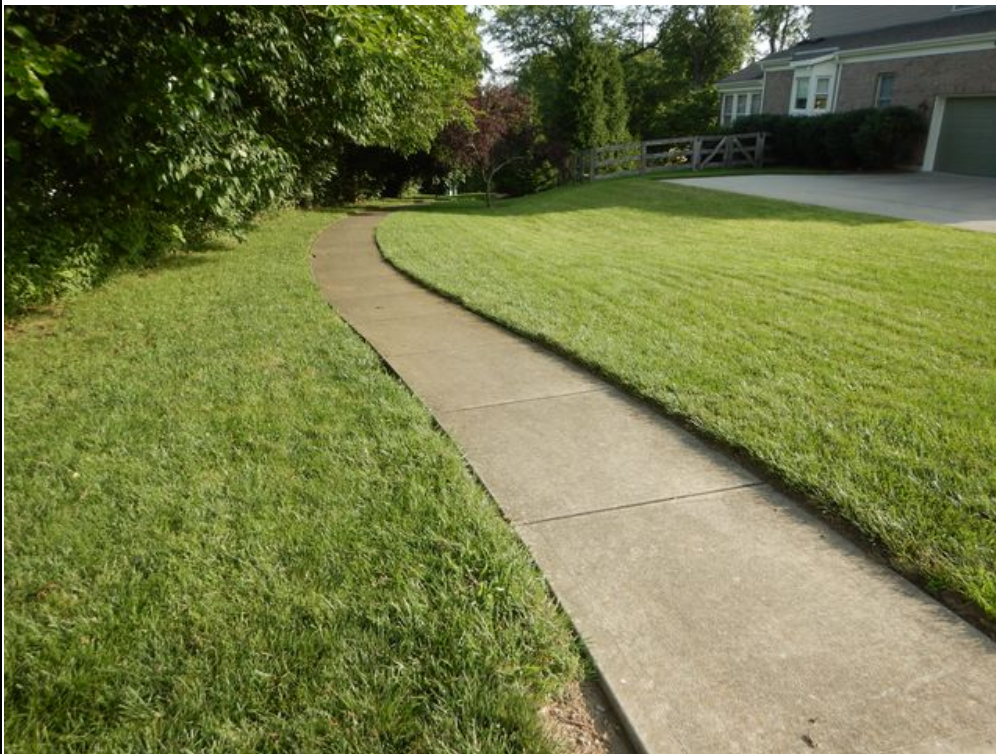


Photo Number
9

Description:
Concrete sidewalk



Photo Number
10

Description:
Crack in the concrete sidewalk

APPENDIX D

REFERENCE DOCUMENTS

Reserve Specialist® (RS®) Designation

NATIONAL RESERVE STUDY STANDARDS

General Information About Reserve Studies

One of the primary responsibilities of the board of directors of a community association is to protect, maintain, and enhance the assets of the association. To accomplish this objective, associations must develop multi-year plans to help them anticipate and responsibly prepare for the timely repair and replacement of common area components such as roofs, roads, mechanical equipment, and other portions of the community's common elements.

Originally published in 1998, the National Reserve Study Standards provide a consistent set of terminology, calculations, and expectations so reserve study providers and those they serve together can build a successful future for millions of community association homeowners across the country.

A reserve study is made up of two parts, the **physical analysis** and the **financial analysis**. The physical analysis includes the component inventory, condition assessment, and life and valuation estimates. The component inventory should be relatively stable from year to year, while the condition assessment and life and valuation estimate change from year to year.

The financial analysis is made up of an analysis of the client's current reserve fund status (measured in cash or as percent funded) and a recommendation for an appropriate reserve contribution rate (a funding plan).

Physical analysis

- Component inventory
- Condition assessment
- Life and valuation estimates

Financial analysis

- Fund status
- Funding plan

The following three categories describe the various types of reserve studies, from exhaustive to minimal.

- Component inventory
- Condition assessment (based upon on-site visual observations)
- Life and valuation estimates
- Fund status
- Funding plan

- Component inventory (verification only, not quantification)
- Condition assessment (based on on-site visual observations)
- Life and valuation estimates
- Fund status
- Funding plan

- Life and valuation estimates
- Fund status
- Funding plan

- Component inventory
- Life and valuation estimates
- Funding plan

Terms and Definitions

CAPITAL IMPROVEMENTS: Additions to the association's common elements that previously did not exist. While these components should be added to the reserve study for future replacement, the cost of construction should not be taken from the reserve fund.

CASH FLOW METHOD: A method of developing a reserve funding plan where contributions to the reserve fund are designed to offset the variable annual expenditures from the reserve fund. Different reserve funding plans are tested against the anticipated schedule of reserve expenses until the desired funding goal is achieved.

COMPONENT: The individual line items in the reserve study developed or updated in the physical analysis. These elements form the building blocks for the reserve study. These components comprise the common elements of the community and typically are: 1. association responsibility, 2. with limited useful life expectancies, 3. predictable remaining useful life expectancies, and 4. above a minimum threshold cost. It should be noted that in certain jurisdictions there may be statutory requirements for including components or groups of components in the reserve study.

COMPONENT INVENTORY: The task of selecting and quantifying reserve components. This task can be accomplished through on-site visual observations, review of association design and organizational documents, review of association precedents, and discussion with appropriate representative(s) of the association.

COMPONENT METHOD: A method of developing a reserve funding plan where the total contribution is based on the sum of contributions for the individual components.

CONDITION ASSESSMENT: The task of evaluating the current condition of the component based on observed or reported characteristics.

EFFECTIVE AGE: The difference between useful life and remaining useful life. Not always equivalent to chronological age, since some components age irregularly. Used primarily in computations.

FINANCIAL ANALYSIS: The portion of a reserve study where the current status of the reserves (measured as cash or percent funded) and a recommended reserve contribution rate (funding plan) are derived, and the projected reserve income and expense over a period of time are presented. The financial analysis is one of the two parts of a reserve study.

FULLY FUNDED: 100 percent funded. When the actual (or projected) reserve balance is equal to the fully funded balance.

FULLY FUNDED BALANCE (FFB): An indicator against which the actual (or projected) reserve balance can be compared. The reserve balance that is in direct proportion to the fraction of life "used up" of the current repair or replacement cost. This number is calculated for each component, and then summed for an association total.

$$\text{FFB} = \text{Current Cost} \times \text{Effective Age/Useful Life}$$

Example: For a component with a \$10,000 current replacement cost, a 10-year useful life and effective age of 4 years the fully funded balance would be \$4,000.

FUND STATUS: The status of the reserve fund reported in terms of cash or percent funded.

FUNDING GOALS: Independent of methodology used, the following represent the basic categories of funding plan goals. They are presented in order of greatest risk to least risk. Risk includes, but is not limited to, cash problems, special assessments, and deferred maintenance.

Baseline Funding: Establishing a reserve funding goal of allowing the reserve cash balance to never be below zero during the cash flow projection. This is the funding goal with the greatest risk due to the variabilities encountered in the timing of component replacements and repair and replacement costs.

Threshold Funding: Establishing a reserve funding goal of keeping the reserve balance above a specified dollar or percent funded amount. Depending on the threshold selected, this funding goal may be weaker or stronger than "Fully Funded" with respective higher risk or less risk of cash problems.

Full Funding: Setting a reserve funding goal to attain and maintain reserves at or near 100 percent funded. This is the most conservative funding goal.

It should be noted that in certain jurisdictions there may be statutory funding requirements that would dictate the minimum requirements for funding.

FUNDING PLAN: An association's plan to provide income to a reserve fund to offset anticipated expenditures from that fund. The plan must be a minimum of twenty (20) years.

Terms and Definitions (cont'd.)

FUNDING PRINCIPLES: The reserve provider must provide a funding plan addressing these principles.

- Sufficient funds when required
- Stable contribution rate over the years
- Equitable contribution rate over the years
- Fiscally responsible

LIFE AND VALUATION ESTIMATES: The task of estimating useful life, remaining useful life, and current repair or replacement costs for the reserve components.

PERCENT FUNDED: The ratio, at a particular point in time related to the fiscal year end, of the actual (or projected) reserve balance to the fully funded balance, expressed as a percentage. While percent funded is an indicator of an association's reserve fund size, it should be viewed in the context of how it is changing due to the association's reserve funding plan in light of the association's risk tolerance.

PHYSICAL ANALYSIS: The portion of the reserve study where the component inventory, condition assessment, and life and valuation estimate tasks are performed. This represents one of the two parts of the reserve study.

REMAINING USEFUL LIFE (RUL): Also referred to as "remaining life" (RL). The estimated time, in years, that a reserve component can be expected to serve its intended function. Projects expected to occur in the initial year have zero remaining useful life.

REPLACEMENT COST: The cost to replace, repair, or restore the component to its original functional condition during that particular year, including all related expenses (including but not limited to shipping, engineering and design, permits, installation, disposal, etc.).

RESERVE BALANCE: Actual or projected funds, as of a particular point in time that the association has identified, to defray the future repair or replacement cost of those major components that the association is obligated to maintain or replace. Also known as reserves, reserve accounts, cash reserves. Based on information provided and not audited.

RESERVE PROVIDER: An individual who prepares reserve studies. In many instances the reserve provider will possess a specialized designation such as the Reserve Specialist (RS) designation provided by Community Associations Institute (CAI). This designation indicates that the provider has shown the necessary skills to perform a reserve study that conforms to these standards.

RESERVE PROVIDER FIRM: A company that prepares reserve studies as one of its primary business activities.

RESERVE STUDY: A budget planning tool which identifies the components that the association is responsible to maintain or replace, the current status of the reserve fund, and a stable and equitable funding plan to offset the anticipated future major common area expenditures. The reserve study consists of two parts: the physical analysis and the financial analysis.

RESPONSIBLE CHARGE: A Reserve Specialist (RS) in responsible charge of a reserve study shall render regular and effective supervision to those individuals performing services that directly and materially affect the quality and competence of services rendered by the Reserve Specialist. A Reserve Specialist shall maintain such records as are reasonably necessary to establish that the Reserve Specialist exercised regular and effective supervision of a reserve study of which he or she was in responsible charge. A Reserve Specialist engaged in any of the following acts or practices shall be deemed not to have rendered the regular and effective supervision required herein:

1. The regular and continuous absence from principal office premises from which professional services are rendered; except for performance of field work or presence in a field office maintained exclusively for a specific project;
2. The failure to personally inspect or review the work of subordinates where necessary and appropriate;
3. The rendering of a limited, cursory or perfunctory review of plans or projects in lieu of an appropriate detailed review; and
4. The failure to personally be available on a reasonable basis or with adequate advance notice for consultation and inspection where circumstances require personal availability.

SPECIAL ASSESSMENT: A temporary assessment levied on the members of an association in addition to regular assessments. Note that special assessments are often regulated by governing documents or local statutes.

USEFUL LIFE (UL): The estimated time, in years, that a reserve component can be expected to serve its intended function if properly constructed in its present application or installation.

Reserve Study Contents

The following is a list of the minimum contents to be included in the Reserve Study.

1. A summary of the association's number of units, physical description and reserve fund financial condition.
2. A projection of reserve starting balance, recommended reserve contributions, projected reserve expenses, and projected ending reserve fund balance for a minimum of 20 years.
3. A tabular listing of the component inventory, component quantity or identifying descriptions, useful life, remaining useful life and current replacement cost.
4. A description of methods and objectives utilized in computing the Fund Status and development of the Funding Plan.
5. Source(s) utilized to obtain component repair or replacement cost estimates.
6. A description of the level of service by which the Reserve Study was prepared.
7. Fiscal year for which the Reserve Study is prepared.

Disclosures

The following are the minimum disclosures to be included in the Reserve Study:

1. **General:** Description of the other involvement(s) with the association, which could result in actual or perceived conflicts of interest.
2. **Physical Analysis:** Description of how thorough the on-site observations were performed: representative samplings vs. all common areas, destructive testing or not, field measurements vs. drawing take-offs, etc.
3. **Financial Analysis:** Description of assumptions utilized for interest and inflation, tax and other outside factors.
4. **Personnel Credentials:** State or organizational licenses or credentials carried by the individual responsible for Reserve Study preparation or oversight.
5. **Update Reports:** Disclosure of how the current work is reliant on the validity of prior Reserve Studies.
6. **Completeness:** Material issues which, if not disclosed, would cause a distortion of the association's situation.
7. **Reliance on Client Data:** Information provided by the official representative of the association regarding financial, physical, quantity, or historical issues will be deemed reliable by the consultant and assembled for the association's use, not for the purpose of performing an audit, quality/forensic analysis, or background checks of historical records.
8. **Reserve Balance:** The actual or projected total presented in the Reserve Study is based upon information provided and was not audited.
9. **Component Quantities:** For update with site visit and update no site visit levels of service, the client is considered to have deemed previously developed component quantities as accurate and reliable.
10. **Reserve Projects:** Information provided about reserve projects will be considered reliable. Any on-site inspection should not be considered a project audit or quality inspection.

TERMS OF REFERENCE RESERVE STUDY	
ASSOCIATION	The unit owners' association. May be referred to with different terminology in legal covenants of incorporation.
BOARD	Elected officers of the Association with fiduciary responsibility for the community's common holdings. May be referred to with different terminology in legal covenants of incorporation.
OWNER	Individual Unit owner, a Member or the Association
PROPERTY MANAGER	Professional organization through which the Board delegates responsibilities for operations and maintenance of the community.
EXCELLENT	Component or system is in "as new" condition, requiring no rehabilitation and should perform in accordance with expected performance.
GOOD	Component or system is sound and performing its function, although it may show signs of normal wear and tear. Some minor rehabilitation work may be required.
FAIR	Component or system falls into one or more of the following categories: a) Workmanship not in compliance with commonly accepted standards, b) Evidence of previous repairs not in compliance with commonly accepted practice, c) Component or system is obsolete, d) Component or system approaching end of expected performance. Repair or replacement is required to prevent further deterioration or to prolong expected life.
POOR	Component or system has either failed or cannot be relied upon to continue performing its original function as a result of having exceeded its expected performance, excessive deferred maintenance, or state of disrepair. Present condition could contribute to or cause the deterioration of other adjoining elements or systems. Repair or replacement is required.
ADEQUATE	A component or system is stable, has capacity to function as required, is sufficient for its service, is suitable for operation, and/or conforms to standard construction practices.
BASIS OF COMPARISON	Ratings are determined by comparison to other buildings of similar age and construction type.
LEFT, RIGHT, FRONT, REAR	Directions are taken from the viewpoint of an observer standing at the property frontage and facing it. Or, for a building within a campus setting, the viewpoint of an observer standing in front of the principal entrance and

	facing it.
CURRENT DEFICIENCY IMMEDIATE EXPENSE	<p>We will note any observed or reported physical condition which requires immediate action to correct an existing or potential safety hazard, an enforceable building code violation, or the poor or deteriorated condition of a critical element or system. Also, to address any conditions which, if left "as is", would likely result in the failure of a critical element or system.</p> <p>Such items will be noted in our report even if they do not require a reserve expenditure.</p>
SHORT-TERM RESERVE EXPENDITURES	<p>Correction of physical deficiencies including deferred maintenance, which may not warrant immediate attention, but require repairs or replacements which should be undertaken on a priority basis, taking precedence over preventive maintenance work within a one-year time frame. Included are physical deficiencies resulting from improper design, faulty installation, and/or substandard quality of original systems or materials. Components or systems that have exceeded their expected useful life and require repair or replacement within a one-year time frame are also included. Observed minor issues which would typically be addressed as normal operations & maintenance work may not be noted in the report.</p>
LONG-TERM RESERVE EXPENDITURES	<p>Non-routine repairs, replacements or planned improvements that will require significant expenditure during the study period. Included are items that will reach the end of their estimated useful life or which, in the opinion of the engineer, will require such expense during that time. If saving for longer- term expenditures is desired, then allowances or contingencies for such items may also be included.</p> <p>Observed minor issues which would typically be addressed as normal operations & maintenance work may not be noted in the report.</p>
EXPECTED USEFUL LIFE (EUL)	<p>As components age, they wear and deteriorate at varying rates, depending on their service and exposure.</p> <p>Although it is an inexact science, various financial underwriters, data services and trade organizations publish guidance regarding the EULs of typical building materials and operating systems.</p> <p>For short-lived components, their EUL is used as the frequency between periodic repairs or replacements.</p> <p>Some systems' economic life may be shortened because improved equipment or materials has become available which is less costly to operate or maintain.</p>

<p>REMAINING USEFUL LIFE (RUL)</p>	<p>The simple equation for determining remaining useful life before repair or replacement is:</p> <p>EUL – Age = RUL</p> <p>However, based on our evaluation of a component and our professional judgment, we may assign a shorter or longer RUL to actual items being considered.</p>
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BUILDING SYSTEMS AND COMPONENTS

COMMON ABBREVIATIONS AND ACRONYMS

ACM	Asbestos Containing Material	HW	Hot Water
ACT	Acoustic Ceiling Tile	HWH	Hot Water Heater (<i>domestic</i>)
ADA	Americans with Disabilities Act	IBC	International Building Code
AHU	Air Handling Unit	IRC	International Residential Code
ASHRAE	American Society of Heating, Refrigeration and Air- Conditioning Engineers	KVA	Kilovolt-Ampere
ASTM	American Society for Testing and Materials	LF	Lineal Foot
BOCA	Building Officials Code Administrators International	MSL	Mean Sea Level
BTU	British Thermal Unit	NEC	National Electric Code
BTUH	British Thermal Unit / Hour	NFPA	National Fire Protection Association
CFM	Cubic Foot / Minute	MBH	Thousand British Thermal Units / Hour
CI	Cast Iron (<i>pipng</i>)	MDP	Main Distribution Panel (<i>electric power</i>)
CIP	Cast In Place (<i>concrete</i>)	O&M	Operations & Maintenance
CMU	Concrete Masonry Unit (<i>block</i>)	OSB	Oriented Strand Board (<i>sheathing or decking</i>)
CPVC	Chlorinated Poly Vinyl Chloride (<i>pipng</i>)	PCA	Property Condition Assessment
CW	Cold Water	PCR	Property Condition Report
DI	Ductile Iron (<i>pipng</i>)	PE	Licensed Professional Engineer
EIFS	Exterior Insulating and Finishing System	PVC	Poly Vinyl Chloride (<i>pipng and siding</i>)
EPDM	Ethylene Propylene Diene Monomer	PTAC	Packaged Terminal Air Conditioning Unit
EUL	Expected Useful Life	ROM	Rough Order of Magnitude
FCU	Fan Coil Unit	RUL	Remaining Useful Life
FEMA	Federal Emergency Management Agency	RTU	Roof Top Unit
FFE	Furniture, Fixtures and Equipment	SF	Square Foot
FHA	Forced Hot Air	SOG	Slab on Grade (<i>concrete basement or ground floor</i>)
FHAA	Fair Housing Act and Amendments	SQ	100 Square Feet
FHW	Forced Hot Water	SY	Square Yard
FIRM	Flood Insurance Rate Map	UBC	Uniform Building Code
FOIA	Freedom of Information Act	UL	Underwriters Laboratories
GFI	Ground Fault Interruption (<i>circuit breaker</i>)	VAC	Volts Alternating Current
GWB	Gypsum Wall Board (<i>drywall or sheetrock</i>)	VAV	Variable Air Volume box

HID	High Intensity Discharge (<i>lamp, lighting fixture</i>)	VCT	Vinyl Composition Tile
HVAC	Heating Ventilation and Air Conditioning	VWC	Vinyl Wall Covering

APPENDIX E

PROJECT TEAM QUALIFICATIONS

Matthew Klein, P.E., RS, MBA (LCDR-Ret., USPHS)

Area of Expertise

- Building inspections, including home, multifamily, structural, roof, FHA and OMHC inspections.
- Commercial property condition assessments.
- Homeowner association reserve fund studies and analysis and transition studies.
- Mold and moisture intrusion investigations.
- Forensic engineering investigations.
- Sampling for chemical and biological contaminants and developing remedial plans.
- Airflow analyses.
- Laboratory and field test development, sampling and data analyses.
- Expert consultant and witness.
- Inspections of single and multifamily residences including condominiums; commercial properties including retail, hotels and offices.
- Clientele including home and commercial property owners and buyers, investors, realtors, operations managers, police department personnel, relocation professionals, lawyers and insurance companies.

Qualifications

- Criterium Engineers staff engineer, during which over 700 projects were completed in building ranging from single and multifamily residences to commercial multistory commercial buildings performing projects including condition assessments, roof and structural inspections and moisture intrusion investigations. Now, also business operations manager.
- Self-employed investigating indoor air quality problems, mainly mold and moisture intrusion problems, sampling for biological contaminants, developing mold remediation plans and serving as expert consultant.
- Twenty-year career with U.S. Public Health Service stationed with the Food and Drug Administration and the National Institute for Occupational Safety and Health. Work with USPHS included developing and executing test protocols, data collection and analyses, air sampling for chemical and biological contaminants, indoor air quality investigations in commercial buildings, schools and hospitals, firing range and industrial process contaminant control investigations and consulting, control system assessments and air handling system analyses and investigations. Buildings of note included the Library of Congress Madison, five schools and the FBI, Secret Service, Government Protective Services and U.S. Park Ranger's firing ranges. Retired from USPHS at the rank of LCDR.
- Authored or co-authored 40 published professional reports or articles.

Education and Affiliations

- Masters in Business Administration from Xavier University, Cincinnati, OH with specialties in general management, marketing, and personnel (primary focus on communication).
- Bachelors of Science in Mechanical Engineering from University of Louisville, Louisville, KY with elective and additional coursework in physiological psychology.
- Professional Engineering License in Mechanical Engineering (Kentucky, #11709).
- Professional Engineering License in Mechanical Engineering (Ohio, #71656).
- Ohio Manufactured Homes Commission Inspector Certification (#20070133)

SCOTT SCHAFFER, E.I.T.

QUALIFICATIONS AND SKILLS

- Proficient MATLAB capability for multiple Engineering applications
- Proficient with SolidWorks, ProE, Autocad drafting programs,
 - Solidworks Certified Professional
- Proficient with the Arduino System and Arduino Sketch format
- Experience with ANSYS and ABICUS finite element analysis programs
- Capable with metal and wood working tools, and other standard shop tools
- Knowledgeable with C++
- Extensive experience with Microsoft Office
- Knowledgeable with FDM 3D printing techniques and design

WORK EXPERIENCE

- Criterium-Cincinnati Engineers (June 2021 - present)
 - Structural engineering firm
 - Structural inspections and accompanying report generation for single and multifamily residences including condominiums; commercial properties including retail, manufacturing plants, and offices
 - Homeowner association reserve fund studies and analysis
 - Moisture intrusion investigation
 - Cost Segregation studies
 - Detailed drawing creation to supplement custom design solutions
- ZEM Properties LLC (August 2018 - present)
 - Small business focused on rehabilitation and renovation of foreclosed homes
 - Assessed housing value and associated financial risks
 - Performed all steps of the renovation process
 - Collaborated to create project plans including timelines and budgets
 - General construction includes electrical, plumbing, tiling, and etc.
 - Researched proper skills, techniques, and housing codes as required
 - Worked with subcontractors to quote jobs and complete work in a timely manner
 - Worked with county permit officials and inspectors to ensure job quality
- Skyclimber, LLC. (June 2016 - August 2018)
 - Suspended scaffolding design and manufacturing company
 - Designed standard equipment and custom products to meet the customer's needs
 - Tested and evaluated new designs
 - Engineering Change Request coordinator
 - Worked with customers and salesmen to meet project requirements
 - Worked with manufacturing to ensure finished products meet specifications
- Design Central (Summer 2015)
 - Consulting and design firm that develops innovative products and solutions
 - Designed, built, and validated test fixtures
 - Tested prototypes to verify functionality
 - Model construction

Education

- Bachelor of Science in Mechanical Engineering from The Ohio State University
- Mechanical Engineering F.E.