

# High-Rise Building Components, Living the High Life

Presented by:

**Rodney Riepenhoff**

Director of Engineering Services



**FirstService**  
ASSOCIATION CONSULTING

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# Rodney Riepenhoff, Director of Engineering Services



Rodney has over 26 years of experience in the industry and currently oversees key client engineering support and services for FirstService Residential, West Region. His expertise includes engineering assessments, training programs, energy audits, reserve studies, mechanical system project management, and construction defect support. Rodney has accumulated a myriad of certifications, all designed to provide a level of engineering knowledge and expertise that no other management company provides. His specialties include the following:

- *Mechanical Engineering Expertise*
- *Plumbing and Electrical Specialist Expert*
- *Reserve Study Specialist Preparedness*
- *Workplace Safety & Risk Assessment*
- *HVAC Specialist*
- *Water Treatment*
- *Emergency*
- *Fire Prevention*



2016

THANK YOU FOR A WONDERFUL YEAR.

*from all of us at*

FirstService Association Consulting

# Reserve Study

- What are we seeing from a management perspective.
- Preventive Maintenance.
- Testing.
- How can we do it better.

# Challenges

*What challenges has your board faced?*



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## Challenges We've Faced...

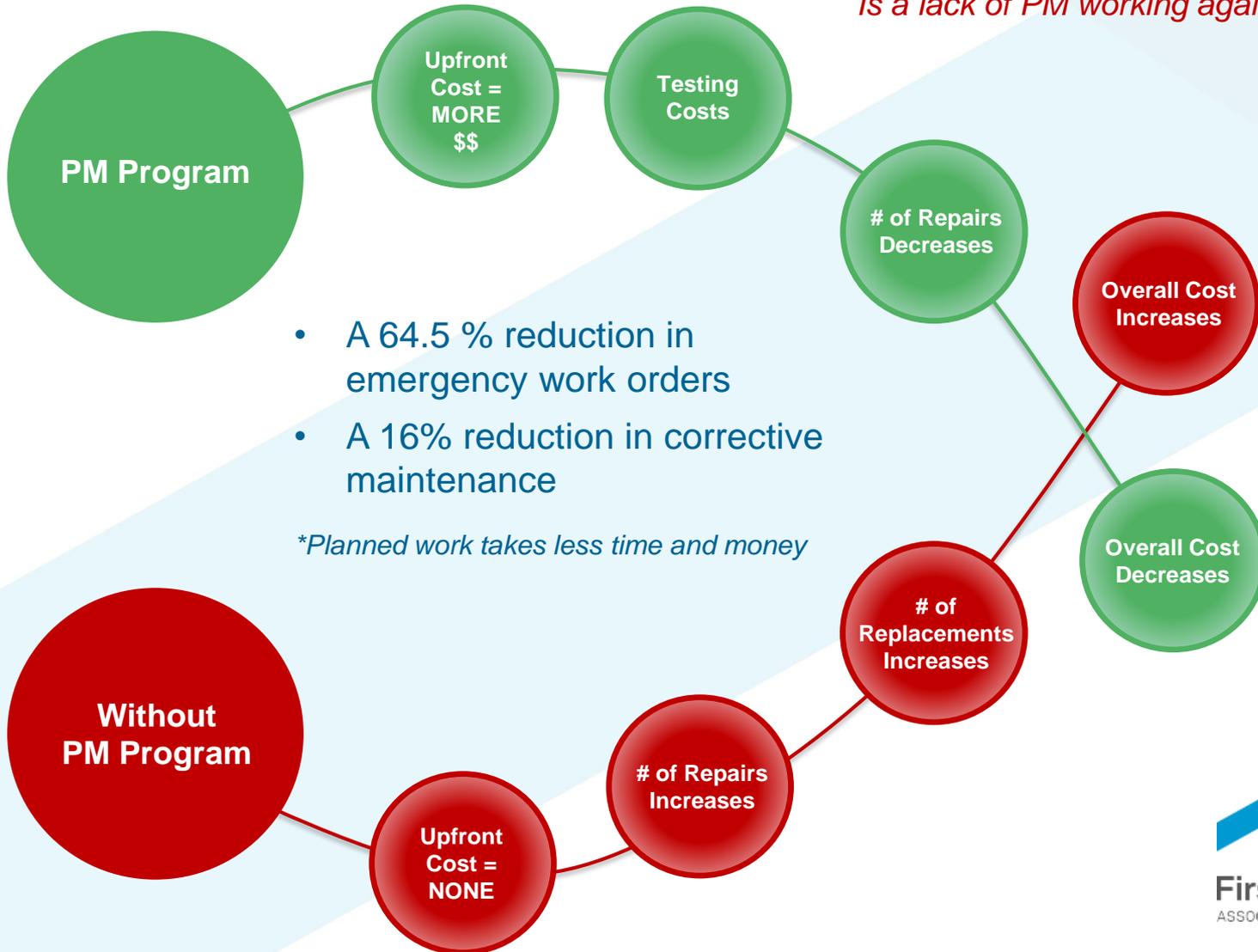


*...and met head on*



# How does a PM Program work for you?

*Is a lack of PM working against you?*



# Deferred Maintenance.













# Solutions

*Our Expertise in Engineering Services*



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# Preventative Maintenance Program

Our experience reveals that high-rise residences require consistent, strategic programs to help board members anticipate expenses—instead of paying for the unexpected.

With our preventative maintenance program, your facilities team can conveniently complete their PM work orders with an iPad app while they are on-the-go, schedule and complete planned maintenance, and manage projects, parts, and supply orders. All asset performance data is stored in the cloud and monitored by FirstService Association Consulting so it can be tracked over time.



# Data Capture and Trend Analysis

We train all of our engineers to use “Engineering in a Box,” a program that works alongside our preventative maintenance program. We also provide tools to track new inventory purchasing and budgets, which can also help your board spot red flags for fraud and increase employee transparency.

Access to Engineering in a Box

Inventory & Purchasing Tools

Bi-Annual Asset Condition Reports

**FACILITIES PURCHASE REQUISITION LOG**

FirstService RESIDENTIAL

MONTH NUMBER: Month 2

TOTAL MONTHLY DEPARTMENT SPENDING: \$ 5,602.00

TOTAL MONTHLY BUDGET REMAINING: \$ 14,898.00

PO Number	Date	Vendor	Description	Cost	Expense Type
12945	2/10/2015	Nevada Energy	Electricity Bill	\$ 4,500.00	Electricity
24567	2/15/2015	Pest Control, Inc.	Extermination	\$ 289.00	Pest Control
34567	2/17/2015	Furniture, Inc.	New chair for lobby	\$ 399.00	R/M Furniture
45678	2/24/2015	Pool Supplies, Inc.	New pool supplies	\$ 117.00	Pool Supplies
89765	2/27/2015	Cleaning Supplies, Inc.	New cleaning supplies	\$ 176.00	Cleaning Supplies
48912	2/28/2015	Sports Courts, Inc.	Sports courts maintenance	\$ 321.00	Select Expense

**MONTHLY BUDGET**

Category	Item	PO Number	Amount	Remaining
REPAIRS & MAINTENANCE	Pest Control	7234	\$ 300.00	
	Cleaning Supplies	7535	\$ 200.00	
	R/M Sports Courts	7690	\$ 350.00	
	Pool Supplies	7213	\$ 150.00	
	R/M Furniture	7643	\$ 200.00	
	R/M HVAC	7891	\$ 500.00	
	R/M Hardware & Materials	7654	\$ 200.00	
	R/M Plumbing	7892	\$ 400.00	
	R/M Electrical	7134	\$ 400.00	
	R/M Parking Lot	6512	\$	
R/M Monuments	3123	\$		

**Forms:**

- Cooling Tower & Heat Exchanger System Daily Log
- Procedures Policy
- Inventory

# Reserve Study Review

Reviewing an association’s reserve study annually allows us to ensure that a community’s property maintenance program matches equipment life expectancies.

Timely review of the reserve study enables us to help associations mitigate surprise costs and save money through proven preventative maintenance programs.

LOW ANALYSIS							Inflation		Interest Income					
Revision Date:							2.10%							
ITEM DESCRIPTION	NOTES	Other Items	DATE COMPLETED	CURRENT COST \$/SQ FT	USEFUL LIFE	REMAINING LIFE BASE YEAR 2014	ACTUAL 2014	PROJECTED 2015	PROJECTED 2016	PROJECTED 2017	PROJECTED 2018	PROJECTED 2019	PROJECTED 2020	PROJECTED 2021
							1	2	3	4	5	6	7	8
<b>Exterior Building Elements</b>														
balconies, Concrete, Repairs and Water proof coating Applications				319,900	10-5	7								369,994
balconies, Railings, Paint Applications and Capital Repairs				76,125	6-8	7								88,046
canopy, Lobby Entrance				58,000	30	23								
doors, Lobby Entrance				70,000	30	23								
roof, 10th Floor, System Replacement				675,000	25-35	25								
roofs, 55th and 60th Floors, Concrete, Overlay				485,000	25-35	26								
roofs, 55th and 60th Floors, Concrete, Waterproof coating Applications				77,600	8	2		80,893						
sealants, Windows and Concrete				96,000	20	9								
falls, Concrete and Stucco, Coating Applications				182,520	15	9								
falls, Curtain, Inspections and Capital Repairs				270,000	20	14								
<b>Interior Building Elements</b>														
elevator Cab Finishes				75,000	20	14								
exercise Equipment, Phased				17,000	15	3			18,094					20,075

Review of Reserve Study

Written Report on Findings and Recommendations

# Vibration Testing

Monitoring equipment vibration is a valuable tool in preventative maintenance programs.

We can use the information provided by vibration analysis to determine the condition of equipment like pumps and motors and diagnose mechanical problems, such as imbalance, misalignment, looseness, worn bearings, strain, and resonance.



Two tests/year  
on all pumps,  
motors, and  
applicable  
equipment

Written Report  
on Findings and  
Recommendations

# Thermal Imaging

A thermal imager, also known as an infrared camera, enables us to immediately identify impending equipment issues. Variations in temperature that can be seen with a thermal imager reveal equipment trouble like faulty valves and overheating that would otherwise be difficult or even impossible to detect.



Four scans/year  
on all electrical  
panels and  
applicable  
equipment

Written Report  
on Findings and  
Recommendations

# Plumbing Stack Inspection

Bi-annual plumbing stack inspections allow us to check stacks for build-up and deterioration and to propose solutions for maintenance issues that prevent costly back-ups.



Inspection  
twice/year on high  
utilization plumbing  
outlets and  
applicable  
systems

Written Report  
on Findings and  
Recommendations

## Examples



# Drone Inspection

Capturing zoomed-in images of the building exterior and rooftops gives our clients the most current and up-to-date information about potential hard-to-find maintenance issues and enables them to address conditions like roof leaks and water damage and to prevent other potential problems.

Notices to the building residents and surrounding properties and notification to the FAA on flight plan must be sent 48 hours prior to the flight.

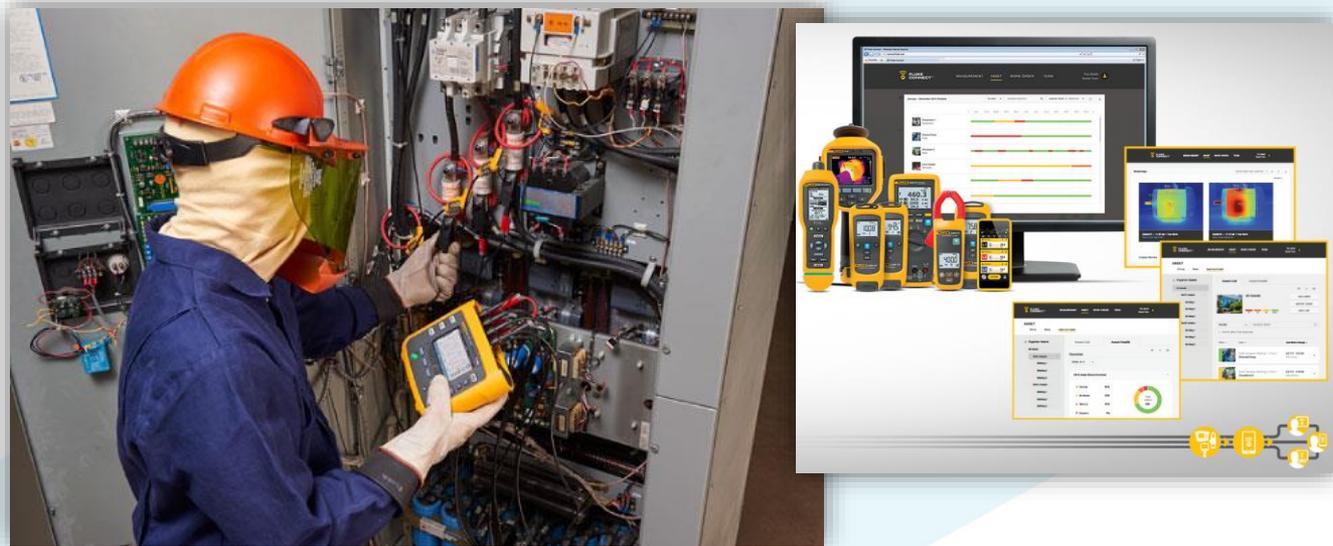


One site inspection of building and rooftops

Written Report on Findings and Recommendations

# Energy Audit Program

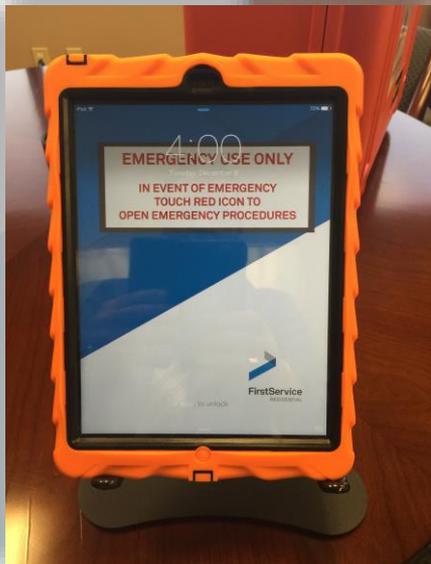
By testing equipment energy efficiency, we can recommend energy-saving strategies and provide solutions for protecting equipment over time to our clients. In addition, we audit water, gas, and lighting systems to get a full picture of your building's energy consumption and to identify areas where your association can minimize waste.



One energy audit  
on equipment,  
lighting, water,  
and gas

Written Report  
on Findings and  
Recommendations

# A Walk Through The Dot System





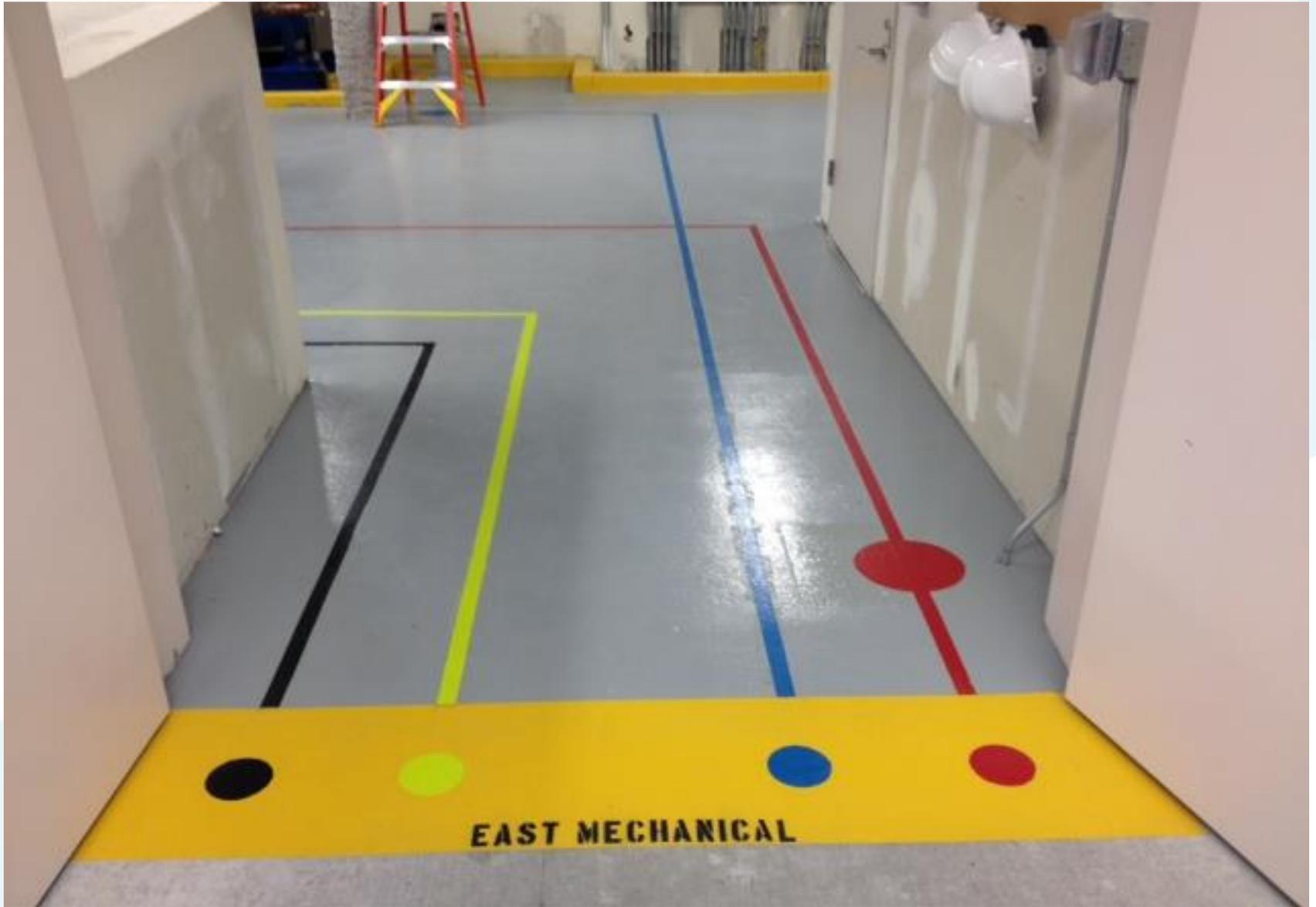


EXIT

MECHANICAL  
ROOM  
2734A



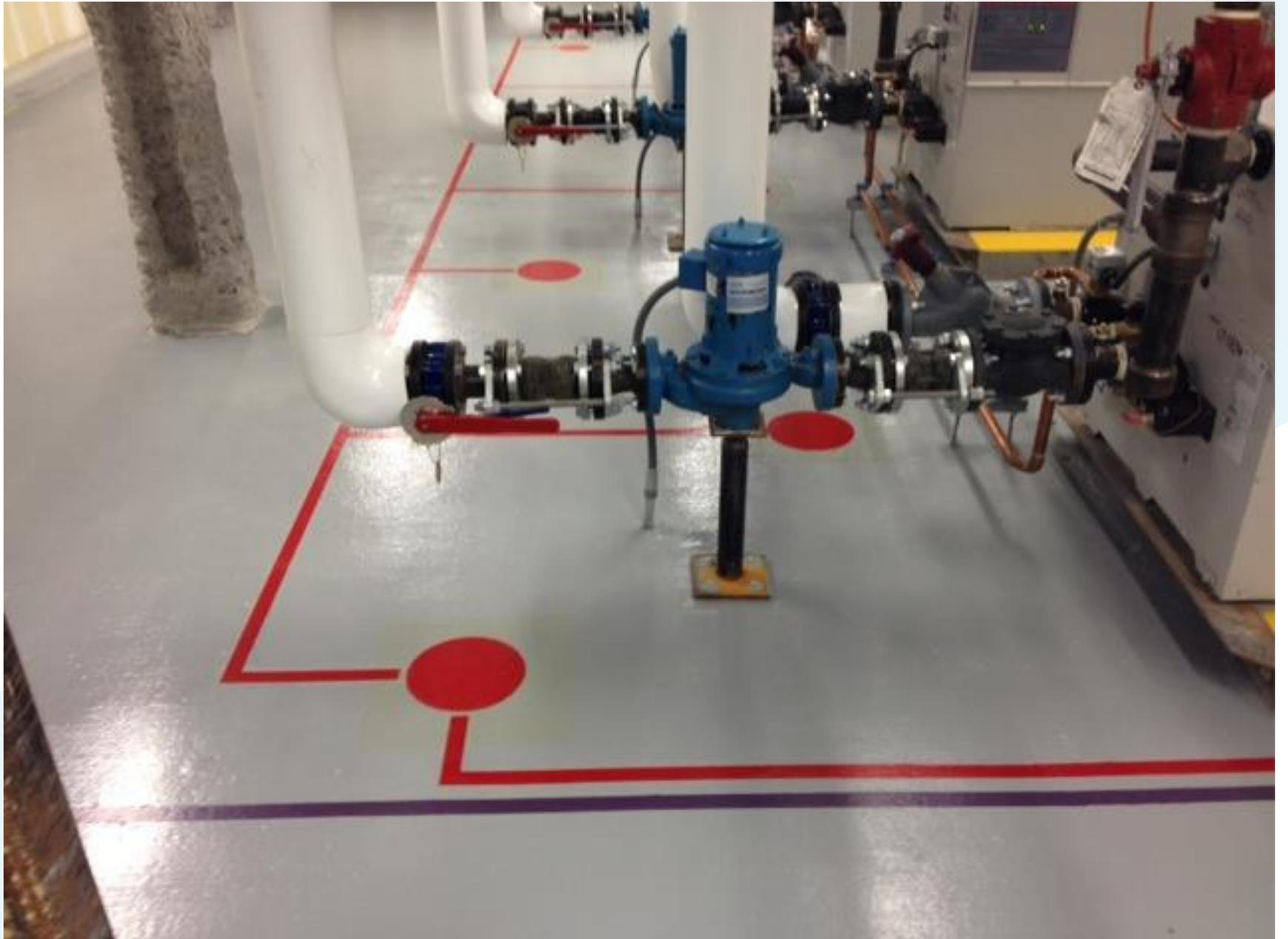
EAST MECHANICAL











# Reserve Studies

# Reserve Study Review

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Review of Reserve Study

Written Report on Findings and Recommendations

### **Report I.D.**

Includes the Report Date (example: November 15, 1992), Account Number (example: 9773), and Version (example: 1.0). Please use this information (displayed on the summary page) when referencing your report.

### **Budget Year Beginning/Ending**

The budgetary year for which the report is prepared. For associations with fiscal years ending December 31st, the monthly contribution figures indicated are for the 12-month period beginning 1/1/20xx and ending 12/31/20xx.

### **Number of Units and/or Phases**

If applicable, the number of units and/or phases included in this version of the report.

### **Inflation**

This figure is used to approximate the future cost to repair or replace each component in the report. The current cost for each component is compounded on an annual basis by the number of remaining years to replacement, and the total is used in calculating the monthly reserve contribution that will be necessary to accumulate the required funds in time for replacement.

### **Annual Assessment Increase**

This represents the percentage rate at which the association will increase its assessment to reserves at the end of each year. For example, in order to accumulate \$10,000 in 10 years, you could set aside \$1,000 per year. As an alternative, you could set aside \$795 the first year and increase that amount by 5% each year until the year of replacement. In either case you arrive at the same amount. The idea is that you start setting aside a lower amount and increase that number each year in accordance with the planned percentage. Ideally this figure should be equal to the rate of inflation. It can, however, be used to aide those associations that have not set aside appropriate reserves in the past, by making the initial year's allocation less formidable.

### **Investment Yield Before Taxes**

The average interest rate anticipated by the association based upon its current investment practices.

#### Taxes on Interest Yield

The estimated percentage of interest income that will be set aside to pay income taxes on the interest earned.

### **Projected Reserve Balance**

The anticipated reserve balance on the first day of the fiscal year for which this report has been prepared.

This is based upon information provided and not audited.

### **Percent Fully Funded**

The ratio, at the beginning of the fiscal year, of the actual (or projected) reserve balance to the calculated fully funded balance, expressed as a percentage.

#### Phase Increment Detail and/or Age

Comments regarding aging of the components on the basis of construction date or date of acceptance by the association.

### **Monthly Assessment**

The assessment to reserves required by the association each month.

#### Interest Contribution (After Taxes)

The interest that should be earned on the reserves, net of taxes, based upon their beginning reserve balance and monthly contributions for one year. This figure is averaged for budgeting purposes.

### **Total Monthly Allocation**

The sum of the monthly assessment and interest contribution figures. Group and Category

The report may be prepared and sorted either by group (location, building, phase, etc.) or by category (roofing, painting, etc.). The standard report printing format is by category.

### **Percentage of Replacement or Repairs**

In some cases, an asset may not be replaced in its entirety or the cost may be shared with a second party. Examples are budgeting for a percentage of replacement of streets over a period of time, or sharing the expense to replace a common wall with a neighboring party.

### **Placed-In-Service Date**

The month and year that the asset was placed-in-service. This may be the construction date, the first escrow closure date in a given phase, or the date of the last servicing or replacement.

### **Estimated Useful Life**

The estimated useful life of an asset based upon industry standards, manufacturer specifications, visual inspection, location, usage, association standards and prior history. All of these factors are taken into consideration when tailoring the estimated useful life to the particular asset. For example, the carpeting in a hallway or elevator (a heavy traffic area) will not have the same life as the identical carpeting in a seldom-used meeting room or office.

### **Adjustment to Useful Life**

Once the useful life is determined, it may be adjusted, up or down, by this separate figure for the current cycle of replacement. This will allow for a current period adjustment without affecting the estimated replacement cycles for future replacements.

### **Estimated Remaining Life**

This calculation is completed internally based upon the report's fiscal year date and the date the asset. Or by testing and equipment evaluations by experts.

### **Replacement Year**

The year that the asset is scheduled to be replaced. The appropriate funds will be available by the first day of the fiscal year for which replacement is anticipated.

### **Annual Fixed Reserves**

An optional figure which, if used, will override the normal process of allocating reserves to each asset.

### **Fixed Assessment**

An optional figure which, if used, will override all calculations and set the assessment at this amount. This assessment can be set for monthly, quarterly or annually as necessary.

### **Salvage Value**

The salvage value of the asset at the time of replacement, if applicable.

### **One-Time Replacement**

Notation if the asset is to be replaced on a one-time basis.

### **Current Replacement Cost**

The estimated replacement cost effective at the beginning of the fiscal year for which the report is being prepared

### **Future Replacement Cost**

The estimated cost to repair or replace the asset at the end of its estimated useful life based upon the current replacement cost and inflation.

### **Component Inventory**

The task of selecting and qualifying reserve components. This task can be accomplished through on-site visual, review of association design and organizational documents, a review of established association precedents, and discussion with appropriate association representative(s).

**Threshold Funding Model (Minimum Funding).** The goal of this funding method is to keep the reserve cash balance above zero. This means that while each individual component may not be fully funded, the reserve balance overall does not drop below zero during the projected period. An association using this funding method must understand that even a minor reduction in a component's remaining useful life can result in a deficit in the reserve cash balance.

Threshold Funding Model. This method is based upon the cash flow funding concept. The minimum reserve cash balance in threshold funding, however, is set at a predetermined dollar amount (other than \$0).

**Current Assessment Funding Model.** This method is also based upon the cash flow funding concept. The initial reserve assessment is set at the association's current fiscal year funding level and a 30-year projection is calculated to illustrate the adequacy of the current funding over time.

**Component Funding Model.** This is a straight-line funding model. It distributes the cash reserves to individual reserve components and then calculates what the reserve assessment and interest contribution (minus taxes) should be, again by each reserve component. The current annual assessment is then determined by summing all the individual component assessments, hence the name "Component Funding Model". This is the most conservative funding model. It leads to or maintains the fully funded reserve position.

# Suggestions

- Major components, Adding in major parts
- Replacement cost.
- Items that fall out of 30 year period.
- Recommending a maintenance plan.
- Going the extra mile.

# Questions and Discussion.