

Reserve Study Concepts & Theories

Gary Porter, RS, RRC, FMP, CPA

What a reserve study is

What it is not

How and why reserve studies developed the way they did

How reserve studies are changing now

Where reserve studies are headed



Reserve Study Concepts & Theories

The reserve study is a budget, a specialized form of capital budget

But it is NOT a capital budget

The reserve study is distinctly different from a traditional capital budget

- Capital improvements
- Noncapital expenditures
- Guaranteed funding source
- Who performs the work

Capital budgeting outside the community association industry is very different

Reserve Study Concepts & Theories

Reserve Studies developed as a “hybrid” service that combines asset physical analysis with financial budget

The reserve study is a budget that SHOULD BE based on and be the financial reflection OF the maintenance program

The reserve study is NOT a maintenance plan

Reserve Study Concepts & Theories

How do I know that most reserve preparers don't ask enough questions of their clients?

<u>Component</u>	<u>Estimated Remaining Useful Lives</u>	<u>Estimated Current Replacement Cost</u>
Condominiums - Exterior Building	2-14 years	\$ 1,984,440
Condominiums - Building Services	1-30 years	236,800
Condominiums - Property Site	0-30 years	358,600
Common - Exterior Building	2-27 years	177,620
Common - Interior Building	1-17 years	101,500
Common - Building Services	3-7 years	25,500
Common - General Property Site	1-28 years	2,483,768
Common - Golf Course Property Site	2-17 years	250,700
Common - Waterways	1-17 years	1,804,300
Common - Vehicle and Equipment	0-11 years	1,133,000
Water Treatment - Exterior Building	1-10 years	19,000
Water Treatment - Interior Building	5 years	15,000
Water Treatment - Building Services	3-5 years	31,500
Water Treatment - Property Site	0-10 years	293,610
Totals		<u>\$ 8,915,338</u>
Replacement Fund Balance at December 31, 2022		<u>\$ 35,999</u>

Reserve Study Concepts & Theories

Reserve Study Process

Three steps in the process

- On-site Analysis
- Office follow up work – Data organization and pricing
- Prepare the Report

Reserve Study Process

Three separate skill sets

- Component skills – Maintenance is most important skill set for on-site analysis
- Valuation skills – Most important for office follow up
- Financial skills – Financial calculations, modeling and reporting

SKE – Skills, Knowledge, Experience

Reserve Study Concepts & Theories

Reserve Study Process

The On-Site Analysis

- Identify components – Standards make a difference
- Quantify components
- Evaluate condition

Reserve Study Concepts & Theories - Reserve Activities

ICBI “principles” establish a “concept-based” guideline for an item to be considered a reserve “Activity” – not a component

1. Financial obligation of the association
2. Significant in cost
3. Maintenance related activity
4. Non annual expenditure

Landscaping, dredging, block walls, and engineering inspection reports are all reserve activities included under ICBI standards.

Contrast to NRSS which uses a “Rules Based” approach

Reserve Study Process

The On-Site Analysis – Complete measurements report - [3-D](#)

[Complete Measurements Report](#) – Follow this link to download full “Complete Measurements” Adobe format report.



3-D view - <https://hover.to/shared/GhnWYksaqD8PMrQsxyot> - Follow this link to see and rotate 3-D image.

Reserve Study Process

Components > View

View Component

Edit

Asset number

3400414

Asset/Component Name

Heat Pump

Category

Equipment > Equipment - HVAC

Category

Equipment > Equipment - Recreational

Life in years

15

Material/Product Cost

\$ 7,600.00

Sales tax

\$ 608.00

Delivery cost

\$

Installation setup cost

\$ 4,500.00

Contract cost

\$

Reserve study site instructions

- 1) Inquire of client regarding (a) date acquired, (b) Original Cost, (c) Maintenance Schedule – what maintenance procedures are performed, (d) Planned future Major Repairs or Replacements (MRR)
- 2) Take photo and evaluate condition.
- 3) Review the area for cleanliness and any obvious signs of mold, unusual water, leaks or unusual sounds in equipment, vibrations, or air movements.
- 4) Look for signs of corrosion, burnt or blackened areas, or unusual smells.
- 5) Check any gauges, thermometers or other recording devices for irregularities or unusual readings.

Asset Description

A heat pump is a type of heating and cooling system that transfers heat from one location to another. It operates on the principle of moving thermal energy from a source to a sink, using a refrigeration cycle or thermodynamic process.

Reserve Study Concepts & Theories

Reserve Study Process

Office follow up work

- Organize, categorize components
- Price components – an entirely separate process
- Enter into software

Reserve Study Process

Components +

Search

- Fire Back Flow
- Fire Panel
- Fire Panels & Central Attenuation
- Fire Sprinkler System
- Fire System Pump Control
- Generator Diesel, 900 kW w/ATS
- Generator Transfer Switch
- Heat Pump 2.5 Ton
- how about
- HVAC System
- HVAC Variable Speed Control
- Lights Ceiling
- Lobby Remodel
- New Thingy
- One More
- Paint - Exterior Building
- Paint Interior Hallway
- Roof Flat Thermoplastic
- Stone Tile

Description: Heat Pump 2.5 Ton

Estimated Life: 15


Cost: 12,900.00

Master List Component: HVAC System

Category - A: Heating & Cooling

Category - B: HVAC

Basis: Each



DETAIL	NOTES	IMAGES	EXPENSES	HISTORY	MAINTENANCE			
Description	Service Year	Replace Year	Service Life	Replace Life	Quantity	Current Cost	Future Cost	
Item Desc 1	2015	2030	15	6	1.00	12,900.00	15,403.27	+

DELETE

Reserve Study Process - Maintenance

Site

Volkman, Kub and Macejkovic

Name

Heat Pump 2.5 Ton

Main image



Maintenance History

Procedures

Documents

Notes

Maintenance History

Create Maintenance Record

Scheduled at	Completed at	Type	Performed by	Comments	
1 month ago	1 month ago	Semi-annual inspection	Ray Stevens	Delay caused by vacation schedule, no re...	View
7 months ago	7 months ago	Semi-annual inspection	John Miller	Routine bi-annual inspection completed....	View
1 year ago	1 year ago	Semi-annual inspection	Ray Stevens	Emergency service call due to reported u...	View

Showing 1 to 3 of 3 results

Per page 10

Reserve Study Process - Maintenance

View Semi-annual inspection >

Component

Heat Pump 2.5 Ton

Type

Semi-annual inspection

Comments

Delay caused by vacation schedule, no replacement maintenance personnel available. Postponement considered non critical and delay approved.
Scheduled inspection and maintenance procedures performed no unusual items noted.

Performed by

Ray Stevens

Scheduled at

Mar 15, 2024

Completed at

Mar 15, 2024

Maintenance image



Checklist

1. Outdoor Unit (Condenser):

- Check for any physical damage, such as dents or rust, which can affect performance.
- Inspect the coil for dirt, debris, or vegetation buildup, as this can impede airflow and reduce efficiency.
- Ensure that the fan is operating smoothly and quietly.

Reserve Study Process -Maintenance

2. Indoor Unit (Evaporator):

- Check for any signs of water leaks around the unit, which could indicate a problem with the condensate drainage system.
- Inspect the indoor coil for dirt or debris buildup, which can restrict airflow and reduce efficiency.
- Verify that the blower motor is functioning properly and that air filters are clean.

3. Refrigerant Levels:

- Check the refrigerant lines for any signs of leaks, such as oil stains or hissing sounds.
- Measure the refrigerant pressure and compare it to manufacturer specifications to ensure optimal performance.

4. Electrical Components:

- Inspect electrical connections for tightness and signs of corrosion.
- Check control panels and circuit boards for any error codes or malfunctions.
- Test capacitors and relays for proper operation.

5. Thermostat and Controls:

- Verify that the thermostat is calibrated correctly and responding to temperature changes.
- Test the heating and cooling modes to ensure they are functioning as expected.

6. Defrost Cycle:

- Check that the defrost cycle is operating correctly in cold weather conditions to prevent ice buildup on the outdoor coil.

7. Overall Performance:

- Monitor the heat pump's operation during both heating and cooling modes to ensure consistent and efficient performance.
- Listen for any unusual noises, such as grinding or squealing, which could indicate mechanical problems.

8. Review Logs

- Review and monitor equipment logs and update as required.

Reserve Study Process - Maintenance

Component
Heat Pump 2.5 Ton


Type
Semi-annual inspection

Comments
Emergency service call due to reported unusual noise from unit. On inspection, found debris obstructing the fan blade, which was removed and the unit tested for proper function. Cooling efficiency restored, and no further problems observed during operation test. Recommended regular checks for external blockages.

Performed by
Ray Stevens

Scheduled at
Mar 1, 2023

Completed at
Mar 1, 2023

Maintenance image


Checklist

Reserve Study Concepts & Theories

Pricing Components

Separate session on this topic

Valuation and cost estimating is a profession with specialized skills, training, and education

Reserve Study Concepts & Theories

Reserve Study Process

Prepare the report – the financial process

This is a complete separate presentation

- Financial calculations
- Financial modeling
- Financial reporting

Reserve Study Concepts & Theories

Service Levels

NRSS reserve standards identify four service levels

1. Full Study with “Site Visit”
2. Update with Site Visit
3. Update without Site Visit
4. Study based on plans

Reserve Study Concepts & Theories

Service Levels vs. Types of Engagements

These are actually “Types of Engagements” not service levels
Multiple different service levels could be applied to each type of engagement

1. Independent Study – excluding long-lived components
2. Independent Study – including long-lived components
3. Budgetary study
4. Reserve Management Plan

Reserve Study Concepts - Service Levels

Reserve Management Plan

- The analysis is based on the existing maintenance program
- A collaborative engagement between the reserve professional and the association
- Reserve professional works WITH the association to understand the maintenance program and obtain better information that also fits within the association's budget.
- The reserve professional DOES NOT surrender his independence

Reserve Study Concepts & Theories

What does the future of reserve studies look like?

NRSS finally recognizing maintenance as a factor to now be considered in reserve studies is viewed by many as just as simple as asking a question.

But it is a game changer as it finally put associations on the same track as commercial entities who prepare capital budgets.

Reserve Study Concepts & Theories

Let's Talk Maintenance

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The association's maintenance program
Is the driving force of the reserve study



Reserve Study Concepts - Maintenance

- 1) Champlain Towers South
- 2) The trend – several states have already adopted maintenance plan and inspection requirements
 - California – balcony inspections
 - Florida – SIRS and benchmark inspections
 - Oregon – Maintenance plan
 - New Jersey – Maintenance plan
 - Constantly changing legal environment

Reserve Study Concepts - Maintenance

Understanding basic maintenance terms and concepts and how those interact with the reserve study is the starting point.

The three broad “types” of maintenance activities are:

- 1) Preventive maintenance - good
- 2) Corrective maintenance – generally necessary
- 3) Deferred maintenance - bad

Reserve Study Concepts - Maintenance

Maintenance program is whatever maintenance activities are, or are not, being performed – this is the maintenance you're actually doing.

A **Maintenance Plan** is a comprehensive guide and checklist on what maintenance activities should be performed. This can exist in either a paper or electronic format.

A **Maintenance Manual** is simply a maintenance plan formatted into a “book” type format and can be in either a paper or electronic format.

Reserve Study Concepts - Maintenance

Inspections are a normal part of any maintenance plan:

- 1) Inspections by staff or maintenance contractors
- 2) Inspections by specialty contractors
- 3) Inspections by engineers or architects

Reserve Study Concepts - Maintenance

Maintenance Monitoring Systems

Paper based monitoring systems are the least expensive and simplest option and may be appropriate for many associations.

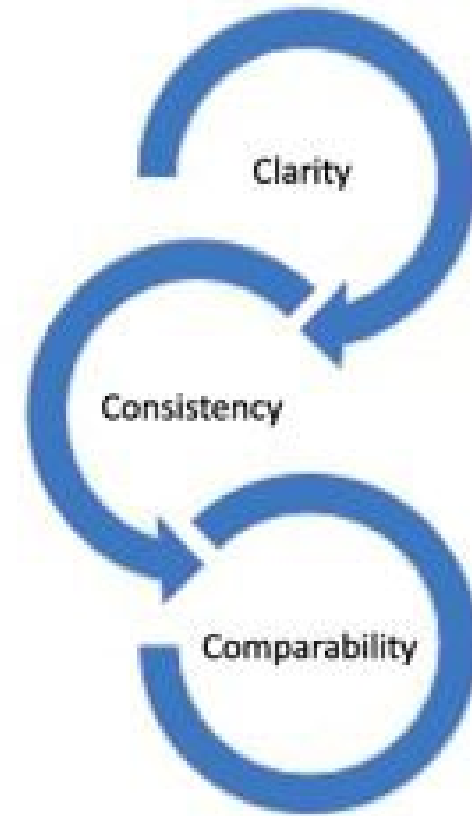
Electronic maintenance trackingg systems become more critical for complex properties

CMMS (Computerized Maintenance Management Systems) are software products that have existed for decades but are usually very complex to operate and so far have EXTREMELY limited use in the community association industry.

Reserve Study Concepts & Theories

Three separate disciplines comprise the reserve study process.

The goal of ICBI standards is to achieve Clarity, Consistency, and Comparability, factors considered essential by users of reports.



Reserve Study Concepts - Characteristics of a profession

Agreed upon body of knowledge	ICBI
Standard setting body	ICBI
Academic educational requirements	BPCB
Comprehensive test of knowledge	BPCB
Professional credential	BPCB
Continuing education requirement	BPCB/ICBI
Peer review requirement	BPCB
Disciplinary framework	BPCB
Forum for dialogue and sharing information	ARP
CPE provider	ARP
Research library	ARP
Agreed upon information sources	ARP

Reserve Study Concepts and Theories

Questions?

Comments?

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