

## Finance 673 Real Property Valuation

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### Replacement Allowance

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### Definition

- Replacement Allowance
  - ▶ An allowance that provides for the periodic replacement of building components that wear out more rapidly than the building itself and must be replaced during the building's economic life (short lived items)
  - ▶ One of the three categories of operating expenses
    - ▶ Fixed expenses
    - ▶ Variable expenses
    - ▶ Replacement allowance
  - ▶ Also referred to as replacement reserves
  - ▶ Issue – deduct before or after NOI, capitalization of NOI with or without replacement allowance

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### Replacement Allowance Items

- Typical building components requiring replacement allowance:
  - Roof covering
  - HVAC systems
  - Carpeting
  - Kitchen, bath and laundry equipment
  - Compressors, elevators and boilers
  - Sidewalks
  - Driveways
  - Parking areas
  - Exterior painting

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### No Reserve Funding Method

- Method 1 – Funding No Reserves
  - Judgment based on market evidence
  - See if market derived capitalization rates reflect or don't reflect replacement allowance
  - $R_O$  would be affected, how?
  - Example A
    - NOI \$50,000
    - Sales Price \$500,000
    - $R_O$  10.0%
    - Maintenance Poor (\$0/yr.)

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### No Reserve Funding Method

- Example B
  - NOI \$47,500
  - Sales price \$500,000
  - $R_O$  9.5%
  - Maintenance Good
- Conclusion: Increase of 50 basis points (adjustment) to  $R_O$  for poor maintenance

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### Percentage of NOI Method

- Method 2 – Funding based on percentage of NOI
  - Simplest
  - But weakest
  - As NOI increases, reserves increase similarly
  - What is relationship?

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### Straight Line Method

- Method 3 – Straight line method
  - Usually based on per square foot, per unit
  - Good if properly developed
  - Simple
  - Straight line amortization of replacement cost
  - Example:
    - Replacement cost = \$100,000 (short lived item)
    - 10 year useful life
    - 100,000 square foot building
    - Total allowance =  $\$100,000 \div 10 = \$10,000$  per year
    - Per unit =  $\$10,000 \div 100,000$  square feet = \$0.1000 psf

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### Sinking Fund Factor Method

#### Method 4 – Sinking Fund Method

1. Sinking Fund Factor (SFF) calculation:

Reinvestment rate of 4.5%

PV = 0

FV = 1

i = 4.5

n = 10

Solve for pmt. = - 0.081379

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### Sinking Fund Factor Method

2. Estimate replacement allowance

SFF = 0.081379

Allowance = SFF x replacement cost  
=  $0.081379 \times \$100,000$   
= \$8,137.90

3. Compare to straight line:

\$8,137.90 v. \$10,000.00

Why are they different?

Under what circumstances would they be the same?

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## Sinking Fund with Inflation

Assumptions:

Current replacement cost of \$100,000, increasing at 2.0% per year, compounded annually

Useful life of 10 years (short lived item – useful life less than the useful life of the main structure)

Reinvestment (sinking fund) rate of 4.5%

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## Sinking Fund with Inflation

Solution:

1. Calculate future replacement cost

$$PV = \$100,000$$

$$i = 2.0\%$$

$$n = 10$$

$$\text{calculate FV} = \$121,899.44$$

2. Calculate replacement allowance

$$SFF = 0.081379$$

$$\text{Allowance} = SFF \times \text{cost}$$

$$= 0.081379 \times \$121,899.44$$

$$= \$9,920.05$$

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