

## **FORMULAS**

### **FORMULA #1**

**Key Formula: NOI**

Revenues – Operating Expenses = NOI

Note: The NOI calculation is performed before any deduction for debt service.

### **FORMULA #2**

**Key Formula: Unleveraged Cash Flow 1**

Revenues – Operating Expenses = Unleveraged Cash Flow (NOI)

Note: This is the same formula for NOI

### **FORMULA #3**

**Key Formula: Net Cash Flow**

Unleveraged Cash Flow (NOI) – Principal/Interest Payments = Net Cash Flow

### **FORMULA #4**

**Key Formula: Underwritten NOI**

Revenues – Operating Expenses – Reserves = Underwritten NOI

### **FORMULA #5**

**Key Formula: Calculating Economic Vacancy**

100% Occupancy \* Monthly Rent = **Total Potential Rent**

Leased Units at Full Rent + Leased Units at Discount Rent = **Actual Rent**

Total Available Units / Vacant Units = **Actual Vacancy**

Potential Rent – Actual Rent = **Economic Vacancy**

### **FORMULA #6**

**Key Formula: Calculating Economic Vacancy for Multifamily Properties**

100% Occupancy \* Monthly Rent = **Total Potential Rent**

Total Potential Rent – Actual Rent Collected = **Total Economic Collections**

Total Economic Collections / Total Potential Rent = **Economic Vacancy Cost**

Economic Vacancy Cost / Total Potential Rent = **Economic Vacancy**

**FORMULA #7**

**Key Formula: Stabilized Cash-on-Cash Return**

Stabilized Net Operating Income (NOI) / Total Project Cost = Stabilized Cash-on-Cash Return

Example:  $\$950,000 / \$10,000,000 = 9.5\%$

**FORMULA #8**

**Key Formula: Leveraged Cash-on-Cash Return**

Stabilized Cash Flow / Sponsor Equity Contribution = Stabilized Leveraged Cash-on-Cash Return

Example:  $\$190,000 / \$2,000,000 = 9.5\%$

**FORMULA #9**

**Key Formula: Property Value**

Stabilized NOI / Market Cap Rate = Property Value

Example:  $\$950,000 / 9.5\% = \$10,000,000$

**FORMULA #10**

**Key Formula: Solving the LTV Ratio**

Loan Amount / Asset Value (or Purchase Price) = LTV

Example:  $\$8,000,000 / \$10,000,000 = 80\%$  LTV

**FORMULA #11**

**Key Formula: Solving for DSC**

Conduit Underwritten Net Operating Income (NOI) / Debt Service = Stabilized DSC

Example:  $\$779,375 / \$622,400 = 1.25x$

**FORMULA #12**

**Key Formula: Solving for Debt Yield**

NOI / Loan Amount = Debt Yield

**FORMULA #13**

**Key Formula: “Quick & Dirty” Interest Calculator**

The keys to interest costs are:

- Loan amount
- Interest rate
- Time to first pay down
- Time to last pay down

**Example**

Total costs: \$1,000,000 (fact)

Total Loan: 65% of total costs (fact or estimate)

Average loan outstanding: 50% (estimate)

Interest rate: 10% (fact or estimate)

Term of loan: 3 years (estimate)

$\$1,000,000 * 65% * 50% * .10 * 3 = \$97,500$