$$R = ((FHL * CHL) + (FOL * COL) + PLS)$$

where

| | | |
|---|---|---|
| R | = | annual repair and maintenance |
| FHL | = | on-farm hired labor |
| CHL | = | cost of on-farm hired labor |
| FOL | = | on-farm owner-operator labor |
| COL | = | cost of on-farm owner-operator labor |
| PLS | = | off-farm parts and labor |

## Labor

The labor for operation of the building is specified when the enterprise budget is defined. On-farm labor costs for maintenance and repair are calculated when repair and maintenance costs are determined.

## Property Tax

The calculation of property tax is also straightforward. Annual property tax is entered as a $/yr value that appears in the fixed cost section of the budget.

## Insurance

Insurance is the cost of insuring the capital investment (building) against loss or damage. Thus it is based on a percentage of the current market value of the building.

$$INS = INR * .01 * M$$

where

| | | |
|---|---|---|
| INS | = | insurance cost |
| INR | = | insurance rate based on current market value (%) |

## Depreciation

Depreciation is a measure of the actual loss of value in the building occurring in the current year. Thus it may be different than depreciation used for tax purposes.

$$D = (1 / RL) * (M * (1 - (SV * .01)))$$

where

| | | |
|---|---|---|
| D | = | current annual depreciation |
| RL | = | remaining life (yrs) |
| M | = | current market value |
| SV | = | salvage value as a percent of current market value |

## Interest on Investment

Interest on investment is calculated as the opportunity cost of capital. Interest is calculated on the actual market value of the building less half the year's depreciation.

$$IC = (M - D / 2) * IR * .01$$

where

| | | |
|---|---|---|
| IC | = | total interest cost or opportunity cost of investment |
| M | = | current market value |
| D | = | depreciation as defined above in depreciation calculation |
| IR | = | interest rate (%) |

## OPERATING CAPITAL COST CALCULATION PROCEDURE

Annual operating capital is the short term capital required to finance cash variable and

fixed costs during the enterprise production cycle. The MBMS program allows for the internally generated cash (e.g., from the sales of products of the enterprise) to offset the operating input expenses. Any cash surplus is carried forward as savings and any deficit constitutes an operating capital requirement. The annual capital requirement is the weighted average net capital requirement (weighted by the days outstanding). The annual operating capital is not the minimum or maximum of short-term financing required by the enterprise. Annual capital requirements may even be negative if accumulative monthly receipts are greater than expenses over the production cycle.

An example will illustrate how the annual operating capital interest borrowed and interest earned are derived. Suppose you can borrow money at 12% interest, and you can receive 12% interest on any cash surplus (called operating capital borrowed and surplus cash flow in the parameter file). Assume 100% of the operating capital is borrowed. The following table shows the effect of three transactions.

| Date | Cash Receipts | Cash Expenses | Difference | Balance to Date | Days Outstanding | Annual Capital | Interest on OC |
|------|------|------|------|------|------|------|------|
| 01/01/84 | ---- | 100 | 100 | -100 | ---- | --.---- | --.---- |
| 01/15/84 | 50 | ---- | 50 | -50 | 15 | 4.167 | .50 |
| 02/01/84 | 100 | ---- | 100 | 50 | 15 | 2.083 | .25 |
| 02/15/84 | ---- | ---- | ---- | 50 | 14 | -1.944 | -.233 |

The annual capital is calculated as the outstanding balance times the days outstanding divided by 360 (e.g., 100 X 15 / 360 = 4.167). This value times the interest rate yields interest payed or received (e.g., 4.167 X .12 = .5). In the budgets annual capital and interest will appear positive (+) for money borrowed and negative (-) for money earned, i.e., interest earned is a negative cost.

There are two operating capital interest rates in the budgets including: (1) interest rate on borrowed capital and (2) interest rate on equity capital. Separating operating capital into these categories allows for different interest rates.