

First loan	\$ 200,000 @ 6% for 4 yr.	\$ 48,000	
Credit on balance	100,000 @ 2% for ½ yr.	1,000	
Net interest first loan			\$ 47,000
Second loan ...	200,000 @ 6% for 3½ yr.	42,000	
Credit on balance	100,000 @ 2% for ½ yr.	1,000	
Net interest second loan			41,000
Third loan	2,000,000 @ 6% for 3 yr.	360,000	
Credit on balance	1,000,000 @ 2% for ½ yr.	10,000	
Net interest third loan			350,000
Fourth loan ...	2,000,000 @ 6% for 2½ yr.	300,000	
Credit on balance	1,000,000 @ 2% for ½ yr.	10,000	
Net interest fourth loan			290,000
Fifth loan	2,000,000 @ 6% for 2 yr.	240,000	
Credit on balance	1,000,000 @ 2% for ½ yr.	10,000	
Net interest fifth loan			230,000
Sixth loan	2,000,000 @ 6% for 1½ yr.	180,000	
Credit on balance	1,000,000 @ 2% for ½ yr.	10,000	
Net interest sixth loan			170,000
Seventh loan ..	1,800,000 @ 6% for 1 yr.	108,000	
Credit on balance	900,000 @ 2% for ½ yr.	9,000	
Net interest seventh loan			99,000
Eighth loan ...	1,800,000 @ 6% for ½ yr.	54,000	
Credit on balance	900,000 @ 2% for ½ yr.	9,000	
Net interest eighth loan			45,000
Total interest cost			\$1,272,000

$$\frac{1,272,000}{12,000,000} = 10.60\%$$

If this money is borrowed at the beginning of each year instead of every six months the amounts for each period will be as follows:—

	Land.	Structural property.	Total.
First period	\$ 400,000	\$ 400,000	\$ 800,000
Second period	400,000	3,600,000	4,000,000
Third period	400,000	3,600,000	4,000,000
Fourth period		3,600,000	3,600,000
Total	\$1,200,000	\$10,800,000	\$12,000,000

The total interest cost will be \$1,392,000.

$$\frac{1,392,000}{12,000,000} = 11.60\%$$

Each Property a Special Problem

I do not know of any one formula that can be applied to every type of utility, and which when solved, will give accurately the interest cost during construction. Each property will have its own individual problems, and for this reason a thorough study should be made of the particular property under consideration to determine:—

- (1) The magnitude of the property and the difficulties that must be overcome during construction;
 - (2) The method used in finding the reproduction cost;
 - (3) The proper construction period, taking into consideration the method used in finding the reproduction cost;
 - (4) Knowing the construction period, what is the proper method to use in finding the total interest cost?
- In the end, after all theories have been considered, it is the judgment of competent engineers that should be the controlling factor.

Taxes During Construction

Like interest, taxes during construction is an item of cost incurred during the construction period and must be paid. The only question being, what is the proper amount to allow. It may be argued that the value of a utility depends on its earnings, and there can be no earnings during the construction period therefore, no taxes should be paid. But it does not work that way. The assessor finds the land and puts it on the rolls. He finds the building materials, machinery and partially erected buildings and they also go on the rolls, perhaps not in full amount, but in some amount at least. The problem, however, is somewhat easier than in the case of interest. It is always possible to go to the company's books and find the amount of taxes the company is actually paying, also the rate, but it is not always possible to find the ratio of assessed to actual value.

It also becomes necessary to estimate just what percentage of the property under construction the assessor will find and put on the rolls. It is also necessary to consider whether the date of starting construction and the date of assessment are the same, or whether the assessment is made in mid-year of each year of the construction period. The final result will not be very different with two methods. The following problem is presented only to illustrate the solution under certain assumed conditions.

Problem No. 4:—Assume a property costing \$12,000,000, of this amount the land is \$1,200,000 and the structural property \$10,800,000. The purchase of land is started one year before construction and continues for three years, the construction period is also three years, the assessment is made in mid-year of each construction period. The assessor will find 70% of the construction cost, the rate is 2%. The amount put into property each year is as follows:—

	Land.	Structural property.	Total.
First year	\$ 400,000	\$ 400,000	\$ 800,000
Second year	400,000	3,600,000	4,000,000
Third year	400,000	3,600,000	4,000,000
Fourth year		3,600,000	3,600,000
Total	\$1,200,000	\$10,800,000	\$12,000,000

Solution:—

Total cost end of first year	\$ 400,000
Cost at middle of first year	200,000
Assessment @ 70%	140,000
Taxes paid first year 2% of \$140,000 ..	\$ 2,800
Total cost at end of second year	4,400,000
Cost at middle of second year	2,400,000
Assessment @ 70%	1,680,000
Taxes paid second year 2% of \$1,680,000 ..	33,600
Total cost at end of third year	8,400,000
Cost at middle of third year	6,400,000
Assessment @ 70%	4,480,000
Taxes paid third year 2% of \$4,480,000 ..	89,600
Total cost at end of fourth year	12,000,000
Cost at middle of fourth year	10,200,000
Assessment @ 70%	7,140,000
Taxes paid fourth year 2% of \$7,140,000 ..	142,800
Total taxes paid	\$268,800

$$\frac{268,800}{12,000,000} = 2.24\%$$

As in the case of interest, before the final percentage to include for taxes during construction can be determined, it will be necessary to know what method was used in finding the reproduction cost, if "piece-meal" the percentage will be one thing, if "wholesale" it will be another. The proper amount to include for taxes finally depends on first, the length of the construction period; second, what per cent. of the construction cost will the assessor find; third the tax rate.

The second meeting of the National Board for Jurisdictional Awards was held in Washington, April 26-28, 1920. Representatives of the A.G.C., the National Association of Building Trade Employers, the American Institute of Architects, Engineering Council and the Building Trades Department of the American Federation of Labor sat as a court of inquiry and handed down awards in four cases. The most important of these gave the employers full direction over the erection and removal of scaffolds up to 14 feet in height on building construction work, with the option of having the work done by mechanics or laborers in the lathers, plasterers, bricklayers, and masons' unions. The carpenters and joiners were given jurisdiction in the matter of asbestos shingles, prepared paper roofing, asphalt roofing, shingles and strip shingles, which had been disputed by the slate and tile composition roofers. The asphalt workers as against the plasterers were awarded the work of putting up asbestos ceilings and insulation on jobs for which were put in the ground work.