

**King Fahd University of Petroleum & Minerals**  
**College of Environmental Design**  
**Construction Engineering & Management Department**  
**CEM 530**  
**Construction Equipment & Methods**  
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# Equipment acquisition

Basic methods for securing a piece of equipment to use on a project:

- Buy (direct ownership).
- Rent.
- Lease.



# Ownership

**Assumes a continuing need for and utilization of the machine.**

## **Advantages:**

- **Guarantees control of machine availability and mechanical condition.**

## **Disadvantages:**

- **Requires a continuing sequence of projects to pay for the machine.**
- **Force a company into using obsolete equipment.**



# Rent

**Short-term alternative to direct equipment ownership.**

**Short-term is a very short period of time, as measured against the expected machine life.**

**Rental rates are priced on either a daily (8 hr), a weekly (40 hr), or a monthly (176 hr).**

**Cost/hr. is usually less for a longer-term rental.**



# Rent

- **The contractor is normally responsible for all repairs, and fuel and lubrication expenses.**
- **The contractor must pay rentals in advance.**
- **The renting company requires the contractor to furnish certificate of insurance.**



# Rent

## Advantages:

- Pick the machine that is exactly suited for the job.
- Suits for short duration jobs, and there is no continuing need for the particular type of machine.
- Test a machine, of specific make and model, prior to a purchase decision in terms of operability under actual project conditions, and profitability.



# Rent

## Disadvantage:

- Availability during peak work seasons is not guaranteed.
- Many specialized or custom machines cannot be rented.



## Rent

- Ownership costs equals \$10.96 per hr.
- Machine works 2,400 hrs per year.
- The yearly ownership costs =  $\$10.96 \times 2,400 = \$26,304$ .
- Rental quotes are:
  - \$3,558 per month
  - \$1,182 per week
  - \$369 per day





# Rent

- Divide with the appropriate number of hours to express as hourly costs.
- Divide the calculated hourly rental rates into the yearly ownership cost figure to determine the breakeven points.



## Rent

Rental duration	Rates(\$)	Hours	Rental Rate (\$/hr.)	Breakeven Point (\$26,304)	Breakeven Point (\$3,558)	Breakeven Point (\$1,182)
Monthly	3,558	176	20.22	1,300	--	--
Weekly	1,182	40	29.55	--	120	--
Daily	369	8	46.13	--	--	26

- If used more than 1,300 hr. consider ownership.
- If used less than 120 consider monthly rental rate.
- If used less than 26 hr, daily rate is optimal.



# Lease

**A lease is a long-term agreement for the use of a machine.**

**Long-term is a period of time that is long relative to the life of the machine.**

**Provides an alternative to direct ownership.**



# Lease

**Payments are usually structured in the agreement to best fit the situation of the leasing company and contractor.**

**The leasing company provides the management and servicing, that frees the contractor from hiring a contractor.**



# Lease

Lease may have three end-of-lease options.

- Buy the machine at fair market value.
- Renew the lease.
- Return the equipment to the leasing company.



# Lease

- **Contractor gains a tax reduction because lease payments are treated as an expense.**
- **Contractor must make examination of the cash flows associated with purchasing and leasing options to determine the lowest total cost.**



# Lease

## Advantages:

- Working capital is not tied up in equipment.
- credit capacity is preserved which doesn't hurt bonding capacity.
- Leasing company is responsible for maintenance.



## Lease

Cash flows that should be considered when evaluating the cost of a lease include:

- Inflow initially of the equivalent value of the machine.
- Outflow of the periodic lease payments.
- Tax shielding provided by the lease payments.
- Loss of salvage value when the machine is returned to the leasing company.

The total present value of the lease option should be compared to the ownership costs.

