



Estimating Labor Costs

Week 4
Construction Estimation,
Planning and Control

Estimating Labor

- Estimates made in person-hours/labor-hours
- Employer pays for:
 - Wages
 - Fringe benefits
 - 10-20% of base rate
 - Social security taxes
 - Both employer and employee pays 7.65% of employee's gross salary, capped by \$76,000, per annum
 - Unemployment taxes
 - 3% of wages paid by the contractor period of employment
 - Workers' compensation/employer's liability insurance
 - Protect contractor against work-site injury/ any related litigation
 - Varies state to state and nature of labor
 - Public liability/property damage insurance
 - Protect contractor from costs arising out of property damage (2%-5%)

Hourly Wage Rates

- Union Wage
 - Wage rate decide by labor contract between labor union and contractor's management
 - Fringe benefits directly paid to unions
- Open-shop Wage
 - Wage rate agreed on by employer and employee
- Prevailing Wage
 - Mostly for work on projects funded by state/federal monies

Davis-Bacon Act

- All federal government construction contracts and most contracts for federally assisted construction over \$2,000 must include provisions for paying workers on-site no less than the locally prevailing wages and fringe benefits paid (ammended 1964) on similar projects.
- Last suspended during hurricane Andrew
 - Reinstated by President Clinton (1993)
- Indefinitely suspended on 09/08 for the 4 states affected by Katarina
- Multiple efforts at repealing act! (latest: 2004)

Estimating Production Rates

- Production Rate: Number of units installed/crew-hour
- Affected by:
 - Weather
 - Technology employed
 - Level of supervision
 - Worker skills
- Information: RS Means/historical contractor information

Overtime

- Working overtime for an extended period of time adversely impacts productivity
- Guiding formula to calculate efficiency:
 - $\text{Eff.}(\%) = 100\% - 5[(\text{days} - 5) + (\text{hours} - 8)]$
- Benchmark: 100% Efficiency when working 8 hours a day for 5 days a week.
- 95% efficiency for 9 hours a day 5 days a week.

Other Productivity Factors

- Increasing workforce: Crowding on site
- Impacts of learning on productivity
 - Reduction in time of completion for Nth repetition of an activity
- Interrupting work on multiple units
 - Lost learning