

**1. Morale and Attitude**

Spirit of workers based on willingness, confidence, discipline, and cheerfulness to perform work or tasks can be lowered due to a variety of issues, including increased conflicts, disputes, excessive hazards, overtime, over-inspection, multiple contract changes, disruption of work rhythm, poor site conditions, absenteeism, unkempt workspace, and so on.

**2. Fatigue**

Fatigue can be caused by prolonged or unusual physical exertion.

**3. Concurrent Operations**

This is the effect of adding operations to any sequence of operations that has already been planned, without a gradual and controlled implementation of additional operations.

**4. Absenteeism and Turnover**

There is a great deal of time and money lost associated with high turnover and absenteeism on projects. Construction projects in certain areas with low manpower and high demand for labor will usually be more impacted than others. Extreme weather conditions (such as extreme heat or cold) will also increase absenteeism and turnover. Replacement workers are usually not familiar with the work or area and require experienced workers to stop work and show them what to do. The impact can be up to four days of lost work for each worker.

**5. Mobilize/Demobilize**

This relates to moving resources on and moving off to projects as a result from changes or delays, causing work disruptions. Productivity may drop during these periods as time is lost when crews move from one area or work assignment to another.

**6. Errors and Omissions**

Increases in errors and omissions impact on labor productivity because changes are then usually performed on a crash basis, out of sequence, cause dilution of supervision, or any other negative impacts.

**7. Start/Stop**

This results from a work stoppage or suspension of work, which may cause a break in the schedule, usually triggering a start/stop of work activity. Stop-starts can have an impact on productivity and cost of a project. Work scheduled or reassigned during holidays such as Thanksgiving, Christmas, New Year's, and so on are often impacted with stop-starts. Workers tend to discuss the time off and lose previous momentum with a drop-in productivity before they get back in routine.

## **8. Reassignment of Manpower**

When workers are reassigned, they experience unexpected or excessive changes, losses caused by move-on or move-off, reorientation, and other issues that result in a loss of productivity.

## **9. Late Crew Build-up**

This is caused when the planned project manpower loading is altered and causes manpower loading to build up slower than planned due to availability, shortage of resources, or competition from resources. Impacts can be in excess of 10 percent.

## **10. Crew Size Inefficiency**

This is when the optimal crew size is altered by adding or deleting crew members. When workers are added or deleted from a crew, it breaks up the original team effort and rhythm of the crew and results in loss of productivity.

## **11. Logistics**

Insufficient or poor material handling, owner-furnished material, procurement practices, or a lack of controls can cause procurement or delivery problems, as well as other issues. This then prevents, delays, or disrupts the normal material workflow to a work area, warehouse, or laydown yard. This can also be a result from the additional replacement or substitution of material due to contract changes, defects, or delays at the work site.

## **12. Learning Curve**

When crew turnover causes new workers to be added to a crew or additional manpower is needed within a crew, a period of orientation occurs in order to become familiar with changed conditions. They must then learn work scope, tool locations, work procedures, and so on.

## **13. Ripple Effect**

This is caused when changes in other trades' work then affects other work, such as the alteration of schedule.

## **14. Dilution of Supervision**

This occurs when supervision is diverted from productive, planned, and scheduled work to analyze and plan contract changes, expedite delayed material, manage added crews, or other changes not in the original work scope and schedule. Dilution is also caused by an increase in manpower, work areas, or project size without an increase in supervision.

## **15. Holidays**

If workers work on holidays, there is not only a cost factor for holiday pay, but there is usually a loss of productivity as well. It may be addressed as a morale factor since workers are away from families and working instead of enjoying the holidays, or it can also be factored separately. Either way, there is usually a productivity loss to consider.

## **16. Rain**

Most crafts do not work in the rain, but many do, especially those who live in wet regions of the country and must work or risk losing too much in wages. Work can, and does occur in the rain, but not without inefficiencies due to rain gear, visibility, safety,

morale, discomfort, hazards, and other issues.

### **17. Over-manning**

This is caused when work planners hire too many workers for the estimated work scope and duration. Sometimes, when labor in certain areas or regions is scarce or hard to get, work planners may overcompensate for potential absenteeism and turnover, which creates overstaffing. Another cause is the false assumption that increased manning will always result in increased work productivity.

### **18. Tool and Equipment Shortage**

This is caused when there is insufficient quantity or quality of tools and equipment to meet the needs of the project.

### **19. Area Practices**

This can be the result of added or extended coffee breaks, unique observance or custom, or other practices unique to the craft, owner, country, project location, or other customary practices in the area.

**This FREE DOWNLOAD was provided by Don Kiper, Estimating 101 on November 26, 2019.**

**Please contact Don with any comments about this article.**

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