



Standard Practice for Job Productivity Measurement¹

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INTRODUCTION

Job Productivity Measurement (JPM) measures both construction productivity differential on an ongoing and periodic basis and average productivity over the life of the construction project.

JPM calculates the ratio of output per unit of input: how much work—Construction Put In Place (CPIP)—was produced by how many labor hours. Additionally, JPM is an early warning signal for construction performance. It measures ongoing productivity changes, trends, and anomalies resulting from changes on a construction jobsite, which enables contractors, project managers, supervisors, and foremen to react and improve productivity as the construction project unfolds.

1. Scope

1.1 Based on the UNIFORMAT II format for organizing building data, established in Classification [E1557](#), and depending on the level where measurement is applied (industry, total job, or building element), JPM measures construction productivity at three levels: task, project, and industry (shown in [Fig. 1](#)). By comparing labor hours used against CPIP, JPM allows for unified measurement of established building elements (according to the UNIFORMAT II format. This practice establishes a process for measuring construction job productivity by comparing labor usage to CPIP.

1.2 JPM measures labor productivity of the installation processes on a construction job.²

1.3 CPIP is measured with input from the labor performing the installation, utilizing elements of statistical process control (SPC) and industrial engineering.

1.4 JPM takes into account the difficulty of installation at any given point on a job.

1.5 JPM evaluates relative productivity changes using trend monitoring.

2. Referenced Documents

2.1 ASTM Standards:³

[E631 Terminology of Building Constructions](#)

[E833 Terminology of Building Economics](#)

[E1557 Classification for Building Elements and Related Sitework—UNIFORMAT II](#)

[E1946 Practice for Measuring Cost Risk of Buildings and Building Systems and Other Constructed Projects](#)

[E2166 Practice for Organizing and Managing Building Data](#)

[E2587 Practice for Use of Control Charts in Statistical Process Control](#)

2.2 ASTM Manual:⁴

[MNL 65 Application of ASTM E2691 Standard Practice for Job Productivity Measurement](#)

3. Terminology

3.1 *Definitions*—For definition of general terms related to building construction used in this practice, refer to Terminology [E631](#); and for general terms related to building economics, refer to Terminology [E833](#).

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *baseline labor hour budget, n*—a budget of direct labor hours created at the onset of a new construction project that approximates how many hours will be spent on any defined part of the project.

¹ This practice is under the jurisdiction of ASTM Committee [E06](#) on Performance of Buildings and is the direct responsibility of Subcommittee [E06.81](#) on Building Economics.

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² JPM is based on the application of Job Productivity Assurance and Control (JPAC), which has been used in industry for more than fifteen years, resulting in 20 to 30 % improvement in productivity for contractors using it.

³ For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

⁴ Available from ASTM International Headquarters. Order MNL65-EB.