

Design For Facilities

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When designing semiconductor manufacturing equipment to meet the highly complex challenges of today's semiconductor market, the focus historically has been on the process capability of the equipment. The capital cost of the equipment, as well as the cost for operation and maintenance, is factored into the initial process equipment design scope; however, the facility costs are not usually included. Production equipment requirements drive facility design and the facility costs represent a significant portion of the wafer cost. Technology at any price is not an acceptable solution today. Consequently, production equipment purchasers are now considering methodologies to determine the cost of ownership, including facility costs, over the life of the equipment and weigh this against the technology performance to determine a true Cost of Ownership (COO) estimate. Stringent equipment selection processes and methodologies are being employed by many end users to communicate the current process equipment needs.

How can semiconductor manufacturing equipment be designed to be more compatible with facility infrastructure support systems and how can the design of the process equipment during the development stage positively affect the factory layout, equipment installation costs, and facility costs?

This presentation will look at some previously ignored semiconductor manufacturing equipment requirements, which ultimately impact and drive additional facility costs. These requirements impact the design and construction of the wafer manufacturing facility, the installation of the process equipment into the facility, and the ongoing provision of the utility services to the process equipment. Additionally, some guidelines will be offered to improve the interface between the facility and the manufacturing equipment.