

**General Design Goals**

**(VERY IMPORTANT FOR THE ARCHITECT AND ENGINEER TO REVIEW)**

The college endeavors to build new facilities that will have a service life of at least 100 years. The quality and flexibility of the electrical system is of primary importance in meeting that goal. In many areas of the electric system a design suited to the above stated goal often requires that the standards of material and workmanship exceed those normally found in the construction industry today.

It is reasonable to assume that the cosmetic features and possibly the interior arrangements of a given building may be completely reworked two or more times over the life of the building. It is not expected though, that the main electrical distribution system or the local distribution closets will have to be replaced in support of cosmetic renovation. **All electric rooms and electric closets throughout the building must be sized to allow for the addition of new equipment and adequate spare breaker space in all panelboards and switchboards should support this goal.** Electric rooms and closets shall be dedicated to the function of housing electrical systems that may also include fire alarms, energy management, security systems and lighting controls. **Sharing of space with storage, custodial or data and/or telecommunications rooms is expressly prohibited.** Consultants to coordinate with architects to insure that the floors of all electrical spaces are sealed for dust reduction.

Although it is not possible to plan for all contingencies it is reasonable to plan that each electric closet should have adequate wall and riser space for the addition of one new electric panel of each voltage level available in that closet. In the main electric vault the switchboard should have a minimum of 30% spare capacity for each of the frame sizes available in the distribution switchboard. Bus work shall be included for all spare breakers at the time of equipment specification. Additionally, thought should be given to allow for the addition or growth of other systems that coexist in the same space such as; fire alarms, energy management, security systems and lighting controls. With these thoughts in mind at the beginning of the schematic design phase a reasonable amount of space may be allocated for future expansion of the various electrical systems. The space allocated for spare equipment shall be clearly and indelibly indicated on the wall at the time of equipment layout.

The college desires for the project team to address all the technical and aesthetic issues surrounding the installation of a UL Master Labeled lightning protection system on all major building/renovation projects. This means that the Architect will have addressed any issues with the installation of air terminals on the roof and ground cables that must be installed on the surface of the building so that these details are available to the contractor at the time of bid. The electrical contractor shall be instructed to obtain a design and installation estimate based on the criterion developed by the architect and engineer from a certified design-build contractor and present this price as an add-alternate to the electrical subcontract.

The section below details the experience based material and design standards that Dartmouth has established to be the minimum requirements necessary to attain the above stated goal. This document is intended to supplement your electrical (division 16) specification not replace it. The college recognizes that the experience your firm brings to this process is invaluable and we invite you to comment on the contents of this document as it relates to meeting our stated goals.