

## **Division 0 – Introduction**

### **A - Objectives**

The FAU Cost Containment Guidelines (FAUCCG's) have been prepared to assist Architects/Engineers, Construction Managers, and FAU staff in designing and constructing high quality, maintainable, and sustainable facilities. FAU's Facilities Division (Facilities Planning, Engineering & Utilities, Office of Space Utilization & Analysis, and Physical Plant) is responsible for producing and maintaining these guidelines. They will evolve and will be updated periodically. They are published and available to view and/or download from the FAU Facilities Division's website (<http://wise.fau.edu/facilities/fp/info/CCG.pdf>). Printed paper versions are no longer distributed. A/E's, CM's, and FAU staff must verify that the current version is being used. Objectives of the guidelines are:

1. To facilitate communication between the Owner and the Architect/Engineer.
2. To enhance the design quality, value and building longevity.
3. To assist the Architect/Engineer in completion of the Architect/Engineer's assignments in a timely, cost efficient and technically proficient way.
4. To establish a level of building quality consistent with FAU/State University System interest in long term ownership.
5. To promote consistent quality and durability from project to project.
6. To reduce unnecessary building maintenance and repair problems through quality and design control, as well as Owner input.
7. To set performance standards for the University, the Architect/Engineer, the Construction Manager and the Contractor.
8. To maintain flexibility in space and systems design to accommodate future functional changes.
9. To allow predictable maintenance and operating activities to be done efficiently and effectively.
10. To assist the Construction Manager, when one is under contract.
11. To promote and facilitate the University's commitment to protect the environment by following Green and Sustainable practices.

### **B – How to use the FAU Cost Containment Guidelines**

This set of FAUCCG's is not intended to place undue creative restrictions upon the Architect/Engineer. The intent is to raise issues and considerations that might otherwise be overlooked, and to convey to the Architect/Engineer the knowledge and experience gathered by the Owner in the course of owning and operating university buildings. The FAUCCG's should not be followed blindly. The Architect/Engineer is encouraged to recommend alternatives to the Owner when the Architect/Engineer feels that a better alternative solution is available for individual items. The Architect/Engineer is also encouraged to help keep these FAUCCG's current by bringing to the Owner's attention innovations in technology, materials, and construction systems.

The Owner does not intend for the standards to conflict with current building, handicapped, and life safety codes, and has attempted to avoid creating such conflicts. If a conflict is discovered in the course of using the standards, it is the Architect/Engineer's responsibility to immediately bring this conflict to the Owner's attention along with recommendations for resolving the conflict.

The checklist format organizes and streamlines the use of the FAUCCG's and the review process. Where these FAUCCG's provide information for the benefit of the Contractor, the Architect/Engineer shall pass the instructions along to the Contractor through the construction documents. By checking a "YES" box the Architect/Engineer acknowledges to the Owner that requirements of a particular item have been met. When checking a "NO" box, the Architect/Engineer shall provide appropriate written justification for overriding the item, and proposals for alternatives or revisions can be the basis for periodically updating these FAUCCG's. This will assure future Architect/Engineers that the FAUCCG's are up to date, respond to changing technology, and provide proven cost-effective, as well as state-of-the-art construction processes and products. **Only those pages with a "NO" comment response, need to be submitted. The "Estimate Summary and Budget Comparison" form, Exhibit 6, from the FAU Professional Services Guide dated April 2003, has also been revised to allow for a consultant to sign and submit this form indicating compliance with the FAUCCG's, in lieu of submitting a fully completed FAUCCG document.**

These standards are intended as guidelines for the design of all new and renovated facilities, and to enhance the coordination effort between the Architect/Engineer and the Owner. Though not intended to limit the creative judgment of the Architect/Engineer, any proposed variations from these FAUCCG's must be thoroughly discussed with and approved by the Owner before incorporation in the project.

These FAUCCG's are intended to ensure that University facilities will be developed with high aesthetic and quality standards. A detailed interpretation of acceptable standards for a number of typical design elements including signage, lighting, parking, landscaping, utilities, site planning and construction is set forth herein. These standards establish minimum criteria to ensure proper and appropriate development of each new facility, renovation or site improvement to the University.

Although the Owner may permit certain exceptions to the FAUCCG's, the Owner will not grant exceptions to the FAUCCG's that violate the Florida Building Code, the Life Safety Code, and other pertinent codes.

Regulations are revised periodically and care should be taken to verify compliance with other applicable governmental standards. Approval by the Owner does not constitute approval by other governmental/regulatory agencies. The Board of Trustees is the code enforcing agency for building codes. Their approval is interpreted as state approval. Other state approving agencies include, but are not limited to, the State Fire Marshal, Department of Health, Department of Environmental Regulation and the South Florida Water Management District.

All references to Codes shall mean the latest editions adopted through legislation for use in State owned/leased buildings.

These FAUCCG's are not intended to be a complete specification for any section addressed. Compliance shall in no way constitute a waiver of the Architect/Engineer's liability.

### **C - General Comments**

The following general comments address major policies currently mandated for utilization in the design and construction of all University facilities.

#### **DO:**

1. Adhere to the specific requirements of the Agreement and Professional Services Guide, dated April 2003, for each submittal. (Verify with the FAU Project Manager that this is the most current version of the PSG.)
2. Ensure that the Project site is coordinated with Master Plan criteria.
3. Ensure that all proposed and expanded services and distribution systems and infrastructure are

coordinated with the Utilities Element of the Master Plan.

4. Ensure that the Geotechnical Engineer's analysis and site investigation data is evaluated by the Structural Engineer and coordinated with the Structural Engineer's design criteria.
5. Comply with Flood Plain Management criteria.
6. Determine the impact that the proposed facility has on the current drainage system and plan accordingly.
7. Follow State Requirements for Educational Facilities, 1999, Volume I, for space requirements and ask for written interpretation for unique spaces not shown.
8. Endeavor to incorporate a design concept which will facilitate possible future changes, expansion, or renovation.
9. Comply with applicable codes, regulations and orders, utilizing the State-adopted versions.
10. Comply with fire safety requirements including required plan review by the State Fire Marshal's Office and establish early reviews with the State Fire Marshal during preliminary design phases.
11. Comply with requirements for the physically disabled and follow the Florida Building Code, ADA Requirements, and Fair Housing Act where required.
12. Coordinate with the University's Physical Plant Department and the University's Environmental Health and Safety Department where toxic/hazardous materials are involved in a project, and incorporate Environmental Health and Safety specific requirements in the Specifications.
14. Provide low maintenance and no maintenance materials and equipment both interior and exterior.
15. Coordinate between Architectural, Structural, Plumbing, Mechanical and Electrical sections concerning compliance and consistency with applicable codes.
16. Coordinate with FAU Physical Plant, FAU Engineering & Utilities, and other Users through the University Facilities Planning Project Manager all items that must be compatible with existing maintenance procedures and systems, e.g., plumbing and electrical fixtures and accessories, hardware and keying, data communications, alarm and energy systems. Confirm with FAU all special system/data requirements.
17. Address parking by including parking requirements as part of the facility design, including estimated costs for new parking as well as the restoration of displaced and disrupted parking.
18. Include adequate parking facilities and access for service vehicles, in addition to loading docks when they are part of the facilities program.
19. Provide at least one loading zone to accommodate frequent moving of portable equipment to and from the building and to allow maintenance vans and personnel to have ready access to the building, if no service drive and dock are in the program.
20. Require tests to catch ponding problems at roofs, parking lots, plazas, entries, sidewalks and other such areas before the relevant subcontractors have left the job.
21. Ensure that guarantees and warranties of existing systems or components, e.g., roofing, are not voided by design of new work.
22. Follow the FAU Roofing System Guidelines included in the Division 7 – Thermal & Moisture

Protection section of the FAUCCG's.

23. Ensure that exterior flashing details are designed and detailed in a workable and time proven fashion.
24. Discuss the requirement for acoustical privacy from space-to-space with the Project Manager and users. Design/specify partitions to underside of structure above and/or acoustic blankets above ceiling each side of partition, carpeting, solid core doors, sound seals around doors, etc., as required for the project conditions and budget.
25. Provide floor drains in all toilet rooms, janitor rooms, and mechanical rooms.
26. Provide access and working clearances for valves, plumbing, electrical and HVAC equipment.
27. Provide lightning protection on all buildings.
28. Design and specify window blind systems which exclude light in exterior classrooms & conference-style rooms, and control light in exterior offices.
29. Provide designated space and utilities for vending machines. Fully recessed in halls or in rooms off of halls is preferred.
30. Include FAU Close-Out Procedure Requirements in the Contract Documents.
31. Provide Post-Occupancy Services as required.
32. Make all contact through the University Facilities Planning Project Manager as the "single point of contact" and coordinator for all University Departments and Offices.
33. Pay special attention to the location and design of parking structures, conformity to the Master Plan, ingress and egress, traffic control, vehicular and pedestrian circulation, utilities and services, safety and security systems, code conformance, provisions for the handicapped, signage, lighting, and protection. Special attention must also be paid to the selection of the structural system and materials, the design and location of control and expansion joints, sealants, treatment of parking surface, finishes, and underside of structure, slopes (minimum of 1/4" per foot), location and design of drains, gutters, waterproofing systems and membranes to avoid water penetration and material deterioration, and maintenance and operation programs.
34. Create and implement an Erosion and Sedimentation Control plan for all construction activities associated with the project complying with the requirements of the 2003 EPA Construction General Permit, Phase I and Phase II of the National Pollutant Discharge Elimination System (NPDES) program.
35. Ascertain that there are at least 2 bus lines within ¼ mile or train line within ½ mile of the proposed project and state so on the Life Safety drawing of the construction documents.
36. Provide minimal or no additional parking; and/or if the program calls for any additional parking, provide for van or car pool parking for 5% of the total provide parking spaces.
37. On greenfield sites (not previously developed or graded), limit site disturbance to 40 feet beyond the building perimeter, 10 feet beyond surface walkways, patios, surface parking and utilities less than 12 inches in diameter; 15 feet beyond primary roadway curbs and main utility branch trenches; and 25 feet beyond constructed areas with permeable surfaces that require additional staging areas in order to limit compaction in the constructed area.
38. On previously developed or graded sites, restore or protect 50 percent of the site area (excluding

- the building footprint) with native or adapted vegetation.
39. On sites where the existing imperviousness is less than or equal to 50 percent, the post development storm discharge rate and quantity (for 1-year and 2-year 24-hour storms) shall be equal to or less than the pre-development rate and quantity.
  40. On sites where the existing imperviousness is greater than 50 percent, the post development storm discharge rate and quantity (for 1-year and 2-year 24-hour storms) shall be at least 25 percent less than the pre-development rate and quantity.
  41. Provide stormwater treatment per EPA Best Management Practices.
  42. Reduce the heat island effect of the project (non-roof) by providing any combination of the following strategies for 50 percent of the site hardscape (including roads, sidewalks, courtyards and parking lots): shade (within 5 years of occupancy), paving materials with a Solar Reflective Index of at least 29, and/or an open grid pavement system.
  43. Reduce the heat island effect (roof) by using roof materials with a Solar Reflective Index for a minimum of 75 percent of the roof area: for slopes less than or equal to 2:12 of 78, and for slopes greater than 2:12 of 29, OR install a vegetated roof for at least 50 percent of the roof area.
  44. Minimize light trespass from the building and site by automatically controlling all non-emergency interior lighting to turn off during non-business hours (provide manual override for after hours use), AND only light exterior areas as required for safety and comfort. Do not exceed 80 percent of the lighting power densities for exterior areas and 50 percent for building facades and landscape feature as defined in ASHRAE/IESNA Standard 90.1 -2004, Exterior Lighting Section, without amendments.
  45. If recycled wastewater is not available for irrigation use, reduce potable water consumption for irrigation by 50 percent from a calculated mid-summer baseline case.
  46. Use recycled wastewater for 100 percent of landscape irrigation needs wherever it is available.
  47. Reduce water usage by 20%, after complying with Energy Policy Act of 1992, through the use of high-efficiency fixtures, waterless urinals and water use reducing valves on lavatories.
  48. Determine early in the project how the commissioning process will be engaged and contract (or coordinate with the Owner's contract) for this responsibility as early in the design process as possible and before the conclusion of the Design Development phase. A commissioning process should include the following steps at a minimum:
    - a. Engage a commissioning team that does not include individuals directly responsible for project design or construction management.
    - b. Document the Owner's Project Requirements and develop the Basis of Design documents.
    - c. Incorporate commissioning requirements into the construction documents.
    - d. Develop and implement a commissioning plan.
    - e. Verify the installation and performance of the systems to be commissioned.
    - f. Complete a summary commissioning report.
  49. Design the building envelope, HVAC, lighting, and other systems to maximize energy performance. Comply with both the mandatory provisions (Sections 5.4, 6.4, 7.4, 8.4, 9.4 and 10.4) of ASHRAE/IESNA Standard 90.1-2004 (without amendments) AND the prescriptive (Sections 5.5, 6.5, 7.5 and 9.5) or performance (Section 11) requirements. This establishes the project minimum (Baseline) Level of Energy Efficiency.
  50. Use no CFC-based refrigerants in new base building HVAC systems, and in renovations ensure

that CFC-containing building HVAC systems are replaced.

51. Exceed the Baseline Level of Energy Efficiency by at least 10.5 percent for new buildings and 3.5 percent for existing building renovations. Use a computer simulation model to assess the energy performance and identify the most cost-effective energy efficiency measures. Quantify energy performance as compared to a baseline building.
52. Provide for a building-wide recycling program on all projects.
53. Specify that the contractor shall develop and implement a Construction Waste Management Plan that will document the recycling and/or salvage of at least 50 percent of all non-hazardous construction and demolition debris. Excavated soil and land-clearing debris does not contribute to this amount. (On LEED projects this will achieve 1 point. 75 percent will achieve an additional 1 point.)
54. Use materials with recycled content such that the sum of post-consumer recycled content plus one-half of the pre-consumer content constitutes at least 10 percent (based on cost) of the total value of materials in the project.
55. Use building materials or products that have been extracted, harvested or recovered, as well as manufactured, within 500 miles of the project site for a minimum of 10 percent (based on cost) of the total materials value.
56. Specify that 50% of wood-based materials and products used in the project shall be certified by the Forest Stewardship Council's Principles and Criteria, for wood building components, including any wood consumed during the course of construction for temporary formwork, bracing, etc.
57. Establish minimum indoor air quality (IAQ) performance to enhance indoor air quality in buildings. Meet the minimum requirements of Sections 4 through 7 of ASHRAE 62.1-2004, Ventilation for Acceptable Indoor Air Quality, using the Ventilation Rate Procedure (or local code if more stringent).
58. FAU does not allow smoking in any of its buildings. Locate any exterior designated smoking areas at least 25 feet away from entries, outdoor air intakes and operable windows.
59. For mechanically ventilated spaces, monitor carbon dioxide concentrations within all densely occupied spaces (equal to or greater than 25 people per 1000 square feet); CO2 monitoring locations shall be between 3 and 6 feet above the floor. For non-densely occupied spaces, provide a direct outdoor airflow measurement device capable of measuring the minimum outdoor airflow rate with an accuracy of plus or minus 15 percent of the design minimum outdoor air rate, as defined by ASHRAE 62.1-2004.
60. Reduce IAQ problems resulting from the construction/renovation process in order to help sustain the comfort and well-being of construction workers and building occupants. Develop and implement an Indoor Air Quality (IAQ) Management Plan for the construction and pre-occupancy phases of the building. Meet or exceed the recommended control measures of SMACNA IAQ Guidelines for Occupied Buildings Under Construction, 1995, Chapter 3. Protect stored on-site or installed absorptive materials from moisture damage. If permanently installed air handlers are used during construction, filtration media with a Minimum Efficiency Reporting Value (MERV) of 8 shall be used at each return air grille, as determined by ASHRAE 52.2-1999. Replace all filtration media immediately prior to occupancy.
61. Provide/specify low or no-VOC adhesives and sealants.
62. Provide/specify low or no-VOC paints or coatings that are Green Seal certified.

63. Provide/specify green carpet systems per the Carpet & Rug Institute's Green Label Plus program.
64. Provide permanent entryway systems (grills, grates) at least 6 feet long at all entryways directly connected to the outdoors to capture dirt and particulates from entering the building.
65. Where hazardous gases or chemicals may be present or used (including garages, housekeeping/laundry areas and copying/printing rooms), exhaust each space sufficiently to create negative pressure with respect to adjacent spaces with the doors to the room closed. Provide self-closing doors and deck to deck partitions or a hard lid ceiling.
66. Provide regularly occupied areas of the building with air filtration media prior to occupancy that provides a Minimum Efficiency Reporting Value (MERV) of 13 or better. Filtration should be applied to process both return and outside air that is to be delivered as supply air.
67. Provide a comfortable thermal environment that supports the productivity and well being of building occupants; design HVAC systems to comply with ASHRAE Standard 55-2004, Thermal Comfort Conditions for Human Occupancy.
68. Provide temperature and humidity monitoring and control system.
69. Design, produce, and implement a post-occupancy thermal comfort survey of building occupants prior to the end of the 1-year warranty period. Develop a plan for corrective action if the survey results indicate that more than 20 percent of occupants are dissatisfied with thermal comfort in the building.
70. Identify the intent to meet the green requirements of the FAUCCG's and to find opportunities for innovation beyond these minimum requirements.
71. At least 1 principal participant of the project team must be a LEED Accredited Professional (AP) on LEED Projects.
72. Complete the "Green Credits Worksheet" (included in the FAUCCG's after Division 16) for all projects and submit it at each design phase.

**DON'T:**

1. Don't be pressured into certifying Substantial Completion when the Project is not truly substantially complete or the State Fire Marshal/Building Official has not approved the Work.
2. Don't use exterior wall assemblies using metal studs.
3. Don't use exterior wall assemblies that have not been tested for 20 years such as EIFS (Exterior Insulated Finish Systems).
4. Don't rely on sealants to prevent water infiltration.
5. Don't locate glass in areas that are inaccessible.
6. Don't use galvanized metal for flashing.
7. Don't penetrate the roof membrane without Owner's written approval.
8. Don't provide rooftop A/C units or exposed ductwork.
9. Don't locate light fixtures without considering how they will be serviced.

10. Don't use products containing asbestos.
11. Don't use paint containing lead.
12. Allow anyone to smoke within the building after it is "closed-in", even during construction.

End of Division 0 - Introduction.