DRAFT

MINIMUM CONSTRUCTION STANDARDS

GUIDELINES

FOR

ARCHITECTS AND ENGINEERS

FOR

CAPITAL CONSTRUCTION PROJECTS

PUBLIC POST-SECONDARY INSTITUTIONS

LOUISIANA STATE BOARD OF REGENTS

ISSUED BY
ASSOCIATE COMMISSIONER FOR FACILITIES AND PROPERTY
LOUISIANA STATE BOARD OF REGENTS

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PREFACE

Minimum construction standards is a concept that evolved from observations of construction at post-secondary education institutions in Louisiana over the past twenty years. It is based on the premise that a reasonable level of construction quality is necessary to ensure that facilities are conducive to the education process, compliment the role, scope and mission of the institution, and are cost effective to the state both in up-front costs and long term use and operation of the facility.

Minimum construction standards require that quality of space not be traded for quantity of space. Project budgets may be structured to accommodate both.

Minimum construction standards take the intended functional use of facilities into consideration. The transfer of knowledge in a post-secondary education institution environment places certain demands on a facility: (1) that it be functional, (2) that it include modern technology, (3) that it be energy efficient, (4) that it be durable and easy to maintain, (5) that it be comfortable to occupy and use, (7) that it be watertight in every regard...more?

Minimum construction standards suggests that all campuses should at the very least meet the minimum. No disparity should exist among campuses with regard to the minimum. That is not to say that individual campuses could not adopt more stringent standards where appropriate, nor does it preclude individual projects from requiring much higher standards where appropriate.

It need not be said herein that applicable codes impose a minimum construction standards.by various regulatory agencies having jurisdiction. Life Safety, The Fire Marshal, Americans with Disabilities Act Compliance, and the National Building Code all place requirements for construction upon any project. Nothing in this document can or should be interpreted as being contrary to any code having jurisdiction.

A keynote of the Board of Regents' minimum construction standards policy is safety. Every facility designed and constructed must provide for total occupant safety. No compromises to the safety of building uses will be considered.

Minimum construction standards is not just a technical term describing brick and mortar. It is a goal of the Board of Regents that institutions convey an image, one of understated strength, intellect, pride, and purpose. Within that goal, campuses should adopt an architectural theme or motif that is consistent with the overall image of post-secondary education. Buildings, as they are added to a campus, must tie into that image, not necessarily by copying past design, but perhaps by the repeated use of design elements or materials borrowed from its surroundings.

It must be apparent that many projects performed by and for public post-secondary education institutions are administered through the auspices of Facility Planning and Control within the Division of Administration. Contracts for design services will designate Facility Planning and Control as "Owner" and the design professional is contractually bound to comply with the provisions of the Louisiana Capital Improvement Projects Procedure Manual for Design and Construction, hereafter referred to as the "Manual".

Management board system offices are technically referred to as the "Umbrella User Agency", and the relevant campus is referred to as the "User Agency." The minimum construction standards policy of the Board of Regents requires that each management board adopt these standards. The resulting Guidelines to Architects shall be provided to each design professional at the pre-design

conference of every project.

The concept of minimum construction standards acknowledges that facilities for post-secondary education vary in type, necessity, function and use as well as the expected life-span of the facility. Specific sections will address minimum standards by building type as necessary.

Minimum construction standards applies to all projects including capital projects costing less than $350,000, projects receiving appropriations of the legislature, project performed using alternative means of financing and/or third party developers, and all other projects. More, it applies to institutions and all of its subdivisions, including auxiliaries and quasi-public bodies such as foundations. Minimum construction standards apply to all projects without regard to the source of funding.

In adopting minimum construction standards, the Board of Regents will have taken into account input from every institution, each management board, the Division of Administration and Facility Planning and Control, design professionals and contractors. It is intended to be a consensus tool to facilitate the construction process, not a policy to be imposed upon those who need facilities. Nothing contained in these guidelines is contrary to the intentions or instructions of any other agency involved in the process. There should never be an occasion, therefore, where these guidelines cannot be followed, citing conflict with the instructions of other agencies as the reason.

Minimum construction standards has little to do with a contractor's execution of a contract for construction. It is expected that a contractor will follow the plans and specifications to produce the project. It follows that minimum construction standards start with the institution's concept for the project and continue with their communication of that concept to the design professionals. It is therefore intended that institutions be guided by these minimum construction standards and communicate them to design professionals for their capital construction projects.

Separate documents will be added to the Board of Regents' facilities policy in the future to provide additional guidance to the institutions and management boards relative to the capital process and general design guidelines. It is apparent that at least one factor leading to varied levels of construction quality in the past is the fact that each management board administers the capital construction process differently. Institutional staffing relates to project outcome. Therefore, within their ability to staff properly, management boards are encouraged to operate in a consistent manner in the administration of capital construction. Guidance will be provided in that regard in the aforementioned documents.

The Board of Regents acknowledges that each management board has designated an Office of Institutional Services or similar title as the office responsible for the administration and coordination of major construction projects which are to occur on any of the campuses within their system. The System Vice President for Institutional Services or similar title and his immediate staff will serve to convey to design professionals project needs and intent in the form of a preliminary program and will guide the designer so that certain standards which have been established are met. He shall monitor events to insure that a result consistent with those requirements can be, and ultimately is achieved. In that role, the Vice President may be assisted by relevant campus staff.

The Board of Regents and its staff, except for promulgating these minimum construction

standards, and assisting if called upon or as may be needed on a case by case basis, is not generally directly involved in the design and construction process. It does not get involved in the design professional selection process, the review of design, or construction administration unless these standards are not followed.

The Louisiana State Board of Regents has little to do with the design and construction process once it has made the determination that a proposed project is in fact to be constructed. It is a policy setting Board. One policy is that minimum construction standards will exist. Having said that, it is the management board's responsibility to make certain those standards are met, as well as all other aspects of the project.

With regard to the start-up of new campuses, the Board of Regents has broader responsibilities in accordance with the State Constitution. The Board not only deals with the fact that a campus or branch campus will exist, but its direction.

The Louisiana State Board of Regents welcomes the opportunity to work with Design Professionals and the construction industry on capital construction projects. The Associate Commissioner for Facilities and Property looks forward to working with you and is always ready to assist you in any way toward the accomplishment of a most successful project.

This document is authored by Clinton R. Griswold, Jr. Associate Commissioner for Facilities for the Louisiana Board of Regents. Hereinafter, the use of terms such as "we" and "our" refers to the Board of Regents and more specifically, to the office of the Associate Commissioner for Facilities.

This document sets forth standards, requirements, and in some cases preferences which have been established by the Board of Regents for major construction projects. In general, these have evolved from many years of experience; the staff knows what it wants (or in some cases what it does not want). This information is intended to supplement the contractual requirements imposed by Facility Planning and Control. There is no need for us to reiterate hereafter any requirement of that agency. These guidelines are not intended to replace the design professional's responsibility for preparing project specifications, but rather, to guide him to specify a ceratin minimum level of acceptable standards.

This minimum construction standards documents attempts to foresee every contingency. Obviously, that is impossible. If this document does not say "YOU CAN", then YOU CANNOT! If in doubt, ask! Obviously, any attempt to write policy that covers every possibility will result in the need for exceptions from time to time. We would suggest that as the need for exceptions arise, they be approved on a case by case basis by the Board of Regents' staff using authority delegated to if for that specific purpose by the Board.

The following technical sections follow the 16 division format of the Construction Specifications Institute's Master Format, 1995 edition.

APPENDICES are simply technical guidelines which warrant separation from the body of the technical guidelines section, in some cases because they are to be used separately, in other cases because they are somewhat lengthy.

<u>DEFINITIONS</u>

Place holder for inserting definitions that should be included as this document is developed. However, we can avoid it being a duplication of our policy where a variety of definitions are already provided.

SECTION 01 - GENERAL

In general, the motives of the Board of Regents in establishing minimum construction standards are stated in the preface. The following verbal descriptions, while vague in the contractual sense, are intended to convey what the Board is attempting to accomplish with these standards. It is left to the institutions and on their behalf the design professionals to convert these concepts into legally binding contract documents.

In general, Louisiana post-secondary education aspires to be like its peers. That aspiration is most often considered to be equal to the average of peer institutions within the SREB (Southern Regional Education Board). Implicit in that is that Research 1 institutions in Louisiana would be comparable to Research 1 institutions in the SREB, traditional four-year institutions would be comparable to SREB four year institutions, community colleges and technical colleges would be comparable to their peer institutions, etc.

From that, it must be apparent that, for example, technical colleges may not be built to the same standard as a Research 1 institution in Louisiana if there is a difference in quality between similar institutions across the SREB.

It is obvious as well that not all facilities need be constructed on any one campus to the same standard. As alluded to in the preface, standards for various types of buildings will vary:

> Permanent campus buildings are to be constructed to a minimum of 50 years of useful service, over which time they would not noticeably deteriorate, with the full expectation that with some renovation, such buildings could continue to serve a useful educational function for up to an additional 50 years. Building systems and components will be assigned a useful life expectation and those systems will be replaced at the end of their useful life such that the building can continue to perform for the full extent of 50 year projection.
>
> Permanent campus buildings shall be of class 1 construction. Pre-engineered metal buildings with false fronts or facades of masonry or other facing material will not be permitted.
>
> Examples of permanent campus buildings include classrooms, laboratories, libraries, faculty offices, administrative offices, student unions or unions, some food service facilities, medical facilities, physical plant services, and medical schools.
>
> Medical Schools are, by the nature of their function ....more.
>
> Temporary campus facilities are those that recognize the modern idiom of a fast paced world and respond to it. Food service facilities can be expected to require significant renovation in a relatively short space of time as contract vendors change, or change their approach to food service delivery.

Fraternal Organizations include fraternity and sorority houses. The Louisiana Revised Statute set various legal requirements that management boards must impose on the construction of such facilities. Beyond that, the Board of Regents leaves to the management board the full responsibility for minimum construction standards for such facilities.

Athletic Facilities may fall in more than one category of construction. Office buildings shall be constructed to the permanent campus building standard.

Assembly Centers

Residential Facilities

Traditional dormitories are to be constructed to the permanent campus building standard.

Campus apartment complexes have a useful life much shorter than permanent campus buildings, and can be constructed to a standard commensurate with that reduced life expectancy. The term "custom home construction" describes the level of construction expected. It is not as well appointed as luxury home construction, but is superior to developer or spec tract house construction and somewhat superior to competing apartment complexes in the surrounding community. All the components of normal home construction are expected, with recognized brand name components utilized throughout. At the very least, construction quality must outlast the term of the relevant financing.

Construction that is consistent with comparable private apartment developments found adjacent to many campuses is not considered a reasonable standard. Very few such complexes retain their original appeal past 25 years of service. In addition, such units operate under different conditions of lease and security deposit arrangements, and the motives of developers are sometimes not as long term as would be expected for on-campus developments.

Where facilities are expected to have a shorter life span by design and use, provisions shall be made to provide for their demolition and removal from the campus upon the expiration of their useful life.

Parking Structures

Parking structures must be designed to fit in with the campus architecture, and be as unobtrusive as possible. Traffic patterns must be analyzed to provide the least detrimental impact on the traffic flow.

Agricultural Facilities

Administrative and faculty offices and laboratories on main campuses for use by agricultural departments shall be constructed to the permanent campus building standard.

SECTION 02 - SITE CONSTRUCTION

Site-work around new buildings and major renovations shall be included in all projects. This will include landscaping, plantings, external lighting, sodding, walks, ramps, bike racks, and other related site necessities.

With regard to demolition, the use of explosives is never permitted on a institution. That should always be made clear to the Contractor where there is any possibility that he may later claim to have based his bid for demolition on such procedure.

In the past, the various institutions permitted the disposal of certain materials taken from the campus to be dumped elsewhere on campus. Contractors are to be advised that the disposal of material is their responsibility and is their option, so long as it is removed by them from campus premises and disposed of legally.

Where the salvage of existing materials is anticipated, and further, that such material may have some value, every attempt shall be made to determine in advance whether the institition wishes to retain certain items. This will be done so that if resale of material or scrap by the Contractor may influence his bid, it will be known in time to be considered. However, where materials are not so identified in advance, the institution requires that it be granted the "right of first refusal". Thus, the specifications shall contain the following or similar wording:

> The institution shall have the right of first refusal on any and all existing materials salvaged from the project. Materials designated to be retained by the institution shall be carefully removed by the contractor and moved by him to a designated location on the campus. For items not retained by the institution, Facility Planning and Control may wish to turn over certain items to the Surplus Property Control Section. In that instance, the contractor shall deliver the items to that agency in Baton Rouge. All material not claimed as outlined herein shall become the property of the contractor and shall be removed by him from the site and legally disposed of as the contractor deems appropriate.

All excess dirt will remain the property of the institution and will be delivered by the contractor to an area on the campus as designated. The haul distance is typically 1 to 2 miles fom the construction site.

When demolition which might result in damage or soiling of existing facilities is anticipated, and most particularily when the removal of existing roofing materials is involved, the contractor shall be required to utilize enclosed chutes and other protective apparatus as necessary to preclude damage to the existing facility.

Termite treatment shall be provided on sub-grade fill under concrete slabs.

SECTION 3 - CONCRETE

Concrete form material shall be new.

Concrete testing services shall be employed and shall be independent of the contractor. Testing services are to be paid for by the Owner. However, the testing service is typically the same agency that approves the design mix for concrete. The contractor shall be responsible for paying for the design mix.

Curing compounds are not to be permitted in those locations where the adhesion of subsequently applied finishes, such as vinyl floor tile, might be adversely affected.

PRECAST CONCRETE

Precast concrete panels shall be constructed and installed in a manner such that it will never fail. Precast shall be designed and connected in such a manner that they are not dependent upon more

Precast concrete panels are to be reviewed for acceptability by institutional personnel.

SECTION 04 - MASONRY

BRICK

Brickwork shall be designed and installed in a manner such that it will never fail. Brick ledgers, ties, expansion joints, and all related components must be designed to remain in place against the rigors of extreme weather over many years. Brick settling, cracking, dislodging, discoloration, and a host of other potential brick problems must not happen. If the design professional has any doubt as to his ability to design the installation of brick, he must take steps to ensure success in this regard. Losing buildings due to brick failure is an unacceptable outcome.

Masonry, most particularly brick, is to be reviewed for acceptability by institutional personnel. Specifications shall require the contractor to erect small sample panels of proposed brick for review by the architect and the institution.

Require that brick be mixed so that separate production runs or delivery batches do not result in visual banding of the installed product.

Unit masonry, specifically concrete masonry units, shall be install in such a manner that chipped block shall not be exposed to view.

Specify that penetrations in block for piping purposes be small enough that they can be covered by an escutcheon plate.

Where brick pavers are used, they shall not be loose laid. Pavers are to be sealed after installation.

SECTION 05 - METALS

SECTION 06 - WOOD AND PLASTICS

CARPENTRY

In rough carpentry, where wood is used for filling or blocking and/or where wood is in contact with concrete, require that such wood be treated using one of the typically accepted methods.

Particle board, its derivatives by any other name, or similar products are NOT acceptable to the institution in any application, including carpentry, casework, toilet partition cores, door cores, etc. It is not sufficient to say nothing on this matter in the specifications; it must be specifically precluded by a statement to that effect in the specifications.

The institution has specific requirements for cabinetry. We have compiled these requirements into an appendix to this specification to guide the Designer in the preparation of the specifications.

CABINETRY AND CASEWORK

PLASTIC LAMINATES

SECTION 07 - THERMAL AND MOISTURE PROTECTION

ROOFING

Buildings shall not have flat roofs. Built-up membrane roofing which appear flat but in fact have 1/8" or 1/4' per foot are included in that prohibition. Designs that are of such shape that pitched roofs would be prohibitively tall or costly shall not be so designed. Roofs shall be watertight from their installation until their expected useful life is at an end. Means, including the hiring of staff and/or clerks-of-the-works will be employed to make certain this happens.

Where flat roofs already exist, and a project involves the renovation of that facility, flat roofs may remain.

The Board concurs with industry experts who claim that products once wet remain wet, and that wet poured products are likely to lead to problems once sealed under a roofing membrane. Thus our preference in roof deck construction is to avoid wet fills where reasonable alternatives are available.

The Board requires that roofing membrane construction be four-ply built-up coal-tar pitch. Single-ply membranes will not be permitted except in those unique configuration circumstances in which the traditional built-up system obviously cannot be used.

The Board is of the opinion that once moisture is trapped below or within a roofing membrane, that roof is destined to fail. It must therefore be made unmistakably clear to the Contractor that should installation events occur, such as a sudden shower, or dew, or an overnight shower getting past a temporary water cut-off, or stacked insulation or felt wicking up moisture, which could cause any moisture to become trapped in or under the membrane, the only cure is to remove the defective product completely.

Roofing guarantees are to be as required by Facility Planning and Control. To that, the institution shall add the requirement that the form of the Roofer's Two-Year Guarantee and the Roofing Manufacturer's Ten-Year Guarantee is to be presented for review and acceptability in un-executed form at the Pre-application conference.

Roofing guarantees are to be given in fully executed form to the Owner as a condition of acceptance of Beneficial Occupancy. The institition shall not recommend acceptance until it has reviewed the guarantees and finds them acceptable.

In that regard, the specifications shall include a statement that guarantees shall not contain any statement which requires that the contractor, roofer, or roofing materials manufacturer must be paid in order for the Guarantee to be valid. Such a statement can obviously not be used since we require a valid guarantee to be in hand before final payment, and we have no control of distribution of payment beyond the contractor level.

Do not permit the use of pitch-pockets.

We prefer the use of stainless steel or copper sheet metal. Galvanized, pre-finished metal, or aluminum may be used in certain instances, but only where the specific situation or economics dictate.

WATERPROOFING

Buildings shall be constructed to be waterproof. Design that permit water penetration during their life, and especially early in their life, will not be tolerated.

INSULATION

Batt insulation is preferred to blown insulation. Where insulation is installed in roof areas, chicken wire will be used to support the batt insulation within the roof rafters.

SECTION 08 - DOORS AND WINDOWS

All classroom , laboratory, and stairwell doors shall have vision panels umless otherwise directed by the University.

Interior doors should generally be 1-3/4" solid core doors. Sliding wood doors should be used only in special cases and with the approval of the University staff.

All doors requiring the passage of furniture shall be at least 36" wide.

Doors to mechanical rooms shall be wide enough to permit access for maintenence and the passage of items which may eventually have to be replaced. In many cases, this will necessitate the use of double doors. Regardless, we certainly wish to avoid the need to remove walls to gain access for such replacement.

Exterior aluminum doors should be equal to Kawneer "350" with a minimum bottom rail of 6".

Thresholds for single acting exterior doors shall have applied stops.

Manufacturers of glass and glazing materials and fabrication and installation of glazing materials shall meet the requirements of the Safety Standard for Architectural Glazing Materials (16 CFR Part 1201) dated January 6, 1977, effective July 5, 1977, issued by the Consumer Project Safety Commission.

Louisiana Act 719, R.S. 40:1651 - R.S. 40:1655 relative to requiring the use of safety glazing materials in hazardous locations in residential, commercial, or public buildings shall apply.

Glass entrance doors, adjacent panels with full length glass and glass panels to floors shall be protected with Architectural metal bars (both sides for doors) across the full width of glass at regular heights for push-pull bars.

Room number plate shall usually be mounted on the door frames above doors. In some instances, it may be preferable to mount number plates on the frame side, at "eye height" or slightly above, and on the lockset side. We shall advise of our preference for each individual project. Room designation plates such as "MEN", "WOMEN", and "JANITOR" shall be mounted on the door. Where such rooms bear numbers as well, and that will generally be the case, the number plates shall be affixed as described above. Number and designation plates themselves are to be specified in the Specialty Section of the Specifications.

Doors which have veneer and core construction shall have solid cores of wood blocks and staves. Doors which exhibit warping, sag, or mis-alignment with the frame shall not be accepted.

Include in the specifications a statement that precludes particleboard cores for such doors. Mineral core and fiberglass core type doors are not permitted.

Hollow metal steel door frames shall be smooth, free of dents and defects, and shall be factory constructed, as distinguished from "knockded down" frames.

Storefront frame construction shall be Medium Stile 350 with 6" bottom rail.

FINISH HARDWARE

Included as an appendix to this document is the University's hardware specification section. This specification is to be incorporated into the project specifications verbatim, except where obviously required to relate to the specific project at hand. Notes to the Designer, enclosed in boxes, should be overwritten by the information they instruct you to provide.

SECTION 09 - FINISHES

Corridors within buildings will be constructed of durable materials, not of bypsum wall board or similar products.

PAINT SCHEDULES

(Include in here that there is a requirement for doing a color chart and it must be approved.)

The University has gotten away from the standard paint colors it once required as a means of facilitating touch-up of surfaces utilizing a relatively small stock of paint. Now, Designers are free to select colors which they believe will be the most aesthetically pleasing.

Relative to color selections, require that the contractor provide color chips to assist you in the preparation of a Color Selection Board for approval by the University.

Paint shall generally be semi-gloss for ease of maintenance. Flat paint is not to be permitted except on ceilings and on unusual areas as approved by the University. Where extremely severe use is anticipated such as on the wall of corridors and restrooms, and especially where such walls are of concrete masonry units, the use of epoxy paint is recommended. Interior wood doors shall receive a natural or stained finish. Variations will be permitted in extreme circumstances.

Only top grade paints are to be used. Do not specify "Painter's" or "Architect's" lines of paint. The Designer is to specify that only the top grade of each type product of manufacturers named will be approved for use.

Paint is to be applied by roller or brush. Spray painting is not permitted.

Paint for striping parking lots shall be a top quality product specifically for the purpose of painting vehicular traffic bearing pavement.

Paint types acceptable to the University for the various surfaces and situations typically found in construction are as follows:

Interior
- Wallboard (ceilings)
- Wallboard (walls)
- Wood trim
- Metals
- Concrete block

Exterior
- Brick
- Metals
- Concrete masonry

Lines separating parking spaces shall be painted on curbs and gutters and shall extend into the parking area 36" from the face of the curb, unless otherwise directed.

Arrows for parking lots must be the same size as others on campus. Templates for this purpose may be borrowed from the University.

Suspended acoustical ceilings are to be 2' x 2' modular and 3/4" thick. Grid layout must be such that all border pieces are half size or larger; to accomplish that it is obviously necessary to

coordinate with the lighting fixture installation. In no case will it be permitted to use grid to fill gaps. Coordination with the frie protection subcontractor is also required to insure that sprinkler heads can be centered in tiles where sprinklers are in fact also required.

Metal studs/sheetrock are to be provided consistent with normal institutional construction practices. In saying that, we presume that the resultant assembly will be sufficiently sturdy to withstand the college student environment; if there is any doubt that this will be the result, heavier gauge materials, lateral bracing, internal stiffening, and/or other systems should be considered.

Blocking shall be provided in all partitions where items are to be hung off of walls and partitions, where door stops must be wall mounted, or where handrails are to be supported. Additional studs shall be provided at door frames.

Moisture resistant wallboard shall be provided in all exterior walls and any other location where moisture is likely to be a problem.

In some instances, sound attenuation blankets shall be required in partitions

Base shall generally be of the molded rubber type, with pre-molded outside corners and job mitered inside corners. In some instances, wood base will be permitted. Rubber (or vinyl) base is to be securely adhered to the wall.

Vinyl floor tile shall be 12" x 12" x 1/8" and shall not contain asbestos. Where the tile has a directional pattern, the tiles shall be laid with the pattern all running in the same direction, as opposed to a checkerboard pattern. Floor tile shall be mixed so as to avoid color or pattern miss-matching which might result from the sequenced application of different production runs or lot numbers. Tile shall be laid so that borders are at least half size or larger. Where necessary, some filling and leveling may be required so that tile floors are acceptably level.

CARPET

Carpet requirements are provided in an appendix to this document.

Ceramic tile shall typically be 4-1/4" x 4-1/4" glazed tile for walls, and the appropriate companion tile with anti-skid characteristics for floors, but other sizes will be permitted when deemed aesthetically appropriate. No broken, chipped, or deformed tile will be accepted. Tile is to be laid level, with no raised tile. With regard to the floors of restrooms, the Contractor shall coordinate the installation of floor drains between the plumber, floor tile subcontractor, and the toilet partition supplier/installer so that the toilet partition pilasters do not coincide with a floor drain or slope to floor drain.

SECTION 10 - SPECIALTIES

CHALKBOARDS

Chalkboards shall be natural slate; composition type boards are not permitted. In some cases, procelain type boards for use with felt tipped markers may be permitted. All boards shall be metal trimmed and shall have a continuous tray along the bottom edge.

Chalkboards are to be mounted so that the tray will be 37" above the finished floor.

Bulletin boards and tackboards shall be natural cork and shall be metal trimmed.

TOILET COMPARTMENTS

Toilet enclosures are to be floor mounted, overhead braced. Do not use ceiling hung partitions unless enclosed on each side by a wall. Include in your specifications a statement which will preclude particle board as a core material for partitions. In addition, it should be indicated that the University will not accept partitions which have holes or patched holes which are the result of incorrectly positioned, and thus relocated, hardware. Door stops must stop doors, and must do so by having the rubber tips contact a suitably firm surface. Doors must not hit tissue dispensers. Tissue dispensers must not be installed with screw heads visible on the wall of adjacent stalls. Door latches must function correctly and smoothly.

Toilet partitions are to be assembled using stainless metal hardware and tamper proof fasteners.

SIGNAGE AND GRAPHICS

Directories are occasionally needed for larger projects. Directories must be easily changed without specialized tools or devices. Back-lighted translucent type directories are a maintenance problem we prefer not to have.

The University normally requires that bronze or aluminum letters be specified for building names. The final decision will depend upon the exterior material of the building and the building location, and must be approved by the University as to material, size, and location on the building.

Generally, all new buildings and some renovated buildings will include a dedicatory plaque or plaques. One plaque, referred to as the "State Plaque" will be required if any plaque is appropriate. The text of that plaque, its review and approval, is solely at the descretion of Facility Planning and Control. Where permitted, a second "University Plaque" is to be called for in the specifications. The text of that, its review and approval, are at the sole descretion of the University.

You should specify that plaques are to be of cast bronze. The State plaque will consist of approximately 400 letters of various sizes, and the University plaque should contain in the area of 1200 letters. The text for the State plaque will be known in time for it to be graphically depicted in the drawings. However, the text for the University plaque is oftern not known until very late in the construction because of our policy of naming Board Members serving from the date of appointment of the Designer until the date of Acceptance of the construction. Thus, the appointment of such a member in July means that a project nearing completion in August cannot have the Plaque cast until July.

This sequence requires that you include in the specification the following or similar wording:

> "Text for the University Plaque will not be known until late in the project, thus it may be near the time of acceptance before the plaque can be cast. The Contractor is to anticipate this situation; no extra compensation will be permitted.

Signage and graphics are to be included where needed to assist facility users in their use of the new facility. Door number plates (the mounting of which is discussed under "Doors and Windows" are to be of laminated plastic, black over white so that when engraved, white numbers appea in a black field. The plates shall be approximately 4-7/8" X 1-7/8" X 3/16" thick, and shall match the standard LSU number plates. Letters are to be engraved so that the stroke of letters is approximately 1/8" wide and letters are 1" tall. Plates are to be attached by means of wood or metal screws through pre-drilled holes.

FIRE PROTECTION SPECIALTIES

Unless codes provide otherwise, the University prefers fire extinguishers rather than fire hoses. Fire extinguisher cabinets shall be provided in corridors only and shall be of the type that require physical breakage of the front for user access. In mechanical rooms, fire extinguishers shall be hung on brackets for that purpose. Relative to the extinguisher type, ABC Type extinguishers shall be provided for mechanical equipment rooms as well as for in-cabinet locations.

De-mountable partitions are generally to flimsy and inefficient to be useful in University projects. In the past, we have had to reinforce such partitions to make them sturdy enough for the anticipated usage, defeating in the process any benefit they might have had. In addition, the relocation of such partitions still requires carpet and ceiling alterations, further diminishing the value of inexpensive room configuration changes. We prefer to avoid this type of construction.

Operable partitions are often used for flexibility of building use. Such partitions shall be structurally supported, easily operated, and sound resistant.

The University generally uses roll, not flat, toilet paper. The holder should be Scott Model #964 single roll or approved equal. When flat tissue is used, the holder should be Griffith-Hope chrome combination toilet tissue cabinet for inner folding tissue, and the cabinet, which shall include a lock, shall be 4-7/8" wide X 8" high X 3" deep.

The University generally uses paper towel dispensers. The cabinet should be Fort Howard #567 or equal, white, with lock and key, and for single fold towels.
We generally avoid providing soap dispensers in public restrooms. In some instances, the University will install dispensers at a later date.

Soap dispensers are obviously required in the more provate restrooms and in special areas where function so dictates.

Mirrors shall be provided with theft-proof locking frame.

Waste receptacles shall be of the built-in semi-recessed type. In some instances, the decision may be made to have the Campus provide free standing waste receptacles subsequent to Acceptance; that will be determined during design.

SECTION 11 - EQUIPMENT

Conference room equipment shall include blackboards, and in some instances, felt tipped marker

boards. Projection screens shall be motor operated, and mounted concealed in an overhead alcove. Care shall be taken to insure that the screen does not contact any chalkboard accessories (such as map hooks which often project forward a few inches) throughout its travel.

LABORATORY EQUIPMENT

Laboratory equipment shall be covered in an appendix to this document.

MEDICAL EQUIPMENT

Medical equipment shall be covered in an appendix to this document.

FOOD SERVICE EQUIPMENT

PROJECTION SCREENS

SECTION 12 - FURNISHINGS

Blinds shall generally be of the thin-line type, as manufactured by Levelor or Bali. (be more specific here.

Built-in seating and desks are required in large classrooms and auditoria. Approximately 10% of all fixed table arm and folding arm auditoria and classroom seats in each room shall be left-handed and should be located on the left end of rows.

All fixed seating shall have row and seat numbers affixed to the appropriate place to readily identify seats.

Draperies may be appropriate in certain situations. Where so, the University will provide those subsequent to the project. Provisions for hanging such draperies are to be designed into the project in the form of alcoves and/or tracks, and the Contract for Construction shall require the Contractor to provide such hardware as may be necessary to readily hang the draperies.

SECTION 13 - SPECIAL CONSTRUCTION

None anticipated. Should a particular project require such consideration, our input, guidance, and preferences will be made known at that time.

SECTION 14 - CONVEYING SYSTEMS

ELEVATORS

Elevators shall be Otis, Westinghouse, Montgomery, or approved equal, capable of being placed under an ongoing service contract subsequent to the exporation of the warranty period. Oil based hydraulic elevators shall not be used where total travel exceeds 40 feet vertically. Complete

wiring diagrams and parts catalogs shall be delivered to the University prior to the Inspection for Beneficial Occupancy.

Elevator maintenance shall be specified for a one year period commencing on the date of Acceptance of the project, regardless of the use for the Contractor's convenience or for testing of the elevator.

SECTION 15 - MECHANICAL

No mechanical or electrical device such as electrical transformers or roof mounted turbines, shall be placed in a manner that detracts from the aesthetic appeal of the facility. Such items shall be concealed from all views of the facility, i.e from the rear and from a distance. It shall be the architect's responsibility to inform his mechanical consultants to design in that manner, and to confirm that their design complies upon completion of their work.

Fire extinguishing systems are typically a function of code requirements. We have indicated under "Specialties" the normal fire extinguishers required for buildings and mechanical rooms within buildings. Where required, buildings may be sprinklered, and such installation shall be in accordance with the code requirements.

There will be certain locations in university construction where the use of sprinklers would be a bigger disaster than would fire. Such locations include record rooms, library stacks, and electrical switchgear rooms. In such cases, alternate fire extinguishing systems such as Halon shall be considered.

With regard to sprinklers, the installation shall be coordinated by the Contractor so that sprinkler heads are centered in ceiling tiles.

PLUMBING

Plumbing fixtures shall be vitrious china, institutional quality.

The University uses Halsey-Taylor, or equal, water coolers.

All urinals shall be of the trough type with a spring type on and off water closer for water conservation, except where indicated otherwise by the University.

HVAC

Air conditioning pumps and compressors should be multiple units rather than single units so as to facilitate more efficient operation during mild seasonal requirements, and to provide back-up capacity during breakdowns. For example, two compressors each with two-thirds the required capacity is preferable to a single compressor rated at the required capacity.

The use of air conditioning compressors, chillers, of the interconnection to an existing chilled water loop should be discussed in the early design phases for each project. Specifically, if the Designer anticipates the use of fan-coil and/or multi-zone units, such shall be discussed before starting the design.

Fan coil HVAC units, also referred to as DX units, will not be permitted in any facility.

All zones shall be clearly marked on supply ducts at air handling units.

Air handler fan speed shall not exceed 1200 RPM.

Air handler coils shall not have more than nine (9) fins per inch.

Air handlers shall be fitted with drain clean-outs.

All air handlers and pumps shall have safety drip pans complete with piping to drains. Each air handler unit drain shall be piped separate from its drip pan drain.

Filters shall be throw-away or roll type. Permanent type filters are not acceptable.

Air handler access panels shall be removable bolt-on type.

All duct work shall be galvanized sheet metal of gauges as required and/or recommended by SMACNA. Ductboard is not an acceptable product.

Gauges and other controls are to be located so that they can be readily observed and used by operators. Gauges which cannot be read by a person standing on the floor in reasonable proximity to the equipment shall not be accepted.

All air handlers shall have thermometers and pressure gauges on chilled water supply lines.

Simplified valving instructions shall be provided on a durable chart in all equipment rooms and all corresponding valves shall have affixed numbered permanent tags.

All air diffusers shall be of proper design and location so as to evenly distribute air to all parts of the room served.

Computer rooms shall be placed on a separate stand-alone air conditioning system specifically designed for computer rooms.

Both air conditioning and steam systems shall be thoroughly flushed out after pipe installation and before connection to the equipment. The Designer shall see that this is done and certify to the University that he personally assures us that this action has been taken before any equipment is started. It is suggested that the Designer consider using a detergent in the process of cleaning lines to take care of mill scale and oil.

The use of an independent air and water balance testing agent who specializes in the balancing and testing of heating, ventilating and air conditioning systems and who is certified by the AABC shall be included in the Contract Documents to balance, adjust, and test air and water moving equipment and air distribution and exhaust systems after the system is completed and is in full working order. After completion of the test and adjustments, copies of the complete test data shall be sent to the Designer for evaluation and approval. After approval by the Designer and his Consultants, the report shall be transmitted to the University for review and approval.

Air and Water Testing and Balance reports shall be completed and approved BEFORE the Acceptance Inspection. This work is critical to our use of the facility, and hence, Beneficial Occupancy cannot occur until that work is found acceptable.

The cost of Air and Water Testing and Balance work and relevent reports shall be borne by the Contractor.

Specifications shall require that all emergency pans under equipment shall be filled with water and proven to be leak-proof.

All steam condensate lines shall be specified to be schedule 80 seamless pipe.

The soil on some campuses within the LSU System are corrosive and appropriate measures shall be taken to protect any items to be buried underground. The Designer shall discuss the need for cathodic protection with the University before starting Construction Documents.

All piping and conduit shall be painted in accordance with the standard LSU piping color code as follows:

Gas	Orange
Hi-pressure gas	Orange with red bands every 6"
Chemical	Blue
Steam	Silver or Aluminum
Hi-pressure steam	Silver or Aluminum with red bands every 6"
Steam condensate	Same as for steam
Hot water	Same as for steam
Water (Domestic supply)	Light Green
Water (Chilled water supply)	Dark Green
Water (Chilled water return)	Medium green
Air	Purple
Vacuum	Brown
Drains	Black

In addition to color coding as described above, all piping is to be clearly labeled for identity and flow direction on straight pipe runs, close to valves, and adjacent to all changes in direction, or where pipes pass through walls and/or floors.

Chillers shall be interlocked with the chilled water pumps, condenser water pumps, and pressure differential switches so that no chiller can operate if the other motors are not operating, or if the water is not flowing.

Three sets of fan curve data shall be supplied for each air handler as a part to the manuals.

Where sewer lift pumps are to be included in the design, they shall be surface type Ghorman-Rupp trash pumps of a design to be approved by the University.

Motors shall be high-efficiency units. However, the term "high-efficiency" has lost some of its meaning in recent times, thus it is the Designer's responsibility to determine if a motor can in fact operate in a manner economical to the University, then specify such motors by Manufacturer and

model number.

Motorized valves with proper thermostats should be installed so that the steam and air conditioning will be automatically controlled by outside and inside temperatures. Controls preferably should be electric or pneumatic. PRV stations should be single seated, stainless steel or monel trim for dead end service and if the pressure is 150#, and is to be reduced to approximately 6#, there should be two PRV stations, one reducing from 150# to 20# and the other from 20# downward.

Fume hoods which are intended for use with radioisotopes shall not be fabricated until shop drawings have been approved by the Nuclear Science Safety Officer of the University. (get this name correct)

Plans and specifications relating to radiation shielding for all X-ray areas must be submitted to and approved by the University.

ENERGY MANAGEMENT SYSTEMS

Energy management systems shall be specified in accordance with the guidelines which are to be found in Appendix to this document. In general, our intent is to tie any new facilities in to the existing campus energy management system. It would be counterproductive, and contrary to the benefits to be derived from an integrated system to provide separate stand alone systems for each new facility which comes on line. To the extent that compatibility with an existing system is deemed proprietary, certain equipment determined to fall in that category will usually be removed form the project, including funds allocated for such equipment, for purchase by the University under Title 39. However, such equipment thus purchased may be installed by the Contractor under this project, and related items which are generic in nature, or which are available from a variety of sources and are yet compatible with the system are to be provided by this project. The latter items include sensors, conduit, wiring, etc.

Three sets of control diagrams are to be furnished as a part of the equipment manuals.

COMMUNICATIONS SYSTEMS

All buildings shall be wired for computer and internet access, with built-in flexibility for technological advancement taken into consideration.

SECTION 16 - ELECTRICAL

No mechanical or electrical device such as electrical transformers or roof mounted turbines, shall be placed in a manner that detracts from the aesthetic appeal of the facility. Such items shall be concealed from all views of the facility, i.e from the rear and from a distance. It shall be the architect's responsibility to inform his mechanical consultants to design in that manner, and to confirm that their design complies upon completion of their work.

LIGHTNING PROTECTION

Lightning protection shall be provided in the contract for all new buildings. All components of such systems shall be UL Labeled.

LIGHTING AND ILLUMINATION

Lighting shall generally be fluorescent and shall be sufficient to illuminate the task while at the same time being mindful of the need for energy efficiencies. Incandescent fixtures are to be avoided unless unavoidable.

All exterior lighting shall be controlled by photocells mounted on the exterior of the building.

Telephone instruments and wiring will be provided by separate contract. The raceways, conduits with pull wires, and equipment mounting backboards are to be provided in this project.

Computers shall be provided under separate contract or as moveable equipment. Outlets, conduits, and in some instances the wiring itself shall be provided under this contract for construction.

POWER DISTRIBUTION SYSTEMS

A second or stand-by 4160 volt feeder should be provided for continuity of electrical service.

Electrical conduit shall be color coded as follows:

Electrical	Yellow
Electrical (4160 v. and over)	Yellow with red bands every 6"

The University normally requires a High Pot Test on all trunk line installations. This item should be discussed with the University. Specifications are as follows:

> All power cables shall be given D.C. High potential tests after installation and after potheads or other terminations have been made, but before connections have been made to busses or apparatus. Reduce all field test DC voltage to 50% of the following table, unless an unusually high leakage is detected and then, in this instance, the full voltage should be applied.

Volts Cable Rating	Size AWG or MCM	Field Test D.C. Voltage	Duration of Test
600	14-9	11.0 KV	10 min.
8-2	14.5 KV		10 min.
1-0000	18.0 KV		10 min.
225-500	20.5 KV		10 min.
525-1000	24.0 KV		10 min.
Over 1000	27.5 KV		10 min.
5000			
8-0000	33.5 KV		10 min.
225-1000	37.0 KV		10 min.
Over 1000	40.5 KV		10 min.
15,000			
6-1000	63.5 KV		10 min.

A D.C. milliammeter in series with the ground connection of the high voltage transformer shall be used to read the leakage current in the cable at one-minute intervals during the test. A variable ratio voltage regulator of adequate rating shall be used to permit the raising of test voltage at a slow but uniform rate from zero to test value. Testing time shall be started when the voltage on the cable has attained test value.

If a cable fails, the fault shall be located, and all cables in that conduit between the nearest pulling points on each side of the failure shall be withdrawn. If, in the opinion of the Engineer, the other cables in the same conduit have not been damaged, they may be reinstalled, but the cable which failed shall be replaced by a new cable. After the replacement of the faulty cable, and any other damaged cables, all cables of the circuit in that conduit should be re-tested.

All 4160 volt high voltage cable should be a minimum insulation thickness of 175 mils.

The University does not approve the use of any type of Scotch Resin splices for high voltage splices. A great deal of trouble has been experienced with this type of splice. All cable splicing should be done by an approved cable splicer in accordance with the manufacturer's recommendations. All splices should be labeled with a permanent tag indicating the feeder cable number and the cable splicer's name or initials along with the date of the splice. Primary cable should be XLP insulated PVC shielded cable, high pressure connected, with hand-wrapped splices according to manufacturer's recommendations for underground installation.

For cover of all underground electrical conduits, a 3" minimum all around coverage of red concrete is required. It is not sufficient to merely dust the top surface of plain concrete with a powdered red dye. The duct is to be anchored well before the concrete is poured, so that this condition is attained.

Whenever large motors are used, power factor correction capacitors shall be installed to insure a 90% power factor. If power factor correction capacitors are needed, then the University should be contacted to determine if high frequency traps will be needed to prevent the 3500 cycle signal for clocks and bells from being short-circuited. If a separate transformer or high frequency wired electronics system is used, the traps will not be needed.

APPENDICES

CATEGORIZATION AND PRIORITIZATION CRITERIA
AFFIRMATIVE ACTION COMPLIANCE
ASSURANCE
EQUAL EMPLOYMENT OPPORTUNITY CLAUSE
FINISH HARDWARE SPECIFICATION SECTION
CABINETRY
PAINT SCHEDULE
CARPET

LABORATORY EQUIPMENT
MEDICAL EQUIPMENT
ENERGY MANAGEMENT SYSTEMS