March 2025: See comments to this original document from June 2002.

PART I - GENERAL ADMINISTRATIVE PROCEDURES

A. Rutgers University Office of Facilities - Organization

The A/E will be working primarily with the Project Manager from the Division of Facilities Project Administration. All input and coordination shall be through the Project Manager. Input during design will be generated by the Office of Facilities Design, Department of Construction Management and Facilities Maintenance and Operation. In Part IV, see the organization chart for the Facilities Organization.

At award of the Construction contract, the Representative of the Department of Construction Management will oversee the Contractor's work and administer the Construction Contract. However, the Project Manager still has overall responsibility for the project.

Terms such as "Rutgers" or "the University" used in these Guideline Standards refer to the Office of Project Administration (Project Manager), especially when approval permission or consultation is noted.

Invoicing and Payments:
The A/E shall submit with each invoice a certification that all associated Architects, Engineers, Consultants, etc. have been paid a proportionate share of any previous payments made under the contract, to the extent that they are entitled.

No deduction shall be made from the A/E fee for any penalty or liquidated damages charged to any Contractor. No additional compensation shall be made for preparation of Alternates, unless the Owner prior to execution of the work approves such additional compensation in writing.

During Pre-Design Analysis (Programmatic Phase), Schematic design, Design Development, and Contract Documents and Bidding, the University will make monthly payments to the A/E based on the progress of the work. Such payments shall in no event exceed the fee limits for phases as set forth in the contract. Such payments will be limited in proportion to the Owner's estimate of progress and percentage completion of the work in the current phase. During Construction, the payments toward the fixed fee due for that phase will be made to the A/E in proportion to progress payments made to the Contractor for construction of the Project, as certified by the A/E.

Invoices:

1. Shall be numbered and include the Rutgers Project Name, Rutgers Account Number, current construction budget, fee rate (if applicable).

2. On each invoice show a chart which has the following breakdown: Phase, % of fee or contract amount for each phase, % complete to date for each phase, amount of fee earned per percentage complete, amount previously invoiced, current amount due for the invoice in question. Each phase of the project shall be listed (i.e. predesign, schematic design, design development, construction documents, bidding / negotiation, construction administration).

3. On each invoice show a separate line indicating amount due for that invoice.

4. All back-up with the invoice shall be attached, including any reimbursable expense documentation.

5. The A/E cannot proceed on change orders without the written authorization from the University. Change orders cannot be billed without such authorization.

   All change orders shall be sequentially numbered. The revised contract amount shall be shown on the invoice along with the original contract amount and the previous contract amount if more than one change order. Invoices shall follow the same format as previously described.

B. Drawing Standards

March 2025: Please refer to the CAD Standards Manual, latest edition https://ipo.rutgers.edu/pdd/consultants-cad-standards for the most current information.

~~GENERAL~~

~~1. The A/E shall be responsible for preparation of the bid set of drawings; these shall be on mylar. The bid set shall be produced per the Size and Materials section below. The Contractor shall produce "record drawings" which shall be marked up "blue lines" showing deviations from the plans and specifications due to field conditions and construction modifications. The A/E shall take the record drawings and produce the As-Built drawings on mylar with a CAD file.~~

~~2. All drawings shall be oriented in the same way; i.e. north arrow (as close to true north) pointed to the top of the page for all plans and site drawings.~~

~~3. All floor plans shall be in the same scale to each other. All site plans shall be prepared in the same scale to each other~~

SIZE AND MATERIAL: In an effort to maintain consistency and a permanent record of all the University's buildings, all completed construction documents must be produced on mylar plastic, matte finished both faces. Standard sizes shall be as follows:

24" x 36"
30" x 42"

No font shall be less than 1/8". In addition, all documentation produced on CAD must be transmitted to the University on a dise in AutoCAD release 13 or later.

TITLE BLOCKS: The A/E may use his / her standard title block provided it contains the following minimum information:

A/E firm name
Project name and location
Campus name
Date drawing was completed
Scale of drawing unless noted under each detail
Sheet number and drawing number

Drawing Title:
The A/E title block and name of project shall be in a vertical format down the right-hand side of the drawing, or blocks in the lower right-hand corner are preferred.

A revision block indicating number and date of revisions. Block shall include at least 6 lines for revisions.

Project Name shall match the title of the project on the project budget analysis sheet (PBA).

Project Number (cross-referenced to budget number).

Building Number.

Area large enough for A/E's signature and seal

Approval block for the signature of the University Architect to approve the drawing.

Drawing Number:
The A/E shall ask the Project Manager for the building number. This number shall be on all drawings. Use "T" for title drawings, "SP" for sitework, "A" for architectural, "FS" for food service, "FL" for interior design or furniture layout, "LF" for laboratory furniture, "S" for structural, "P" for plumbing, "HVAC" for

heating, ventilating, and air conditioning, "M" for mechanical, if plumbing and HVAC are combined, "FP" for fire protection drawings, "E" for electrical drawings, and "ME" for mechanical and electrical combined.

The University has a drawing numbering system that must be adhered to and used on all drawings. At the completion of a project by the A/E, a disc with each drawing title and corresponding number shall be transmitted to the University.

A description of the drawing numbering system follows:

DRAWING FILE NO. ASSIGNMENT/DRAWING REVISION/NEW DRAWING RELEASE STANDARDIZATION PROCEDURES

To eliminate confusion in our routine day to day design drawing activities, a standardized system exists whereby all drawings are identified with significant file numbers at the initial onset of each and every project. The system delineates detailed information that is a prerequisite for compliance with the computerized Rutgers Facilities, Utilities & Geographic Information System. Included in the system are the procedures for drawing release and revision.

A Step By Step Procedure is Outlined as Follows:

1. DWG. FILE NO. ASSIGNMENT PROCEDURE

    A. A review of the project by Architect/Engineer/Designer is conducted to ascertain amount and type of drawings required.

    B A request is made to the Technical Services File Management Dept., for a total amount of dwg. file number assignments affecting that project, including all divisions.

    C. All pertinent information concerning each drawing is given to the File Management Dept. at that time, i.e. Dwg. type - Mechanical, Structural, Arch., Electrical, etc.

    D. For sizable projects, additional numbers in the same numbering sequence will be reserved to insure project number continuity.

    E. The Technical Services File Management Dept. will maintain a hard copy project log designed to follow projects from inception to completion. The log will contain drawing and project status on an on-going basis.

2 DRAWING FILE NO. SAMPLES

    A.. A sample significant building dwg. file number will look like this:

BSH3573A0001= BSH 3573 A 0001, which consists of the Campus, Building Number, Drawing type (Arch), and Sequence No. respectively.

B. A sample significant utility dwg. file number will look like this: BSHUA0001= BSH U A 0001, which consists of the Campus, Drawing Type (Utility), and the Sequence No. respectively.

3. DRAWING REVISION PROCEDURE – Drawings Made In-House:

Revisions to existing drawings (drawn in-house) are as follows:

A. A reproducible copy (translucent bond) of the dwg. to be revised is to be placed in file. This copy will be marked "void-superseded by new file No._____." It will replace the original dwg. that will be revised.

B. Assign new file no. to revised dwg. and also record this no. on the superseded file copy. This will cross reference the two (2) drawings and render the previous issue (on the superseded dwg.) intact.

C. Make the change to the original file dwg. and indicate the revision description in the revision block area.

D. The revision issue column in the revision block area will utilize the alphabet (circumscribed by a triangle) to identify each revision (A).

A H.C. 9-9-94 J.R. CHANGED; Issue, by, date, Approved by, Description respectively.

E. In the event that a revision may require an itemized breakdown, it can be displayed as follows:

A M.F. 9-7-94 PM A1, A2, A3; Issue, By, Date, Appvd. By, Description respectively.

F. An "Approved By" column is to be added to the revision block area next to the date column. The Project Manager prior to formal release print issuance must initial each revision issue.

4. DRAWING REVISION PROCEDURE – Drawings made by outside Architects/Contractors

Same as dwg. revision procedure 3 for drawings made in-house except:

A. A reproducible copy (vellum/mylar) is made from the original dwg. Revisions are to be made to the reproducible copy.

B. The original file dwg. remains intact should litigation become an issue in the future.

5. NEW DRAWING RELEASE PROCEDURE

A. All fields in the title block area of the dwg. are to be completed and a comprehensive description of the project and dwg. title is mandatory for documentation and future reference.

B. The University Architect must sign all drawings to be released.

C. The issue column in the change block area will display a dash line (-) for original issues i.e. issued for bids, addenda no. with date, etc. The first official revision to the drawing will display A see drawing procedure 3 D. The addenda number and date must be included.

H.C. 12-6-94 R.O. ISSUED FOR BID; Issued By, Date, Approved By and Description Respectively.

D. The revision block area of the dwg. (above the title block) must indicate the reason for the issue, i.e. "Issued for Bids," - "Issued for Addenda" etc.

E. In the event that a new dwg. is created from information extracted and modified from any file dwg, a cross reference notation in the changed area of the file dwg. is to be made to reference the new dwg. This will up date and highlight the change area of the file dwg. for future reference.

F. For University generated drawings to be formally released (see new dwg. release procedure 5 B), the project log is to be updated and dwg. is to be turned over to the Technical Services File Management Dept. for documentation and print distribution. At this time a copy of the log will be placed in the main project development request (PDR) file folder. This cross-references the dwgs. affected by the PDR.

G. For University generated drawings not to be released at time of completion and kept on hold, it is to be stored in the preliminary dwg. file cabinet in the appropriate campus area drawer. At this

time the project log is to be updated in the remarks column with the reason for the hold.

6. MISCELLANEOUS

A. All outside services drawings (special projects, as-builts, etc.) from outside Architects and Contractors are to be turned over to the Technical Services File Management Department. The A/E and Contractors shall place a document retrieval numbering system on the documents. This numbering system shall be in place prior to shop submittals. A disc with the appropriate titles and files shall be transmitted to the University at the conclusion of the project.

TITLE SHEET: A title sheet shall be included on all projects with more than 5 drawings. For sets of five sheets or less, indicate sheet numbers (for instance sheet 1 of 5). After the title sheet is developed the A/E shall consult with the Project Manager and the Manager of Technical Services to assign a block of numbers to the project. The title sheet shall include the following minimum information (see SK-15):

Rutgers logo max. 3" high, min. 2"

Project name and location

Name, address and phone number, fax number, email address of the A/E and any consultants used on the project

Index of all drawings included in the Contract Documents, this should include the Rutgers drawing sequence number.

Location map indicating the location of the project on the particular campus or within the town it is located. Campus maps are available from the Manager of Technical Services.

List of symbols and abbreviations used in the Contract Documents. Abbreviations used on the Drawings must be industry standard recognized abbreviations and must be consistent throughout the construction documents.

All New Jersey Uniform Construction Code criteria and data.

The Rutgers standard title block (See Part IV with standard details).

ROOM NUMBERING ON FLOOR PLANS: With over 800 buildings, in 1970 Rutgers adopted a standard method of handling room numbers which should be adopted from the earliest possible point in the design process and carried throughout to completion. The A/E shall use the Rutgers Room Numbering

~~System on all drawings. At design development completion, the A/E will work with the Project Manager to develop room numbers consistent with the University system. Consistent room numbering will facilitate matters for numerous organizations including Scheduling and Space Management, Inventory Control, Fire and Emergency Services, and the Facilities Maintenance Services concerned with the Construction Process. Nothing can be more confusing in the latter stages of construction as two (or more) room number plans. Therefore, the following procedure shall be followed by all A/E's:~~

~~The system depends on some basic definitions as follows:~~

~~Corridor: A space normally used for pedestrian traffic, at least 5 feet wide and enclosed by solid walls.~~

~~Vestibule: A space used for traffic that is a point of ingress or egress to a building, with doors on two walls.~~

~~Room: A clearly defined space not normally used for through traffic and enclosed by solid walls.~~

~~First Floor: The lowest floor of any building which is at least 50% above surrounding grade.~~

~~Lobby: A space used for traffic that is a point for ingress or egress to a building or floor from upper or lower floors.~~

~~In general, room numbers will consist of three digits with the first digit designating the floor. Basement rooms will use a zero (0) as the first digit. If there are floors below the basement the room numbers should be developed on a special basis with the appropriate Facilities Design Personnel.~~

~~In general, all floors of the building should have similar patterns. Numbering patterns should begin at the end of the corridor nearest the main entrance or lobby. Even numbers should apply to rooms on the right side of the corridor and odd numbers to rooms on the left, moving away from the entrance. Numbers should be in direct sequence, and only one number should be applied to one room regardless of the number of doors to that room off the corridor. Rooms which have no direct entrance from a corridor should be designated by adding a letter after the number of the room through which they are entered from the Corridor (101A). If they can be entered through more than one room, the number of the room most frequently used to gain access should be used~~

~~While this system is quite sensible, its basic premise assumes a fairly simple floor plan, a situation which seldom occurs in actual practice. Most new buildings have complicated floor plans designed to suit a specific purpose without consideration for creation of any rigid geometric order, and numerous alterations~~

~~and additions to older buildings often wreak havoc on established room numbering. However, it is possible to establish a fairly reasonable room numbering plan for virtually any building, provided that the basic rules are applied and tempered with common sense and judgment. It is essential that the numbering system for new buildings or renovated buildings be developed by someone thoroughly familiar with the system and the University.~~

~~Once the basic floor plan is established, prints shall be submitted to the Office of Facilities where the appropriate room numbering system will be marked on the prints. Room numbers will be indicated with a rectangle drawn around each number. The marked prints will be returned to the A/E with instructions to adhere to the established room numbers on all subsequent submissions. Inevitable changes arising during the design process, as they affect room numbering, will be cleared with the Office of Facilities.~~

~~Doors should be numbered with a system which reflects the room number to which the door allows access. For example, the door to room 104 should be labeled "104/1" or "104/A" or similar system.~~

~~After the final plans are approved, the A/E shall prepare a separate room numbering plan, drawn to a scale of 1" = 20' on 17" x 22" mylar transparency showing all rooms and spaces, with numbers as indicated above, and names. This drawing shall also be transmitted to the University in CAD format on a computer disc. All CAD files must be AutoCAD release 12 or higher. Drawing shall be accurate enough to show such things as distinctions in thickness of major walls and interior partitions. Plan shall also show all entrances and exits, stairways, elevators, service areas and major architectural features, such as window walls, plazas, ramps and loading docks. Dimensions need not be shown, and details not pertinent of the general layout should be omitted.~~

C. Specification Standards

MASTER SPECIFICATIONS: MasterSpec is to be used. Rutgers currently subscribes to MasterSpec and uses it on their in-house projects. A/Es are cautioned that computerized specifications must be heavily edited to suit the requirements for the specific project. It is recommended that an experienced dedicated specifications writer be employed to write specifications on Rutgers projects.

COORDINATION: Specifications should be coordinated so that issues are addressed only once. For instance, the engineering specifications should not reiterate the number of shop drawings needed, or mention additions to the Bid Form. These problems often arise when the Architect uses consulting engineers. The Architect is responsible to review the engineers' specifications and coordinate

such items. Make sure that specifications from consultants are submitted to the Architect in enough time to perform this review.

FORMAT: Use CSI or MasterSpec 3-part format for all specifications. Format should be consistent throughout the entire specification.

All articles, paragraphs and subparagraphs should be numbered or lettered in outline form for easy reference. See enclosed sample in the Standards Details Section.

Section Number and Title should be boldly indicated at top of first page of Section. The first Section of each Division should also indicate the Division name and title.

Each Section should end with "END OF SECTION" to indicate that this is the last page of the Section. Each page of the Section should have the Section number and page number (sequentially numbered) centered at the bottom of the page. Reason: In printing process it is possible to misplace a page or get pages in wrong order. The Contractor can easily determine that he has all proper pages by checking the sequential numbers and will know he has the last page with the "END OF SECTION" indication. All pages of the specification are to be sequentially numbered from page 1 to the end of the Division 16. This must be performed just prior to printing when the entire specification is complete and is most easily accomplished by using one of the large type numbering machines.

PROOF READING: The A/E is responsible to insure that all specifications are proofread. The omission of simple words as "not" will completely change the meaning of a sentence. Also, in the proofreading process, additional thoughts or changes in text are often caught and can be corrected.

PROHIBITED LANGUAGE: The following words, phrases, and clauses are expressly prohibited:

1. "Plumbing Contractor", "Food Service Contractor", etc. All construction work is bid through single prime Lump Sum General Contracts. Under this type of contract, it is the General Contractor's responsibility to perform all work required. It is the General Contractor's business decision as to how the work will be divided amongst their subcontracts.

2. The note "by others" or Not in Contract (NIC). If this is the case, name the specific contractor or agent to provide the item.

3. The words "This Contractor shall..." or "The Contractor shall..." to begin instructions to a contractor. These words are redundant since all instructions are directed to the General Construction Contractor.

4. The words "alternate" to indicate an "option". The word "alternate" should be used only for alternate work which is specified in the technical sections of the specifications and must be included in the bidders' proposals. The word "option" should be used to indicate items for which the contractor may make a choice without affecting the contract. All options must be approved by the University prior to construction in which case either the change will be done at no increase in cost to the project or as a credit or deduct.

5. "Is", "are", or "will be". Use the word "shall", or put in imperative mood. This is particularly a problem when copying specifications provided by manufacturers which is used as a sales tool. Remove text which indicates the advantages for using this product or other text designed to sell you on its use rather than indicate the nature of the material or its proper installation.

Avoid abbreviations and symbols such as #, @, &, and w/.

When referring to Rutgers, use the terms "Owner" or "University". Do not use "Using Agency" or "State".

D. Estimating Standards

All estimates shall be based upon Means Estimating handbooks, latest edition. Estimates shall be detailed enough to fully identify all portions of the work. Estimates should also identify critical long lead items. The estimate should be done in Construction Specifications Institute (CSI) format.

The A/E shall prepare estimates at completion of pre-design, schematic design, design development, 50%, 90% and 100% design completion unless the Owner Architects Agreement states otherwise. It is the A/E's responsibility to insure budget compliance during design and to do estimates as necessary to meet budget fit.

E. Area and Volume Calculations

All area and volume calculations shall strictly adhere to the AIA Document D101 "Methods of Calculating Areas and Volumes of Buildings", latest edition.

F. Codes and Code Compliance

CODE REVIEW: All Rutgers projects are submitted to the Department of Community Affairs for code review. Exact procedures will be provided when projects reach the review stage.

CODES TO BE USED: All Rutgers' building projects shall conform with the New Jersey Uniform Construction Code including the following:

BOCA Basic Building Code
The National Standard Plumbing Code
The National Electrical Code
BOCA Basic Energy Conservation Code
Fire Protection and Sub Code (portions of the BOCA Basic Building Code and National Electrical Code as indicated in the N.J. Uniform Construction Code)
The applicable provisions of the National Fire Codes, as published by the National Fire Protection Association
New Jersey Barrier Free Code
Uniform Fire Code of New Jersey
New Jersey DEP regulations
EPA regulations

Food Service Equipment shall comply with the National Sanitation Foundation requirements.

Gas equipment and work shall comply with Fire Underwriters and Local Requirements.

Radon mitigation must be considered as required by code.

Additional standards of Factory Mutual shall be used as mentioned elsewhere in this manual.

Fire safety and evacuation instructions should be placed in all dormitory and all high rise buildings. SK-13 is a sample that can be covered with clear plexiglass.

The A/E shall check with the New Jersey Department of Community Affairs to determine the latest adopted dates of the above codes. A listing of the codes used for design of the project, with dates, shall be included in the Supplementary Conditions of the Specifications.

BUILDING PERMITS AND FM REVIEW:

Building Permits are acquired by Rutgers. The A/E shall provide all data required and fill in forms for application for building permit. The A/E shall be responsible

for follow-up correspondence directly with the DCA as necessary in order to obtain permits.

The University must follow Factory Mutual standards. Major projects, roofs, underground storage tanks, sprinklers, etc. are reviewed by FM. The Project Manager is responsible for coordination with FM. However, as with building permits above, the A/E is responsible for follow-up correspondence.

G. Bidding Procedures

STATEMENT OF WORK: The A/E shall prepare a one-page statement of work briefly describing the project.

BID FORMS: Bid forms are included in the Project Manual. The Bidders are to submit their bids in duplicate. The Bid forms will be provided to the A/E with the exception of the pricing sheet for the Alternates. It shall be the A/E 's responsibility to develop this page.

ESTIMATES: The estimate shall be prepared in the Construction Specifications Institute (CSI) format.

ALTERNATES: Rutgers prefers add alternates. Alternates should be limited to no more than four. When providing estimates at the various stages of the project, the A/E must separate the estimate into the base bid and line items for each of the alternates.

DURATION OF PROJECT: The A/E shall provide the University with the number of calendar days required for construction completion.

LIST OF CONTRACTORS: The A/E shall provide the University with a list of Contractors for bidding the project.

BIDDING DOCUMENT DISTRIBUTION: the Department of Construction Management (DCM) distributes Bidding documents, including addenda. Addenda are prepared by the A/E and submitted to DCM for distribution. Many projects are bid via a selected list of bidders, which is developed by the Board of Governors. The list may not be published until it has complete approval.

DCM places notices in Dodge Reports, Construction Data New and Brown's Letters. The A/E should refrain from giving information to these types of information services, as it may differ from information given by DCM.

ADDENDA: The A/E is to prepare addenda as required. A standard Addenda format and language is stated below and a sample is included in the Standards

Details Section of this Manual. Addenda shall be forwarded to DCM for review and if acceptable, distribution. The cut-off for distributing addenda is 10 days prior to the bid opening. It is emphasized that the A/E should avoid full size drawings for addenda, as this will slow down the distribution process.

The information contained herein revises, supplements and/or supersedes the specific parts of the documents referred to, and shall be attached to and become part of those documents as if originally forming a part thereof. Except as herein modified, all other provisions of the documents shall remain in full force, unless otherwise described in this Addenda, shall comply with the requirements originally specified for similar work.

~~H. Color Selections~~

March 2025: Please refer to **Appendix 05 - Color Selection Guidelines** for the most current information.

~~EXTERIOR COLORS: Significant exterior colors such as brick, mortar, window and curtainwall frame and window colors, etc. shall be established early in the construction stages. These colors shall be reviewed and approved by the University Architect. A mock-up panel shall be made by the Contractor in order to approve final colors and workmanship. See requirements for mock-up panel in Part III Division 04200, paragraph 5.~~

~~INTERIOR COLORS: the Interior Design Consultant or Architect will select Color of interior finishes early during construction. The A/E shall obtain submissions from the Contractor on all manufacturers and products that the Contractor intends to use on the project. Using the standard or special colors from these manufacturers, the Interior Design Consultant or the A/E shall prepare a color board indicating the various spaces and the color schemes for each space or series of spaces. These color boards shall be submitted to Rutgers Project Manager for review and approval at the point early in the construction process and no later than the date that structural elements of the building are 50% complete. Upon approval of the colors, the A/E shall develop a detailed listing for the Contractor indicating the colors selected for each material and location on the project.~~

~~The A/E shall carefully monitor submissions from the Contractor, especially on those items requiring color selection and shall remind the Contractor of any submissions not made which may hold up the color selection. The A/E is encouraged to include in the Specifications clear instructions to the Contractor to make this process as painless as possible.~~

I. Construction Change Order Procedures

1. The only changes that will be made are:

Changes to meet code requirements
Changes to make the building function properly
Changes due to field conditions

2. The procedure for issuing change orders is as follows:

   a. The Construction Management Representative will authorize the A/E to issue a bulletin.

   b. The A/E prepares the bulletin and issues it to the Contractor with a copy to the Construction Management Representative and Project Manager.

   c. The Contractor will submit the proposal to the A/E and Construction Management Representative.

   d. The Construction Management Representative and the A/E shall review the cost proposal and any extension of time requested. Any comments or deficiencies will be reviewed with the Contractor if agreement cannot be reached with regard to cost and time impact separate change orders may be issued for each.

   e. When an acceptable cost and/or time extension has been reached, the A/E will be directed to issue five (5) copies of the Change Order to the Contractor.

   f. After the Contractor has signed all five copies of the Change Order, it should be forwarded to the Construction Management Representative for signature by the Director of Construction Management and the Project Manager.

   g. The Director will route the Change Order through and when the appropriate signatures have been attained, the Change Order will be forwarded to Accounting for final processing, one copy to the Contractor, and A/E.

   h. The Contractor may not bill for the Change Order until an executed copy of the Change Order has been received.

~~J. Rutgers Standard Colors~~

March 2025: Please refer to **Appendix 05 - Color Selection Guidelines** for the most current information.

~~The official Rutgers "Scarlet" color is represented by Con-Lux Coatings, Inc. Enamelite 508, Fire Red/Steel-Guard 8508, Accent Red and Dupont Imron #8554, Flame Red. Although this is the official "Scarlet" color, it is not intended to~~

~~indicate a standard paint manufacturer. Many other paint and coating manufacturers can match this color.~~

K. Construction Photographs

Rutgers University will take construction photographs once a month. One print of each photograph taken will be forwarded to the A/E for his files.

L. Health-Safety Requirements

CLASSROOM CONFIGURATION: Rooms designed for a capacity of more than forty-eight (48) students must have two separate exit doors.

LABORATORY, SHOP, STUDIO, AND OFFICE LAYOUTS: Egress from a low hazard area (office, conference room) may not be through an area of higher hazard (laboratory, shop, many art studios, darkroom, etc.). Where possible, the office area should have at least one exit directly into a corridor.

Office space and/or a break area where workers can eat or drink must be located conveniently and sufficiently close to, but not in, laboratories, shops, art studios, etc.

EQUIPMENT/FURNISHINGS WITHIN A SPACE: Provide adequate working or use space around equipment and furnishings. In general, 30" of free floor area is required for operations done while standing, and 36" of free floor area is required for seated operations, aisles, passageways, and doorways. These are minimums which should be increased depending on many variables including occupant traffic capacity, size of material used in an operation, and facility use.

Decontamination facilities, such as sinks for hand washing and storage of clean clothes, should be designed into each laboratory, shop, studio or other such space. These facilities should be located close to the exits to less hazardous areas.

The most hazardous operations areas, such as fume hoods or chemical storage areas must be located away from exits.

In rooms, such as laboratories, chemical storage rooms, and others where hazardous materials are used or stored, separate, remotely located doors are highly recommended and must be installed whenever possible. Such spaces must have a second door when travel to the door from the most remote point in the room exceeds 50 feet. Teaching laboratories should have two doors, and should be configured to avoid dead-end aisles between benches, other furnishings, and permanent partitions. Bench runs in all laboratories should be placed

perpendicular to the main door so that normal circulation patterns are towards the exit.

DARKROOM VENTILATION: Darkrooms where wet chemicals are used must be furnished with local exhaust ventilation to control airborne levels of photographic process chemicals. This shall be in the form of a flanged slotted plenum running the length of and behind the work area where chemicals are used. A capture velocity of 50 linear feet per minute (LFM) must be provided at the front edge of the work area. The required exhaust flow rate to produce this capture velocity shall be calculated by the following formula:

$Q = 2.6 LVX$

Where:
Q = Volumetric flow rate in cubic feet per minute (CFM)
L = Length of work area, in feet
V = Desired capture velocity (in this case, 50 LFM)
X = Distance from slot to front of work area, in feet

Once the required flow rate is determined, the slot width shall be sized to provide a slot velocity of approximately 2000 feet per minute. The plenum shall be sized to provide a plenum velocity of approximately half the slot velocity. (Taken from the ACGIH Industrial Ventilation Manual, 22nd Edition.)

LOUNGE AREAS: Lounge and eating areas must be provided in all wet laboratory, shop and studio buildings. There should be sufficient areas convenient to all laboratories to discourage eating and drinking in and continuous occupancy of, potentially hazardous work areas.

M. Security Conscious Design

The University follows a program of "Crime Prevention Through Environmental Design" (CPTED)[1]. Increased security and crime prevention can be brought about through the use of environmental controls. These controls include natural surveillance, natural access control, territorial reinforcement and maintenance as outlined below:

- Natural Surveillance

[1]Eric W. Shoemaker, "Crime Prevention Through Environmental Design," June 1996

Maximize visibility with strategic placement of architecture and physical elements.

- Natural Access Control:
  Place entrances, exits, fencing, landscaping and lighting to control movement of people and vehicles.

- Territorial Reinforcement:
  Place architecture, fencing, landscaping, lighting, etc. in order to declare property ownership.

- Maintenance:
  Maintain landscaping, buildings, lighting, etc. in order to maintain visibility, preserve pride in ownership and continue declaration of ownership.

N. Barrier Free Design

All designs for new construction and renovations to existing facilities shall be designed and constructed in such a manner that the new or renovated facility is readily accessible to and usable by individuals with disabilities consistent with all applicable state and federal mandates. Specifically, design and construction shall be done in compliance with the following:

- The American with Disabilities Act of 1990 (ADA) including without limitation, the specifications set forth in the ADA Accessibility Guidelines (ADAAG);

- Section 504 of the Rehabilitation Act of 1973 ("Section 504") and supporting regulations thereto;

- Applicable New Jersey state laws, regulations and codes.

Beyond mere compliance, every design component should be examined for its impact on persons with disabilities and adjusted to achieve the optimum balance between user requirements and convenient access to individuals with disabilities. At an appropriate time in the design phase of the project, there shall be a consultation with the University ADA Compliance Officer, or other designated University official, to review the project design with reference to applicable federal and state standards.

O. Mail Rooms

All new buildings, as well as significant renovations to existing buildings, shall include a mail drop off and pick up as per the requirements of the

Director of Mail and Document Services (MDS). The Architect/Engineer of record shall assist the users and MDS to consider and program the delivery and dispersal of mail. Minimum requirements include mailboxes, MDS drop-off station, and out-going pick-up for Campus, USPS, and expedited mail.

P. Custodial Support Rooms

All new buildings as well as significant renovations to existing buildings shall include the following custodial requirements:

- Minimum of one janitor's closet per floor of 48 square feet each, having floor-installed slop sinks, (2) duplex GFI receptacle outlets, and shelving on walls: minimum of (5) shelves of dimension 36"l x 12"w x ¾" d spaced 18" apart on heavy-duty brackets and standards
- Minimum of one dedicated custodian office/break room having 100 square feet per building

Q. Sustainable Design Policy Statement:

Rutgers University encourages the use of sustainable design principles in all of our projects, both new construction and renovation. We will endeavor to make design and project decisions based on sustainable principles that advance the well-being of our community, and improve the human condition for this and future generations of students, faculty and staff.

R. Sustainable Design Definition:

Sustainable design strives to improve the human condition of our students, community, state and nation through the prudent use of our resources, both natural and fiscal. Site selection, energy efficiency, energy conservation, indoor air quality, and waste recycling shall be reviewed thoughtfully for each project with consideration of the university resources required.