



REQUEST FOR PROPOSAL

ARCHITECTURAL AND ENGINEERING SERVICES

NEW SCIENCE CENTER
AND
BUILDING RENOVATIONS

ROCKVILLE CAMPUS

BID NO. 606-004

JANUARY 31, 2006

MONTGOMERY COLLEGE
OFFICE OF THE CHIEF FACILITIES OFFICER
900 HUNGERFORD DRIVE
ROCKVILLE, MARYLAND 20850



DELIVERY

Office of Procurement ,
Administrative Center
900 Hungerford Drive, Suite 110
Rockville, Maryland 20850
Phone: (301) 279-5292

REQUEST FOR PROPOSAL

No.

606-004

DATE ENTERED	BID CLASS	PAGE	of
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THIS IS NOT AN ORDER

**ARCHITECTURAL AND ENGINEERING SERVICES
FOR
NEW SCIENCE CENTER AND BUILDING RENOVATIONS
ROCKVILLE CAMPUS**

Request for Proposals are being solicited for Architectural and Engineering Services for the New Science Center and Building Renovations on the Rockville Campus of Montgomery College. Proposals must be either mailed or hand delivered to Montgomery College, Office of Procurement, Suite 110, 900 Hungerford Drive, Rockville, Maryland 20850. Either way, the proposal must be received by the Procurement Office no later than the closing date and time specified. Proposals cannot be accepted over facsimile lines or by electronic mail.

Proposals will be accepted until the closing time of 3:00 PM local time on February 22, 2006.

Bid and Performance Security Requirements: **NONE**

A Pre-Proposal Conference will be held on February 9, 2006, at 2:00 PM on the Rockville Campus of the College in the Science East Building, Room 119, 51 Mannakee Street, Rockville, Maryland. No allowances shall be made to the successful offerer, at a later date, for additional work required because of his/her failure to attend the pre-proposal conference.

Questions requiring Technical clarification shall be directed to Sandra Filippi, Campus Planner – Phone 301-251-7362. Procurement questions shall be directed to Lisa Stagnoli, Purchasing Agent – Phone 301-279-5284.

Minority vendors are encouraged to respond to this solicitation.

Important: Your proposal will be jeopardized if any portion of this inquiry is not complete. No Proposal will be accepted after the date and time stated above.

Ms. Janet Wormack
Director of Procurement

SEE REVERSE SIDE FOR CONDITIONS AND INSTRUCTIONS

CONDITIONS AND INSTRUCTIONS

- 1. ADDITIONAL ORDERS:** Unless it is specifically stated to the contrary in the bid response, the College reserves the option to place additional orders against a contract awarded as a result of this solicitation at the same terms and conditions, if it is mutually agreeable.
- 2. APPLICABLE LAW:** This contract shall be construed and interpreted according to Maryland law.
- 3. ASSURANCE OF NON-CONVICTION OF BRIBERY:** The bidder hereby declares and affirms that, to its best knowledge, none of its officers, directors or partners and none of its employees directly involved in obtaining contracts has been convicted of bribery, attempted bribery or conspiracy to bribe under the laws of any state or the Federal government.
- 4. AUDIT:** Bidder shall permit audit and fiscal and programmatic monitoring of the work performed under any contract issued from this solicitation. The College shall have access to and the right to examine and/or audit any records, books, documents and papers of bidder and any subcontractor involving transactions related to this Agreement during the term of this Agreement and for a period of three (3) years after final payment under this Agreement.
- 5. AWARD CONSIDERATIONS:** Awards of this bid will be made to the lowest responsible bidder conforming to specifications with consideration being given to quantities involved, time required for delivery, purpose for which required, responsibility of bidder and its ability to perform satisfactorily with consideration to any previous performance for Montgomery Community College. A bid may be awarded at the sole discretion of the College in the best interest of the College. Prompt payment discounts will not be considered in bid evaluation. All discounts other than prompt payment are to be included in bid price.
- 6. BID AND PERFORMANCE SECURITY:** If bid security is required, a bid bond or cashier's check in the amount indicated on the bid cover must accompany each bid and be made payable to Montgomery Community College. Corporate or certified checks are not acceptable. Bonds must be in a form satisfactory to the College and underwritten by a company licensed to issue bonds in the State of Maryland. If bid security fails to accompany the bid, it shall be deemed unresponsive, unless the Director of Procurement deems the failure to be nonsubstantial. Such bid bonds or checks will be returned to all except the three (3) lowest bidders within five (5) days after the opening of bids, and the remaining checks or bid bonds will be returned to all but successful bidder(s) within forty-eight (48) hours after award of contract. If a performance bond is required, the successful bidder must submit an acceptable performance bond in the designated amount of the bid award, prior to award of contract. All bid bonds will be returned to the successful bidder(s) within forty-eight (48) hours after receipt of the performance bond.
- 7. BRAND NAMES:** Brand name materials used in these specifications are known and acceptable. Bids including proposals to use alternate brands are invited as long as they are of equal type and equal or better quality. The burden of proof that alternate brands are in fact equal or better falls on the bidder, and proof must be to the College's satisfaction.
- 8. COMPLIANCE WITH LAWS:** Bidder agrees to comply, at no additional expense, with all applicable Executive orders, Federal, State, bi-county, regional and local laws, ordinances, rules and regulations in effect as of the date of this Agreement and as they may be amended from time to time, including but not limited to the equal employment opportunity clause set forth in 41 CFR 60-250.4.
- 9. CONTINGENT FEES:** Bidder hereby declares and affirms that neither it nor any of its representatives has employed or retained any person, partnership, corporation, or other entity, other than a bona fide employee or agent working for the bidder, to solicit or secure a contract, and that it has not paid or agreed to pay any person, partnership, corporation, or other entity, other than a bona fide employee or agent, any fee or any other consideration contingent on the making of a contract as a result of this solicitation.
- 10. DELIVERY AND PACKING:** All prices quoted must include delivery. All goods delivered under this contract shall be packed in accordance with accepted trade practices. No charges may be made over and above the bid price for packaging, or for deposits or containers unless specified in the bid. No charge will be allowed for cartage unless by prior written agreement. Complete deliveries must be made by the successful bidder to the designated location as indicated on the Montgomery Community College purchase order. A packing slip shall be included in each shipment. All deliveries must be prepaid and must be delivered to each location designated on purchase order at no additional cost. DELIVERIES MUST BE MADE TO THE SPECIFIED LOCATION. NO COLLECT SHIPMENTS OR SIDEWALK DELIVERIES WILL BE ACCEPTED.
- 11. DELIVERY OF BIDS:** Sealed bids must be received in the Procurement Office by the date and time specified in the bid in order to be considered. NO LATE BIDS OR PROPOSALS WILL BE ACCEPTED. Late bids will be returned to the bidder unopened. Bids submitted by mail must be addressed to the Procurement Office, Montgomery College, P.O. Box 1006, Rockville, Maryland 20850, and clearly marked to indicate the bid number, title and opening date. Hand delivered bids will be accepted only at the Procurement Office, Montgomery College Central Administrative Center, Room 110, 900 Hungerford Drive, Rockville, Maryland 20850.
- 12. DISPUTES:** Any dispute arising under a contract awarded as a result of this bid which is not disposed of by agreement shall be decided by the President of the College or designee. Pending the final decision of the dispute, contractor shall proceed with the contract performance. Nothing hereunder shall be interpreted to preclude the parties from seeking after completion of the contract any and all remedies provided by law.
- 13. ERRORS IN BIDS:** Bidders are assumed to be informed regarding conditions, requirements, and specifications prior to submitting bids. Failure to do so will be at the bidder's risk. Bids already submitted may be withdrawn without penalty prior to bid opening. Errors discovered after bid opening may not be corrected. In the case of an error in price extension, the unit price will govern. The intention of the bidder must be evident on the face of the bid.
- 14. HAZARDOUS AND TOXIC SUBSTANCES:** Bidder must comply with all applicable Federal, State, County and bi-county laws, ordinances and regulations relating to hazardous and toxic substances, including such laws, ordinances and regulations pertaining to access to information about hazardous and toxic substances, and as amended from time to time. Bidder shall provide the College with a "Material Safety Data Sheet" or in the case of a controlled hazardous waste substance, a hazardous waste manifest for all hazardous chemicals listed or subsequently added to the Chemical Information List in compliance with applicable laws, ordinances and regulations.
- 15. INSPECTION OF PREMISES:** If a site visit is recommended or required, each bidder is responsible to visit the site(s) prior to submitting a bid in order to observe the existing conditions affecting the work, and to obtain precise dimensions of the area(s) involved. No allowance will be made to the successful bidder, at a later date, for additional work required because of his or her failure to visit the site and/or to obtain the exact dimensions. Discrepancies, if any, must be reported to the College.
- 16. INSURANCE:** If a contract results from this bid, the contractor shall maintain such insurance as will indemnify and hold harmless the College from Workmen's Compensation and Public Liability claims for property damage and personal injury, including death, which may arise from the contractor's operations under this contract, or by anyone directly or indirectly employed by him/her.
- 17. MARYLAND PUBLIC INFORMATION ACT:** Bidder recognizes that the College is subject to the Maryland Public Information Act, Title 10 of the State Government Article of the Annotated Code of Maryland. Bidder agrees that it will provide any justification as to why any material, in whole or in part, is deemed to be confidential, proprietary information or trade secrets and provide any justification of why such materials should not be disclosed pursuant to the Maryland Public Information Act.
- 18. NON-ASSIGNMENT AND SUBCONTRACTING:** Bidder shall not assign any contract or any rights or obligations hereunder without obtaining prior written consent of the College. No contract shall be made by bidder with any other party for furnishing the services to be performed under a contract issued from this solicitation without the written approval of the College. These provisions will not be taken as requiring the approval of the contract of employment between bidder and its personnel.
- 19. NON-COLLUSION:** Bidder certifies that it has neither agreed, conspired, connived, or colluded to produce a deceptive show of competition in the compilation of the bid or offer being submitted herewith; bidder also certifies that it has not in any manner, directly or indirectly, entered into any agreement, participated in any collusion to fix the bid price or price proposal of the bidder or offeror herein or any competitor, or otherwise taken any action in restraint of free competitive bidding in connection with the contract for which the within bid or offer is submitted.
- 20. NON-DISCRIMINATION:** Bidder assures the College that, in accordance with applicable law, it does not, and agrees that it will not discriminate in any manner on the basis of sex, race, age, color, creed, national origin, religious belief, handicap, marital status, or status as a disabled veteran or veteran of the Vietnam era. Bidder further agrees to post in conspicuous places notices setting forth the provisions of the nondiscrimination clause and to take affirmative action to implement the provisions of this section. Bidder further assures the College that, in accordance with the Immigration Reform and Control Act of 1986, it does not and will not discriminate against an individual with respect to hiring, or recruitment or referral for a fee, of the individual for employment or the discharging of the individual from employment because of such individual's national origin or in the case of a citizen or intending citizen, because of such individual's citizenship status.
- 21. PATENTS:** Bidder guarantees that the sale and/or use of the goods offered will not infringe upon any U.S. or foreign patent. Bidder will at his/her own expense, indemnify, protect and save harmless the College, its trustees, employees, agents and students with respect to any claim, action, cost or judgment for patent infringement, arising out of the purchase or use of these goods.
- 22. PREPARATION OF BID:** Bids submitted must be hand signed by an authorized agent of the company submitting the bid. Notification of award will be made by "Notice of Intent to Award" and/or purchase order. A bidder may attach a letter of explanation to the bid for clarification. Bidders will be required, if requested by Montgomery Community College, to furnish satisfactory evidence that they are, in fact, bona fide manufacturers of or dealers in the items listed, and have a regularly established place of business. The College reserves the right to inspect any bidder's place of business prior to award of contract to determine bidder responsibility.
- 23. PRODUCT TESTING DURING TERM OF CONTRACT:** Goods delivered under any contract resulting from this Request for Bid may be tested for compliance with specifications stipulated herein. Any shipment failing to meet or comply fully with the specification requirements will be rejected. The cost of testing a representative sample of an order or shipment for acceptance shall be borne by the College unless the order is rejected for failure to meet specifications or purchase description. In such cases of rejection, the cost of testing will be charged back to the vendor.
- 24. RECORD RETENTION:** If awarded a contract, vendor shall maintain books and records relating to the subject matter of this Agreement, including but not limited to all charges to the College, for a period of three (3) years from the date of final payment under this Agreement.
- 25. REJECTIONS AND CANCELLATIONS:** Montgomery Community College reserves the right to accept or reject any or all bids in whole or in part for any reason. The College reserves the right to waive any informalities and to make awards in the best interest of the College. The College also reserves the right to reject the bid of any bidder who has previously failed to perform adequately on a prior award for furnishing goods and/or services similar in nature to those requested in this bid. The College may cancel this solicitation in whole or in part, in its sole discretion.
- 26. RIDER PROVISION FOR MONTGOMERY COUNTY PUBLIC SCHOOLS AND MONTGOMERY COUNTY:** The bidder agrees when submitting the bid that it will make available to every office and department of the Montgomery County Public Schools and the Montgomery County Government the same bid prices, terms and conditions offered during the term of contract. Orders will be placed directly by these agencies. There will be no penalty if bidder notes exception to this provision in the bid offered.
- 27. SAMPLES AND CATALOG CUTS:** If samples are required, bidder shall be responsible for delivery of samples to location indicated. All sample packages shall be marked "Sample for Procurement Office, Bid No. ____" and each sample shall be tagged or marked. Failure of the bidder to clearly identify samples as indicated may result in rejection of bid. The College reserves the right to test any materials, equipment or supplies delivered to determine if the specifications have been met. Samples will not be returned.
- 28. SIGNATURE:** Each bid must show the full business address and telephone number of the bidder and be signed by the person or persons legally authorized to sign such contracts. All correspondence concerning the bid and contract, including the bid summary, copy of contract, and purchase order, will be mailed or delivered to the address shown on the bid. NO BID WILL BE ACCEPTED WITHOUT ORIGINAL SIGNATURE.
- 29. TAXES:** The College is exempt from Federal and Maryland taxes. Exemption Certificates are available upon request. Bidder shall be responsible for the payment of any and all applicable taxes resulting from any award and/or any activities hereunder, including but not limited to any applicable amusement and/or sales taxes.
- 30. TERMINATION BASED ON LACK OF FUNDING:** Any contract awarded as a result of this solicitation will be subject to funding and continued appropriation of sufficient funds for the contract. For purposes of this solicitation, the College's appropriating authority is deemed to be the Board of Trustees of Montgomery Community College. Insufficient funds shall be grounds for immediate termination of this solicitation.
- 31. TERMINATION FOR DEFAULT:** If an award results from this bid, and the contractor has not performed or has unsatisfactorily performed the contract, payment shall be withheld at the discretion of the College. Failure on the part of the contractor to fulfill contractual obligations shall be considered just cause for termination of the contract and the contractor is not entitled to recover any costs incurred by the contractor up to the date of termination.
- 32. TERMINATION FOR THE CONVENIENCE OF THE COLLEGE:** The performance of the work or services under a contract as a result of this solicitation may be terminated in whole or in part, whenever the President of Montgomery Community College shall deem that termination is in the best interest of the College. Such determination shall be in the sole discretion of the President. In such event, the College shall be liable only for payment in accordance with the payment provisions of the contract for work or services performed or furnished prior to the effective date of termination. Termination hereunder shall become effective by delivery to contractor of written notice of termination upon which date the termination shall become effective.
- 33. WARRANTY:** Bidder expressly warrants that all articles, material and work offered shall conform to each and every specification, drawing, sample or other description which is furnished to or adopted by the College and that they will be fit and sufficient for the purpose intended, merchantable, of good material and workmanship, and free from defect. Such warranty shall survive a contract and shall not be deemed waived either by the College's acceptance of said materials or goods, in whole or in part, or by payment for them, in whole or in part. The bidder further warrants all articles, material and work performed for a period of one year, unless otherwise stated, from date of acceptance of the items delivered and installed, or work completed. All repairs, replacements or adjustments during the warranty period shall be at bidder's sole expense.

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Rockville Campus, Part 2 - Facilities Construction Program, dated May 1, 2004.

1.0 INSTRUCTIONS TO OFFERERS

1.1 Pre-Proposal Conference

A Non-Mandatory Pre-Proposal Conference will be held on February 9, 2006, at 2:00 p.m., on the Rockville Campus of the College in the Science East Building, Room 119, Rockville, Maryland 20850.

1.2 Examination of Existing Conditions

Offerers are advised to examine and investigate existing site conditions prior to submitting a proposal. Each campus is an open-access facility and Offerers are free to tour each site during regular business hours. No formal tours will be organized or scheduled by the College as part of this Request for Proposals. Offerers are requested to contact the individual noted below with their planned site visit schedule as a matter of courtesy. Instructional and administrative activities may not be disrupted by Offerers during site visits. For questions about campus facilities, contact:

Ms. Sandra Filippi
Campus Planner
Office of Facilities
Montgomery Community College
Telephone: (301) 251-7362

1.3 Request for Proposals Documents

The Request for Proposals document includes the Notice to Offerers, this document and its appendices, and all addenda.

Offerers may obtain an electronic PDF file of the complete Request for Proposals document by downloading the file from www.montgomerycollege.edu/departments/procure/ or a printed copy may be obtained from the Office of Facilities, Central Administration, 900 Hungerford Drive, Suite 315, Rockville, Maryland 20850 (Phone: 301-251-7363) on or after January 31, 2006, at a cost of \$25 per copy.

1.4 Interpretation or Correction of Request for Proposals Documents

The Request for Proposals document should be examined carefully. Should any Offerers find discrepancies or omissions in these proposal document, or be in doubt as to the meaning of any item(s), requests for clarification should be directed to:

Procurement	Lisa Stagnoli, Purchasing Agent (301)279-5284 (301)251-6397 FAX
Technical	Sandra Filippi, Campus Planner (301)251-7362 (301)251-7379 FAX

No interpretation of the meaning of Request for Proposals document will be made to any

Offerer orally as oral instruments do not form a part of the Request for Proposals document.

The College will review the written questions and requests for clarification, if any, and any and all such interpretations and any supplemental instructions will be in the form of written Addenda to the Request for Proposals document which, if issued, will be distributed to all Offerers who are known by the College to have received a complete set of Request for Proposals document. All Addenda shall become part of the Request for Proposals document. If conflicts, discrepancies, ambiguities, or omissions in, or between, the Request for Proposals document, site conditions, etc., are not brought to the attention of the College before the closing time of proposal, the interpretation and intent of the Request for Proposals document shall be as determined by the College in its sole discretion. In such an instance, the decision of the College shall be binding and no claims for extra costs will be entertained.

Failure of any Offerer to receive any such Addenda or interpretation shall not relieve such Offerer from any obligation under his/her bid as submitted.

Requests for clarifications by bidders must be submitted in writing not less than five (5) calendar days prior to the proposal due date.

1.5 Submission of Proposals

The submission shall consist of a **Technical Proposal** submitted in a sealed envelope containing the required information. The Offerer shall submit one (1) signed original proposal and five (5) copies of the proposal. Each copy of the proposal should be bound in a single volume if possible.

The submission shall be delivered to the College on or before 3:00 PM local time on February 22, 2006, addressed to:

Ms. Janet Wormack
Director of Procurement
Montgomery College
900 Hungerford Drive, Suite 110
Rockville, Maryland 20850

The **Technical Proposal** shall include on the outside of the envelope the Offerer's name, address, project title, and the Request for Proposals number for which the proposal is submitted, as well as date and time that the bid is required in the College's Procurement Office. Any bid received after the time and date specified, or at a different location than specified, will not be opened or given any consideration. No Offerer may withdraw or modify the proposal for one hundred twenty (120) days after the bid closing.

1.6 Preparation of Proposal

The Technical Proposal must include all requested materials. Failure to include all the documents may render the proposal non-responsive and the offer may be rejected.

The Technical Proposal shall include on the Offerer's letterhead a list of items (or contents) included in the package as stipulated in the Request for Proposals document. The material shall be organized to assist in the evaluation to determine responsiveness, division of

responsibilities and conformance to the proposal requirements. It is mandatory that the qualification questionnaire be submitted as part of the Technical Proposal.

Proposal shall be signed in longhand below the typed name of the person authorized to bind the Offerer to the contract.

When Offerer is a corporation, proposal must be signed with the legal name of the corporation followed by the name of the State of incorporation and the legal signature of a person authorized to bind the corporation to a contract.

1.7 Examination of Site and Request for Proposals documents

The submission of the proposal shall serve as verification that, at the time of receipt of the proposal, the Offerer has inspected the site and has read and is thoroughly familiar with the Request for Proposals document (including all addenda); has examined and finds the document adequate; and agrees that what the document requires, in any part of the work, the required result can be produced. Failure or omission of an Offerer to inspect the site or to examine any form, instrument or document shall in no way relieve an Offerer from obligation in respect to his/her Proposal.

Data in the Request for Proposals document pertaining to existing conditions is for convenience only and does not supplant obtaining first-hand information at the site. Submission of a Proposal shall constitute acceptance by the Offerer of existing site conditions as a part of the requirements for this work.

1.8 Laws and Regulations

All applicable Federal laws, State laws, County, bi-County, local, and municipal ordinances, by-laws, and the orders, rules and regulations of all authorities having jurisdiction over this scope of services shall apply to the Contract throughout, and they will be deemed to be included in the Contract the same as though written out in full.

1.9 Award or Rejection of Proposal

The College may invite one or more responding Offerers to attend an interview with the College's Proposal Evaluation Committee. Interviews, if sought by the College, are anticipated to be scheduled in March 2006. The College will negotiate the fees for the Scope of Services with the Offerer rated highest on the evaluation criteria by the College's Proposal Evaluation Committee. If the proposed fees do not exceed the fund limit for the project and it is in the best interest of the College to accept the offer, a contract may be awarded to the successful Offerer. Should the fee negotiation fail to reach agreement acceptable to both parties, the College may enter into fee negotiations with the next highest ranked Offerer.

The College reserves the following rights to be exercised at the College's sole discretion:

- a. To make such investigation as deemed necessary to determine the qualifications of the Offerer and to determine the ability of the Offerer to perform the desired scope of services. The Offerer shall furnish to the College all such information and data as the College may request. The College reserves the right to reject any offer if the evidence submitted by, or investigation of, such Offerer fails to satisfy the College that such Offerer is

properly qualified to carry out the obligations of the contract and to complete the scope of services contemplated herein. The College reserves the rights to restrict requesting proposals to such Offerers who the College determines are qualified by experience and finances to successfully perform the scope of services. Conditional bids will not be accepted.

b. To reject any or all proposals and to make awards in the best interest of the College, in the name of the Board of Trustees. The College also reserves the right to cancel the Request for Proposals in and of itself.

c. To accept or reject any item of proposal.

d. To consider informal, any proposal not prepared or submitted in accordance with the provisions hereof. The College, at its sole discretion, may waive any informality. A waiver of any provision of the Request for Proposals document shall not constitute a waiver of any subsequent breach.

e. To defer award of the contract for a period of up to two hundred and forty (240) calendar days after opening of bids. If no award or other disposition is made, the expiration of the two hundred and forty (240) calendar days will constitute rejection of all offers without any further action by the College.

1.10 Evaluation Criteria

The Technical Proposal, including the interview of invited short-listed Offerer's, will be valued at 100% of the total score.

The maximum point value to be awarded for a Offerer's Technical Proposal is provided below:

30 points - Professional qualifications and technical competence of the firm, subcontractors, and staff proposed for the performance of the required services.

20 points - Previous experience working with higher education institutions and demonstrated ability to work with faculty, administrators, and staff in the performance of the required scope of services.

20 points - Development of project approach and timeline.

20 points - Project references for minimum of five (5) projects of similar scope to the College's project.

10 points - Capability to provide drawings in AutoCAD DWG format (Release 2000 or more recent) and adhere to AIA Layer Guideline 2nd Edition in producing CAD drawing files.

1.11 Delivery

The successful Offerer shall deliver all of the required submittals within ten (10) days of executing a contract and commence work according to the approved project schedule unless otherwise ordered in writing by the College.

1.12 Minority Participation

Pursuant to Board Resolutions #87-83, adopted on July 20, 1987, it is the policy of Montgomery College to encourage minority businesses to provide goods and services for the performance of College functions. Minority businesses include non-profit entities organized to promote the interests of handicapped persons, and firms that are 51% owned and controlled by a member of socially or economically disadvantaged minority group, which includes: blacks, Hispanics, American Indians, Alaska natives, Asians, Pacific islanders, women, and the mentally or physically disabled.

The Offerer is encouraged to demonstrate that at a minimum 15% of the subcontractors and/or vendors anticipated to be retained by the Offerer for the College's project are minority firms.

1.13 Form of Contract

The Agreement between the College and the Architect/Engineer shall be executed by the College on the Form of Contract included selected this Request for Proposals. Any exceptions to the Form of Contract must be included with the Offerer's Technical Proposal Form to be considered by the College. An exception to the Form of Contract by the Offerer is considered by the College to be a request for information. The College makes no implicit or explicit statement as to any willingness to deviate from the Form of Contract included within this Request for Proposals. Unless explicitly stated by the Offerer in that an exception to the Form of Contract is a condition of the Proposal, the College does not consider exceptions to the Form of Contract provided by the Offerer to be the submission of a conditional Proposal.

1.14 Professional Services Fee

The fee for services shall be negotiated on a firm lump sum basis considering the required scope of services, the staff-hours required for each level/discipline and the labor rates agreed upon during the initial negotiations. Reimbursable expenses include printing, reproduction, delivery services, long distance telephone and facsimile charges, mileage, and similar items required to accomplish the tasks covered in the scope of work shall be paid at cost. Reimbursement for reasonable meals and lodging for out-of-town consultants may be negotiated, however, generally meals for local staff shall not be considered for reimbursement.

2.0 TECHNICAL PROPOSAL FORM

**ARCHITECTURAL AND ENGINEERING SERVICES
FOR
NEW SCIENCE CENTER AND BUILDING RENOVATIONS
ROCKVILLE CAMPUS**

To: Montgomery College

Re: Architectural and Engineering Services for New Science Center and Building Renovations on the Rockville Campus

Attn.: Office of Procurement
Montgomery College
900 Hungerford Drive, Suite 110
Rockville, Maryland 20850-1740

From: _____

(Name of Offerer)

(Address of Offerer)

(Telephone Number)

The above named Offerer is a _____ (type of business organization), organized and existing under the laws of the State of _____, doing business as:

(Insert name of partnership, corporation, joint venture or individual as applicable)

The undersigned hereby proposes to provide and pay for all labor, material, tools, equipment, utilities, transportation facilities (temporary or otherwise) and or other services necessary for the provision of Professional Services in strict accordance with the Request for Proposals document, and all addenda issued to complete the work.

The undersigned certifies that it has examined and is fully familiar with all of the provisions of the Request for Proposals document and any addenda thereto; that it has carefully checked all of the words, drawings and other graphics shown in this proposal and attachments hereto; and by examination of the actual site conditions, satisfied itself as to the nature and location of the work, the general and local requirements, and all other matters which can in any way affect the work or the cost thereof.

The undersigned includes the following submissions as part of the Technical Proposal:

- Qualification Questionnaire**
- Project Reference Material that responds to the evaluation criteria**
- GSA Standard Form 330 for each firm that is a part of this submission**

The undersigned acknowledges the right of the College at its sole discretion to accept any Proposal, in part of whole, or to reject any or all Proposals.

Respectfully submitted:

(Seal if proposal is by Corporation) By:

_____ (Signature)

(Print Name)

(Title)

(Business Address)

3.0 QUALIFICATION QUESTIONNAIRE

The College reserves all rights as to the evaluation of any and all responses to the Qualification Questionnaire submitted by each Offerer and to the College's determination of the Offerer's qualifications for the performance of the desired scope of services.

3.1 The College will review all submittals with points awarded up to the maximum amount indicated below for the selection criteria.

30 points - Professional qualifications and technical competence of the firm, subcontractors, and staff proposed for the performance of required services.

20 points - Previous experience working with higher education institutions and demonstrated ability to work with faculty, administrators, and staff in the performance of the required scope of services.

20 points - Development of project approach and timeline.

20 points - Project references for minimum of five (5) projects of similar scope to the College's project.

10 points - Capability to provide drawings in AutoCAD DWG format (Release 2000 or more recent) and adhere to AIA Layer Guideline 2nd Edition in producing CAD drawing files.

3.2 The Offerer shall provide the following information:

3.2.1 Name, address and telephone number of the Consultant's firm and any and all subcontracting firm(s) which will be part of the Offerer's team.

3.2.2 For the Offerer's firm, answer the following:

Indicate type of business organization:

- _____ Corporation
- _____ Partnership
- _____ Individual
- _____ Joint Venture
- _____ Other

3.2.3 How many years has the firm been in business? _____

Has the firm ever operated under any other name?

Yes _____ No _____

If yes, list name(s), address(es), and years in existence:

3.2.4 If the firm is a corporation, answer the following:

Date of incorporation: _____

State of incorporation: _____

President's name: _____

Vice President's name: _____

3.2.5 If individual or partnership, answer the following:

Date of organization: _____

Names and addresses of all partners (state whether general or limited partnership):

3.2.6 If other than corporation or partnership, describe organization and name principals:

3.2.7 Has the firm ever failed to complete any work that had been awarded to it? If so, state when, where and why:

3.2.8 Has any officer or partner of the firm ever been an officer or partner of another organization that failed? If so, state circumstances:

3.2.9 Provide three (3) business references (contact name, firm name, address and telephone number) (supply vendor, property manager, etc.):

3.2.10 Provide a bank reference (contact name, firm name, address and telephone number):

3.2.11 For the Offerer's firm, including each major subcontractor, answer all of the following (attach additional sheets as necessary):

- 3.2.11.1 List the professional qualifications of the firm and staff proposed for the performance of required services (attach resumes):
- 3.2.11.2 List recent specialized experience in relevant areas and technical competence of personnel proposed by the Offerer who will be assigned to the College's project.
- 3.2.11.3 What is the capacity of the firm to accomplish the specified work in the required time?
- 3.2.11.4 List quality control procedures to be used for this project to assure technically accurate reports, plans, specifications, and cost estimates.
- 3.2.11.5 Describe the firm's CAD capability. Is the firm capable of providing drawings in AutoCAD DWG format (Release 2000 or more recent) and adhering to AIA Layer Guideline 2nd Edition in producing CAD drawing files.

3.3 Project References:

Offerers shall list a minimum of five (5) projects of similar scope to the College's project. At least one of the listed projects shall be within the Washington Metropolitan area. Offerers shall identify the name of the owner of the project, a knowledgeable point of contact, telephone number, contract value of the Offerer's scope of work, and completion date, as well as the name of the Offerer's lead project manager and/or architect/engineer for the referenced project. The Offerer may provide additional information that responds to the evaluation criteria and demonstrates the Offerer's experience in successfully completing a project similar to the College's undertaking. Use additional sheets if necessary:

Name and Address of Project	Contact Person	Telephone	Contract Value
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

3.4 Proposals must include a GSA Standard Form 330 for each firm that is part of the submission.

I hereby certify that the above information is true and correct, to the best of my knowledge and belief.

Firm Name

Signed

Date

Type or Print Name

Title

4.0 MINORITY PARTICIPATION FORM

MONTGOMERY COLLEGE
ARCHITECTURAL AND ENGINEERING SERVICES
FOR
NEW SCIENCE CENTER AND BUILDING RENOVATIONS
ROCKVILLE CAMPUS
REQUEST FOR PROPOSALS NO. 606-004

OFFERER'S SHALL COMPLETE THE FOLLOWING:

I HEREBY REPRESENT THAT OUR/MY FIRM IS _____
IS NOT _____

A MINORITY BUSINESS FIRM AS INDICATED BELOW (circle one):

African-American _____ Hispanic _____ Asian/Pacific Islander _____
American Indian/Alaska Native _____ Disabled _____ Female _____

I hereby certify that the above information is true and correct, to the best of my knowledge and belief.

Firm Name

Signed Date

Type or Print Name

Title

5.0 SCOPE OF SERVICES

5.1 Purpose

The purpose of the Request for Proposals is to retain a professionally qualified firm to provide architectural and engineering services for the New Science Center and Building Renovations on the Rockville Campus of the College. These services are to be provided in accordance with all of the terms and conditions contained in the Request for Proposals. The award of contract for these services will be determined by the College in accordance with the evaluation criteria contained in the Request for Proposals.

5.2 Facilities Construction Program

5.2.1 Building Description

The Science Center project is a new science laboratory building to house the biology, chemistry, and physics programs. The building program for the uses and functions to be housed in the New Science Center are defined in the New Science Center at Montgomery College, Rockville Campus - Part 2 Facilities Construction Program, dated May 1, 2004, including detailed space requirements, as included in Appendix 8.2 of this Request for Proposals.

5.2.2 Relationship to the Science East and Science West Building Renovation

The new Science Center project together with the renovated Science East and Science West Buildings, briefly described in Section 5.3, will form a Science and Mathematics Complex. The new Science Center will support the science disciplines currently housed in Science East and Science West. The latter buildings will be reconfigured and reconstructed to support the Mathematics Department (classrooms, labs, offices) and the Math-Science Learning Center. Inter-building connection(s) will facilitate faculty and student movement within the complex and solve longstanding vertical access issues for the disabled in Science East and Science West. The connection(s) will provide visual cues to assist inter- and intra-building wayfinding. Consequently, the new Science Center project will be undertaken so that it can be coordinated with the future renovations of the Science East and Science West buildings. It is the College's intention to ensure a coordinated effort in designing the new Science Center and the renovation of both buildings so that each project represents the best combined out-come in the use of space and the on-going development of the Rockville Campus. The new Science Center project will include a program confirmation phase to allow for this coordination effort.

5.2.3 Specifications, Criteria and Standards

Detailed specifications for the provision of architectural and engineering services are provided in the New Science Center at Montgomery College, Rockville Campus Part 2 Facilities Construction Program and include criteria for site development and building design that are to be applied to the project. In addition, this document also includes requirements for energy management, building commissioning, and maintenance management.

The College is currently preparing design standards for a broad range of Construction Specifications Institute (CSI) divisions. It is the College's intent to implement these design standards on this project. The design standards reflect the information provided in the Part 2 Facilities Construction Program.

5.2.4 Anticipated Project Schedule

The anticipated project schedule for undertaking the New Science Center and Building Renovations is as follows:

College Board of Trustees A/E Contract Award	5/06
Maryland Board of Public Works Award	6/06
Notice to Proceed	7/06
Schematic Design Documents Submission to the State	11/06
Design Development Documents Submission to the State	2/07
Construction Documents Submission to the State	6/07
Building Permitting Process Complete	6/07
Construction Bidding	7/07
Construction Contract Award	10/07
Construction Start	10/07
Construction Completion	10/09
Building Opens for Classes	9/09

5.2.5 Schedule Milestones

It is the College's intention to award this contract(s) at the March 2006 meeting of the College's Board of Trustees. A notice to proceed will be issued as soon thereafter as practical. All services included in the base contract shall be completed within twelve (12) months of notice to proceed notification, unless otherwise approved by the College.

5.3 Science East and Science West Building Renovations

5.3.1 Future Project

It is the College's intention to negotiate a separate future contract with the same architect selected for the new Science Center to provide architectural and engineering services for the renovation of the existing Science East Building and Science West Building on the Rockville Campus if funding becomes available and it is in the best interest of the College to do so. The renovations of each of these two buildings will be undertaken in accordance with future building program documentation to be prepared by the College, and provided to the selected architect.

5.3.2 Relationship to the New Science Center

The new Science Center project will be undertaken so that it can be coordinated with the future renovations of the Science East and Science West buildings. It is the College's intention to ensure a coordinated effort in designing the new Science Center and the renovation of both buildings so that each project represents the best combined out-come in the use of space and the on-going development of the Rockville Campus. The new Science Center project will include a program confirmation phase to allow for this coordination effort.

6.0 FORM OF CONTRACT

AGREEMENT
BETWEEN
MONTGOMERY COMMUNITY COLLEGE
AND

Board of Trustees
Montgomery Community College
Rockville, Maryland 20850

Contract No.

Account No.

Project: A/E Services – New Science Center and Building Renovations

This AGREEMENT made this _____ day of _____, 2006, by and between the Board of Trustees of MONTGOMERY COMMUNITY COLLEGE, a public institution of higher education, hereinafter called the "College", and _____, a professional corporation, registered in the State of _____, located at _____, _____, hereinafter called the "Architect".

WITNESSETH, that the College and the Architect for the consideration named agree as follows:

1. QUALIFICATIONS OF THE ARCHITECT

The Architect hereby assures the College that the Architect is qualified, either directly or through its consultant(s), to perform the services provided for in this Agreement in accordance with all applicable laws, orders, rules and regulations. The Architect further assures the College that the Architect is free from any financial interests which may conflict with the proper performance of this Agreement.

2. DEFINITION OF THE PROJECT

The Architect agrees to provide all of the services required by this Agreement in order to provide architectural and engineering services as defined in the "Request for Proposal, Architectural and Engineering Services for New Science Center and Building Renovations, Rockville Campus," dated January 31, 2006. This Agreement provides for architectural and engineering services for the new Science Center on the Rockville Campus. A separate future agreement will be entered into for architectural and engineering services for the renovations of the Science East and

Science West buildings on the Rockville Campus if separate future funds become available and it is in the best interest of the College to do so.

3. SCOPE OF SERVICES TO BE PROVIDED BY THE ARCHITECT

3.1. Scope of Services

The Scope of Services are included in the "Request for Proposals, Architectural and Engineering Services for a Science Center and Building Renovations, Rockville Campus," dated January 31, 2006 (as further amended by _____ and the items accepted by the College as part of the Architect's Price Proposal dated _____; and by this Agreement. Excluded from the Scope of Services are additional services described as such in Article 3, subparagraph 3.2.5 and supplemental services under Article 4. The documents listed in this paragraph define the Contract Documents for this Project.

3.2 Project Requirements

- 3.2.1. The Architect shall execute the scope of services described in this Article in accordance with Contract Documents, except to the extent specifically indicated in the Contract Documents to be the responsibility of others.
- 3.2.2. In undertaking the scope of services, the Architect understands that he will be an integral member of a Project Team consisting of representatives from the College, a third-party Project Manager/Construction Manager, and other consultants as necessary.
- 3.2.3. In undertaking the scope of services, the Architect understands that the Rockville Campus shall remain open and continue in operation throughout the project, and that the project must be accomplished in a manner which minimizes disruption of the College's instructional programs, and administrative and other activities. The College shall provide the Architect reasonable access to the project site and to relevant College personnel and to information for the duration of this Agreement.
- 3.2.4. The Architect shall assist the College by applying for and obtaining required approvals from any Federal, State, local, bi-county or regional agency having jurisdiction, including the mandatory referral requirements of the Maryland-National Capital Park and Planning Commission. The Architect shall prepare any and all required documents and plans in a format acceptable for submission to the appropriate agencies and such documents and plans shall contain information sufficient to obtain approval. "Required Documents and Plans" are defined as Technical Drawings; Specifications; and related sketches, calculations, reports, charts, diagrams, or manufacturer data. Documentation relating to legal, financial, programmatic, educational, or similar matters is not the responsibility of the Architect.
- 3.2.5. The Architect shall be responsible for obtaining, where required and practical in the Architect's opinion, the advice of consultants in fields associated with the scope of services and requirements of this project. Additional consulting services covering specialized project requirements not included within the scope of services required by this Agreement shall be considered as supplemental services and shall be

provided as mutually agreed upon in writing by the College and the Architect prior to the start of any such services. The Architect must obtain the College's consent prior to engaging any additional consultants. Nothing in this Agreement shall be

- 3.2.6. construed to limit the right of the College to otherwise contract with a third party for any additional architectural and consulting services the College may desire.
- 3.2.7. The Architect recognizes that the College has limited project funds. The project budget as of June 1, 2005, inclusive of design and project management/construction management fees, administrative costs, construction inspection and testing allowances, construction costs, hazardous material abatement work, construction contingencies, general conditions, overhead and profit allowances, and furniture and equipment allowances is established at \$59,200,000 for the new Science Center. The College will provide the Architect with the project's construction budget prior to the development of the Architect's fee proposal. The Architect shall be responsible for designing the project within the construction budget. Should the low construction bid exceed the construction budget the Architect, at no additional cost to the College, shall provide the necessary revisions to the bid documents in order that the project may be rebid within the funds available. The College and the Architect shall mutually agree on the timeframe to meet this redesign requirement.
- 3.2.8. The Architect shall include Alternates and Unit Prices in the bid documents as directed by the College. The estimated value of the Alternates shall equal ten percent (10%) of the estimated construction cost.
- 3.2.9. The Architect shall be solely responsible for the technical completeness and sufficiency of all Construction Documents, consisting of drawings and specifications setting forth in detail the requirements for the construction of the Project.
- 3.2.10. The Architect shall be responsible for developing the required documents in accordance with the project schedule prepared by the Construction Manager and approved by the College and the Architect. The scope of services for the design phase of this Agreement is anticipated to be completed within 52 weeks from the issuance of the Notice to Proceed.
- 3.2.11. The Architect's services shall be performed as expeditiously as is consistent with professional skill and care and the orderly progress of the Work. The Architect shall submit for the College's approval a schedule for the performance of the Architect's services which may be adjusted as the Project proceeds, and shall include allowances for period of time required for the College and Construction Manager's review and for approval of submissions by authorities having jurisdiction over the Project. The Architect shall not, except for reasonable cause, exceed time limits established by this schedule approved by the College. The Architect shall complete design documents in the general sequence outlined in the Contract Documents. The Architect shall proceed in a timely manner with the submission of the required deliverables.
- 3.2.12. Wherever in the Agreement the words "ensure", "ensuring", "assure", "obtain", or "obtaining" appear, it is intended to mean that it is the obligation of the Architect to use all reasonable and normal care in executing the professional services required by this Agreement.

4. SUPPLEMENTAL SERVICES TO BE PROVIDED BY THE ARCHITECT

- 4.2. The Architect shall provide the supplemental services specified under this paragraph when requested in writing to do so by the College. The College disclaims all financial responsibility for any supplemental services performed without written authorization from the College. If the request to perform supplemental services is initiated by the Architect, the Architect shall specify in detail the work to be performed, by whom it will be performed, and the itemized costs.
- 4.2.1. Preparation of written material and drawings requested by the College when such written material and drawings are in addition to those required to be provided in Article 3.
- 4.2.2. Services in connection with a presentation of the project plans to the Board of Trustees of the College.
- 4.2.3. Services in connection with promotion, publicity and public relations for the project.
- 4.2.4. Preparation of architectural models, renderings and presentation photographs.
- 4.2.5. Additional specialized consulting services as identified in Article 3 of this Agreement.
- 4.2.6. Services in connection with attendance at meetings with governmental agencies, and College departments and offices when such meetings are in addition to those enumerated in the Contract Documents.
- 4.3. Nothing in this Agreement shall be construed to limit the right of the College to otherwise contract with a third party for the services listed in paragraph 4.1 of this Article.

5. OBLIGATIONS OF THE COLLEGE

- 5.2. To the extent permitted by law, the College will make available to the Architect the relevant information in its files which may pertain to the scope of services required by this Agreement.
- 5.3. The College will arrange as necessary all meetings between the Architect and College academic departments and administrative offices for the review of project plans and specifications.

6. METHOD OF COMPENSATION

- 6.2. For the services described in Article 3, the College shall pay the Architect the firm lump sum of _____ Dollars (\$_____) for the Scope of Services performed strictly in accordance with the requirements of this Agreement.

- 6.3. Invoices submitted for Scope of Services performed under this Agreement shall include the College's project title, contract number, and account number. This amount is a firm lump sum which will be paid in accordance with Articles 7 and 18 of this Agreement.
- 6.4. Reimbursable expenses shall be paid at cost and shall include printing, reproduction, delivery services, long distance telephone and facsimile charges, local mileage, and similar items required to accomplish the tasks covered under Article 3. Reimbursement for reasonable meals and lodging expenses associated with travel for the Architect's out of town personnel may be submitted with prior approval. Meals for local staff will not be considered for reimbursement.
- 6.5. The Architect shall be compensated for those supplemental services which are specified in Article 4, and are performed pursuant to written authorization from the College, as mutually agreed upon in writing by the College and the Architect. Necessary reimbursable expenses as defined under paragraph 6.2 of this Article required to accomplish the tasks covered under Article 4 shall be paid at cost. Supplemental services shall be invoiced separately from services compensated for under paragraph 6.1 of this Article.

7. **PROGRESS PAYMENTS**

Except for the provision of Article 18, payments shall be made to the Architect on a monthly basis based on the estimated percentage of work completed for each phase of the Scope of Services as defined in the Contract Documents. The Architect must submit statements which are prepared in accordance with Article 6 and supported by such data as the College may reasonably require. The College shall have the right to audit the Architect's records to verify the payment request. Payment shall be made within fifteen (15) calendar days after the requisition, properly prepared and authorized by the College representative, is received in the College's Finance Office.

8. **NOTICES**

Any notice to be provided hereunder shall be sent by first class mail and shall be addressed as follows or as may be later designated in writing:

- a) For the College:
- David J Capp
Chief Facilities Officer
Montgomery College
Central Administration
900 Hungerford Drive, Suite 315
Rockville, Maryland 20850

- b) For the Architect:

9. **INTERPRETATION OF CONTRACT**

This Agreement shall be construed and interpreted according to the laws of the State of Maryland, without regard to principles of conflicts of law.

10. **COMPLIANCE WITH LAWS**

The Architect agrees to comply, at no additional expense, with all applicable Executive Orders, Federal, State, county, bi-county, regional and local laws, ordinances, rules and regulations in effect as of the date of this Agreement and as they may be amended from time to time, including but not limited to the equal opportunity clause set forth in 41 CFR 60-250.4, as amended.

11. **INDEPENDENT CONTRACTOR**

The Architect shall perform the Agreement as an independent contractor and shall not be considered as an agent of the College nor shall any employee or agent of the Architect be considered subagents of the College. Nothing in this Agreement shall be construed as constituting a partnership, joint venture, or agency between the College and Architect. No acts performed or representations, whether oral or written, made by or with respect to third parties and the Architect shall be binding on the College.

12. **NONDISCRIMINATION**

12.2. The Architect assures the College that, in accordance with applicable law, it does not, and agrees that it will not discriminate in any manner on the basis of sex, race, age, color, creed, national origin, religious belief, handicap, marital status or status as a disabled veteran or veteran of the Vietnam era. The Architect further agrees to post in conspicuous places notices setting for the provisions of the non-discrimination clause and to take affirmative action to implement the provisions of this article.

12.3. The Architect further assures the College that, in accordance with the Immigration Reform and Control Act of 1986, it does not and will not discriminate against an individual with respect to hiring, or recruitment or referral for a fee, of the individual for employment or the discharging of the individual from employment because of such individual's national origin or in the case of a citizen or intending citizen, because of such individual's citizenship status.

12.4. The College is committed to providing a work environment that is free from discrimination and harassment on the basis of sex, race, age, color, creed, national origin, religious belief, pregnancy, handicap, marital status or status as a disabled veteran or veteran of the Vietnam era. Behavior contrary to this philosophy, which has the purpose or effect of creating an intimidating, hostile, or offensive environment, will not be tolerated by the College, and it is the Architect's responsibility to ensure that such behavior by its employees, agents and subcontractors does not occur. This policy extends to maintaining an environment free from sexual harassment. Therefore, sexual advances or sexual remarks, requests for sexual favors, and other verbal or physical conduct of a sexual nature must not be condoned or permitted by the Architect. This prohibition extends to such

harassment within the employment context as well as harassment of students, staff and visitors of the College. It should be assumed that all sexual behavior by the Architect's employees, agents and subcontractors on any campus or facility of the College is improper and unwelcome.

13. **COMPLIANCE WITH THE IMMIGRATION REFORM AND CONTROL ACT OF 1986**

The Architect warrants that both the Architect and/or any subcontractors of the Architect do not and shall not hire, recruit or refer for a fee, for employment under this Agreement or any subcontract, an alien knowing the alien is an unauthorized alien and hire any individual without complying with the requirements of the Immigration Reform and Control Act of 1986 (hereinafter referred to as "IRCA"), including but not limited to any verification and record keeping requirements. The Architect agrees to indemnify and save the College, its employees and/or trustees harmless from any loss, costs, damages or other expenses suffered or incurred by the College, its employees and/or trustees by reason of the Architect's or any subcontractor of the Architect's non-compliance with "IRCA." The Architect agrees to defend the College, its trustees and/or employees in any proceeding, action or suit brought against the College, including but not limited to administrative and judicial proceedings, arising out of or alleging non-compliance of the Architect with "IRCA." The Architect recognizes that it is the Architect's responsibility to ensure that all certifications and verifications as required by law are obtained and maintained for the applicable time period.

14. **ASSURANCE OF NONCONVICTION OF BRIBERY**

The Architect hereby declares and affirms that, to its best knowledge, none of its officers, directors or partners and none of its employees directly involved in obtaining contracts has been convicted of bribery, attempted bribery or conspiracy to bribe under the laws of any state or the Federal Government.

15. **CONFLICT OF INTEREST**

No employee of the College or of the State of Maryland, or any department, commission, agency or branch thereof whose duties as such employee include matters relating to or affecting the subject matter of this Agreement shall, until such time as the Architect receives final payment, become or be an employee of the party or parties hereby contracting with the College, the State of Maryland, or any department, commission, agency or branch thereof.

16. **ASSIGNMENT AND SUBCONTRACTING**

- 16.2. The Architect shall not sell, transfer, assign or otherwise dispose of this Agreement or any portion thereof, or its right, title or interest therein, or its obligations hereunder, without the written consent of the College. A change in membership of the Architect's firm of one or more officers shall not constitute an assignment.

16.3. The Architect shall not make any contracts for professional services with any other party for furnishing any of the Scope of Services to be performed under this Agreement without the written approval of the College; however, this provision shall not be taken as requiring the approval of the contract of employment between the Architect and its personnel assigned for the purpose of performing this Agreement.

17. **INSURANCE**

17.2. The Architect shall maintain in force at all times during the term of this Agreement, with an insurance carrier licensed to do business in the State of Maryland acceptable to the College, the following minimum insurance coverage:

17.1.1 Worker's Compensation Insurance covering the Architect's employees as required by State of Maryland law with the following minimum limits:

Bodily Injury
by Accident \$250,000 each accident

Bodily Injury
by Disease \$500,000 policy limit

Bodily Injury
by Disease \$250,000 each employee

17.1.2 Commercial General Liability Insurance, excluding automobiles owned or hired by the Architect, with limits as follows:

Bodily Injury and
Property Damage: \$1,000,000 combined single limit of
bodily injury and property damage per
occurrence including the following coverages:
Contractual Liability, Premises and Operations,
Independent Contractors, Products and Completed
Operations.

17.1.3 Automobile Liability Insurance, providing bodily injury and property damage coverage with limits as follows:

\$1,000,000 combined single limit, for bodily
injury and property damage coverage per
occurrence including the following coverage:
Owned Automobiles, Hired Automobiles, Non-Owned
Automobiles and Heavy Equipment Operations liability

17.1.4 Professional Liability covering negligent acts, errors and omissions committed during the period of contractual relationship with the College with a limit of liability as follows:

\$1,000,000 per claim and aggregate and a
maximum deductible of \$50,000, including

the maintenance of this coverage for a minimum of three years discovery period following the date of substantial completion of the construction of the project.

17.3. At the time this Agreement is made, the Architect shall provide the College with evidence of payment in full of the above insurance coverage through the entire term of this Agreement. Any request for extension of time of this Agreement shall also include evidence of payment in full of the above insurance coverage through the entire term of the extension of time for this Agreement.

17.4. These coverages and limits are to be considered minimum requirements under this Agreement and shall in no way limit the liability or obligations of the Architect. The insurance shall provide that policy coverage will not be canceled, altered or materially changed without sixty (60) calendar days prior notice to the College by registered or certified mail. The insurance shall not be limited to claims made only while the policy is in effect.

17.5. The Architect shall submit a certificate of insurance as evidence of the required coverage to:

Montgomery College
Office of the Chief Facilities Officer
Attn: _____
900 Hungerford Drive, Suite 315
Rockville, Maryland 20850

17.6. The certificate of insurance for the insurance coverage listed in Paragraph 17.1.b and 17.1.c of this Article must name the College as an additional insured.

17.7. In the event that the Architect's insurance is terminated, the Architect shall immediately obtain other coverage and any lack of insurance shall be grounds for immediate termination of this Agreement.

17.8. For the purposes of this Article, the word "licensed" shall be deemed to mean an insurance carrier either licensed or approved to do business in the State of Maryland.

18. **INDEMNITY**

18.2. To the fullest extent permitted by law, the Architect shall indemnify, defend and hold harmless the College and its agents, employees, volunteers, students and trustees from and against all claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out or resulting from the Architect's performance or failure to perform any of the obligations required by this Agreement, provided that such claim, damage, loss or expense is attributable to personal injury, bodily injury, sickness, disease or death, or injury to or destruction of tangible property, including loss of use resulting there from, but only to the extent caused in whole or in part by negligent acts or omissions of the Architect, a consultant, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge or

reduce other rights or obligations of indemnity which would otherwise exist as to a party or person described hereunder.

18.3. The College may retain such moneys due or to become due the Architect under this Agreement as it considers necessary until such suits or claims for damages which may be indemnified under Paragraph 18.1 have been settled or otherwise disposed of and satisfactory evidence to that effect has been furnished the College.

18.4. The provisions of this Article shall survive the termination of this Agreement.

19. **CLAIMS AND DISPUTES**

19.2. **Definition of Claim**

19.2.1. A Claim is a demand or assertion by one of the parties seeking, as a matter of right, adjustment or interpretation of Agreement terms, payment of money, time extension or other relief with respect to the terms of the Agreement. The term "claim" also includes other disputes and matters in question between the College and Architect arising out of or relating to the Contract Documents. The responsibility to substantiate claims shall rest with the party making the claim.

19.3. **Claim and Disputes Procedure**

19.3.1. The Architect shall file a written notice of claim relating to the Agreement to the College's representative within fifteen (15) calendar days after the basis of the claim is known or should have been known, whichever is earlier.

19.3.2. Upon receipt of the Architect's claim, the College's representative shall take steps deemed necessary to review and investigate the claim. These steps may include an investigation and review of the facts pertinent to the claim, requesting additional information or substantiation from the Architect or anyone else and taking such other steps as the College's representative may consider being appropriate.

19.3.3. The College's representative shall prepare a written decision which, before it is issued, shall be approved by the Chief Facilities Officer.

19.3.4. Pending resolution of a claim by the College's representative's decision, order, finding, or interpretation, and with exception to matters which arise under Paragraph 18.1, the College shall continue to make payments due to the Architect and the Architect shall proceed diligently with the performance of the Scope of Services. The College's representative's decision shall be final and conclusive unless the Architect files a written appeal to the College President within 15 calendar days of the date of the College's representative's decision. The President in consultation with such other persons as the President deems advisable, shall prepare and deliver a written decision to the Architect within 15 days. The President's response shall be the College's final decision.

19.3.5. If the Architect does not appeal the College's representative's decision to the President within the time required under subparagraph 19.2.4, then the College's representative's decision shall be considered to be final, conclusive and binding upon the Architect and College. There shall be no further right of review either

administratively or in the courts. If the Architect appeals the College's representative's decision to the President, the President's decision shall be considered to be conclusive and final unless within thirty (30) calendar days after the date of the President's decision the Architect commences an action in the Circuit Court for Montgomery County. If no action is commenced within the thirty (30) calendar days after the date of the President's decision, the President's decision shall be considered to be final, conclusive and binding on the Architect and the College and the Architect's right to appeal to the courts shall be waived.

19.3.6. The timely filing of a claim and the receipt of a decision by the Architect from the College's representative and the College's President are condition precedents to filing an action in court. Any action which may be commenced against the College shall be filed in the appropriate state court in Montgomery County, Maryland. The Agreement and disputes arising out of it shall be governed by the laws of the State of Maryland without regard to conflicts of laws provisions.

19.3.7. If a court action is commenced pursuant to subparagraph 19.2.6, all claims, disputes and other matters in question arising out of or related to the Agreement or breach thereof shall be submitted to non-binding mediation. Such mediation shall be in the nature of settlement discussions and privileged. The location of the mediation shall be in Rockville, Maryland, with costs for mediation shared evenly by the parties.

19.3.8. Claims by the College against the Architect may be commenced at any time in any appropriate court without regard to the other provisions of the Contract Documents, including paragraph 19.2. This right is in addition to all other rights which the College may have under the Contract Documents.

20. TERMINATION FOR THE CONVENIENCE OF THE COLLEGE

The performance of the Scope of Services under this Agreement may be terminated, in whole or in part, whenever the President of the College shall deem that termination is in the best interest of the College. In such event, the College shall be liable only for payment in accordance with the payment provisions of this Agreement for the Scope of Services performed or furnished prior to the effective date of termination, plus reasonable costs of termination, if any, which costs shall be specifically approved by the College in writing. The Architect shall not be reimbursed for anticipated but unearned profits and overhead. Termination hereunder shall become effective by delivering to the Architect a written notice of termination upon which date the termination shall become effective.

21. SUSPENSION OF WORK

The College may suspend a part or all of the work of the Architect for the College's convenience. If the Project is suspended by the College for more than sixty (60) days, the Architect shall be compensated for services performed satisfactorily prior to notice of such suspension. When the Project is resumed, the Architect may submit a request for an equitable adjustment to its compensation to reimburse the Architect for direct costs incurred in the interruption and resumption of its services. No request for an equitable adjustment to the Architect's compensation shall be considered unless it is submitted in writing to the College within twenty-one (21) days after the termination of the suspension of work.

22. TERMINATION FOR DEFAULT

The performance of the Scope of Services under this Agreement may be terminated by the College, in whole or in part, from time to time, effective upon receipt of notice, whenever the Architect shall default in the performance of this Agreement and fails to make progress in the prosecution of the Scope of Services or endangers such performance and shall fail to cure such default within a ten (10) calendar days period after receipt of written notification from the College specifying the default. Should the Agreement be terminated by the College for failure to perform on the part of the Architect, no additional compensation shall be paid.

23. TIME IS OF THE ESSENCE

The Architect understands and agrees that time is of the essence in performing the Scope of Services under this Agreement.

24. WORK UNDER CONTRACT

Work may not commence under this Contract until all conditions for commencement are met, including execution of the Contract by both parties, compliance with insurance requirements and issuance of any required notice to proceed.

25. CONTINGENT FEES

The Architect hereby declares and affirms that neither it nor any of its representatives has employed or retained any person, partnership, corporation, or other entity, other than a bona fide employee or agent working for the Architect, to solicit or secure this Agreement, and that it has not paid or agreed to pay any person, partnership, corporation, or other entity, other than a bona fide employee or agent, any fee or any other consideration contingent on the making of this Agreement.

26. OWNERSHIP

- 26.2. The documents and drawings prepared in accordance with this Agreement as instruments of service are and shall remain the property of the College whether the project for which they are made is executed or not. The Architect renounces all rights of ownership and copyright in the documents, whether statutory or at common law. The Architect shall provide the College with reproducible copies of all documents and drawings in accordance with the requirements of this Agreement. Upon request, the Architect shall provide documents and drawings in usable electronic format.
- 26.3. The College agrees that in the event of termination of the Architect, for any reason, the Architect's documents and drawings shall not be used for or as a basis for construction until, and unless, the College has secured a new architect of record to be responsible therefore. If the termination is declared under Article 20 and not under Article 21, the Architect may not be liable for progress drawings and/or interim submission not intended for construction.

27. **CAPTIONS**

The captions and headings contained herein are solely for convenience and reference and do not constitute a part of this Agreement.

28. **ENTIRE AGREEMENT**

This Agreement represents the entire and integrated agreement between the College and the Architect and supersedes all prior negotiations, representations or agreements, either written or oral. This agreement may be amended only by written instrument signed by both the College and the Architect.

29. **AUDIT**

The Architect shall permit audit and fiscal and programmatic monitoring of the Work performed under this Agreement. The College shall have access to and the right to examine and/or audit any records, books, documents and papers of the Architect and any consultant involving transactions related to this Agreement during the term of this Agreement and for a period of three (3) years after final payment under this Agreement.

30. **REGISTRATION FOR CORPORATIONS NOT INCORPORATED IN THE STATE OF MARYLAND**

Pursuant to 7-201 et seq of the Corporation and Associations Article of the Annotated Code of Maryland, corporations not incorporated in the State of Maryland shall be registered with the State of Maryland Department of Assessments and Taxation, 301 West Preston Street, Baltimore, Maryland 21201, before doing any interstate or foreign business in this State. By signing this agreement, the Architect certifies that it has qualified with the State of Maryland Department of Assessments and Taxation.

31. **SEVERABILITY**

If any provision of this Agreement shall be held illegal, unenforceable, or in conflict with any law governing this Agreement, the validity of the remaining portions shall not be affected thereby.

IN WITNESS WHERETO, the Architect and the College have hereunto set their hands the day and year first above written.

Montgomery College

Witness

By: _____

Charlene R. Nunley, Ph.D.

President

[Project Architect]

Witness

By: _____

Fed. Tax I.D. No.: _____

This Contract is executed by the Montgomery Community College Board of Trustees pursuant to Board Resolution # _____, dated _____ 2006.

Certify that this Contract has been prepared in accordance with College Policy and Procedures, and certify as Account Manager for this account.

David J. Capp
Chief Facilities Officer

Certify that funds are available for this Contract.

Contract No.
Account No.
Amount:

Marshall Moore
Chief Business Officer

7.0 Non-Responding Bidder Form

MONTGOMERY COLLEGE
Office of Procurement

RFP: **606-004**

RFP Title: Architectural and Engineering Services for New Science Center and Building Renovations on the Rockville Campus.

Please be advised that our company does not wish to submit a bid in response to the above-captioned Request for Proposals for the following reasons:

- Too busy at this time
- Not engaged in this type of work
- Project too large/small
- Cannot meet mandatory specifications (Please specify below)
- Other (Please specify)

SIGNATURE

PRINTED NAME

TITLE

DATE

COMPANY

ADDRESS

Please return to:

Montgomery College
Office of Procurement
900 Hungerford Drive, Suite 110
Rockville, Maryland 20850-1740

8.0 **APPENDICES**

8.1 Campus Map

8.2 New Science Center and Building Renovations at Montgomery College,
Rockville Campus – Part 2 Facilities Construction Program, dated May 1, 2004.

ROCKVILLE CAMPUS AND WORKFORCE DEVELOPMENT & CONTINUING EDUCATION

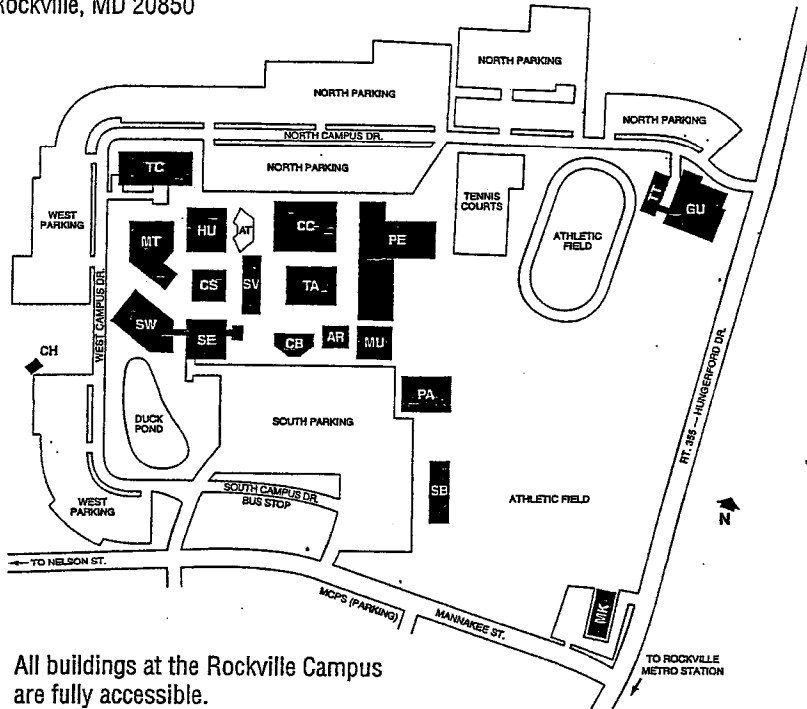
**Montgomery College
Rockville Campus**
51 Mannakee Street
Rockville, MD 20850

Rockville Campus
301-279-5000
TTY/TDD 301-294-9672

Continuing Education
301-279-5188

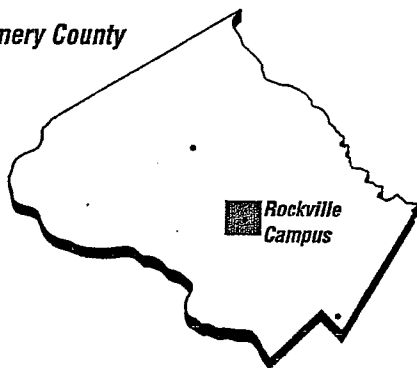
Rockville Campus Legend of Buildings

- AR Art
- AT Amphitheatre
- CB Counseling and Advising Building (Security Office)
- CC Campus Center (Workforce Development & Continuing Education)
- CH Child Care Center
- CS Computer Science
- GU Homer S. Gudelsky Institute for Technical Education
- HU Humanities
- IT Office of Information Technology
- MK Mannakee Building (Central Administration)
- MT Macklin Tower
- MU Music
- PA Robert E. Parilla Performing Arts Center
- PE Physical Education Center
- SB South Campus Instruction Building
- SE Science Building East
- SV Student Services (Admissions, Records, and Registration)
- SW Science West
- TA Theatre Arts
- TC Technical Center
- TT Interim Technical Training Center



All buildings at the Rockville Campus are fully accessible.

Montgomery County



The Rockville Campus is located in central Montgomery County, just west of Route 355.

Directions to Rockville Campus

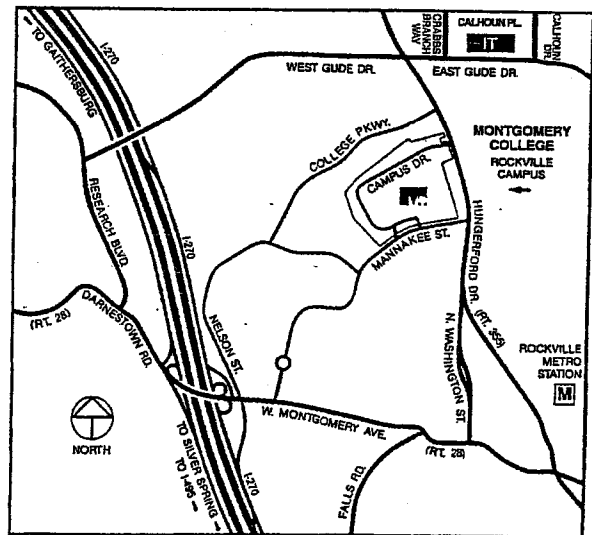
By Car—From the north: Take I-270 South to Exit 6 (Route 28), W. Montgomery Ave./Rockville. Then take Exit 6A (Route 28) East. Turn left at first traffic light onto Nelson Street. Go to first traffic light at Mannakee Street; turn left. The campus is 1½ blocks on the left.

From the south: Take I-495 to I-270 North/Frederick. Exit on 6A (Route 28), W. Montgomery Ave./Rockville) ¼ mile north of Montrose Road exit. Follow Montgomery College sign through traffic light (road becomes Nelson Street). Go to first traffic light at Mannakee Street; turn left. The campus is 1½ blocks on the left.

Public Transportation to Rockville Campus

By Metro—Take the Red Line train to Rockville station, then transfer to Metrobus #Q2 (Viers Mill Road Line) to campus stop at corner of Hungerford Drive and Mannakee Street.

By Bus—Take Metrobus #Q2 (Viers Mill Road line, which runs between Silver Spring and Shady Grove Metro stations) direct to campus stop at corner of Hungerford Drive and Mannakee Street.



By Ride-On Bus—Served by Route 45 (stops at Mannakee and Frederick Road, just a short walk to the Rockville Campus; Route 45 serves both the Rockville and Twinbrook Metrorail Stations);

Served by Route 46 (served by Shady Grove, Rockville, Twinbrook, Grosvenor, and Medical Center Metrorail Stations);
Served by Route 55 (served by Shady Grove and Rockville Metrorail Stations).

Appendix II

- 8.2 New Science Center and Building Renovations at Montgomery College, Rockville Campus – Part 2 Facilities Construction Program, dated May 1, 2004.

**NEW SCIENCE CENTER
at
MONTGOMERY COLLEGE,
ROCKVILLE CAMPUS**

**PART 2
FACILITIES CONSTRUCTION PROGRAM**

May 1, 2004

prepared by

Robert J. Esposito, AIA
Architect and Planner
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and

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Rockville, Maryland 20850

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FOREWORD

The purpose of this Part II Facilities Program is to propose the construction of a New Science Center consisting of 142,100 GSF and 81,720 NASF, an overhead, enclosed pedestrian link connecting the new building with Science East, and the upgrade and extension of utilities and site improvements (roads, walks, parking, and landscaping). This document will present the specifications for each of the proposed functions and programs as well as the design guidelines for construction.

This Facility Program serves a number of purposes. It is a facilities program statement that is utilized to define the project and directs the Architect/Engineer employed by Montgomery College to prepare plans and specifications required for contract bidding and construction. In addition, this document also:

- Affords the College a planning tool with which to develop project familiarity and assess priorities.
- Details functional needs and existing conditions pertaining to facilities to be constructed.
- Supports the budget request for funding.
- Serves as the focus of review.

This document is also included as a part of the contract with the selected Architect/Engineer for the design of the project; and in relation to this function, the document will:

- Identify the project site.
- Provide a complete description of the project scope.
- Describe the functional use, requirements, and performance standards for the project.
- Identify the general or special architectural, engineering, and planning objectives and criteria to be incorporated in the design.
- Reference applicable regulatory and design standards, as well as, methods and practices required by the client.

The organization of this Program includes the following sections:

Section 1, The Planning Situation presents an overview of the College, Rockville campus, planning Objectives, and describes the purpose and need for the New Science Center.

Section 2, Architectural/Engineering Services Specifications outlines the project scope, identification of project responsibilities and information to be provided to the A/E, and stipulations regarding submittals, reviews, and approvals and codes.

Section 3, Site Considerations provides written and graphic information for the area proposed for new construction, including topography, utilities, and circulation.

Section 4, Building Performance Criteria outlines general and specific information covering the design and functioning of the building.

Section 5, Detailed Space Requirements specifies general and specific information for the design of individual spaces, groups of spaces, and their interrelationships.

1. THE PLANNING SITUATION

I. THE PLANNING SITUATION

The Rockville Campus of Montgomery College was founded in 1965 and was the College's second campus. The main campus is situated on approximately 84.6 acres with 19 academic and administrative buildings.

The 1991 Master Plan for the Rockville campus outlined a strategy for the campus that would establish a physical framework for growth. This framework worked toward the provision of a hierarchy of open and built space, the design of quality of life space on campus, and consolidation and expansion of student service functions.

One of the major challenges for the College in the next ten-year planning period will be to correct deficiencies in the amount of, and the quality of, its academic spaces. Almost half of today's campus was constructed in the mid-to-late 1960's and while these facilities have been maintained at a high level, some buildings have ceased to be functionally adequate. Three buildings, the Student Services, Counseling and Advising, and Computer Science buildings have been identified for possible demolition.

The Rockville campus has critical shortages in quality of life spaces. As demands for academic and administrative space have increased, spaces such as meeting rooms, break-out areas, outdoor gathering areas, student lounges, and group study areas have been reduced or converted to teaching spaces. While classrooms are valuable academic spaces, the experience of learning and teaching is not limited to the classroom. Students and faculty require spaces that allow informal educational experiences and these areas are ideal places to learn collaboration and communicate skills and opportunities.

To address these and other challenges, and to establish a coherent, logical framework for development of capital projects, the Facilities Master Plan has established goals and priorities. This Facilities Master Plan for Rockville focuses on:

- providing sufficient and adequate space—classrooms, labs, offices, study, meeting rooms, and support facilities—based on existing and projected needs, so that each and every area can contribute creatively and productively every day to helping students change their lives;
- co-locating departments and functions rationally so that students, visitors, and the College community itself benefit from the ease, energy, and excitement generated by the synergy of proximity;
- presenting students the needed range of opportunities to study and learn collaboratively in supportive environments with the special assistance of faculty, librarians, counselors, and staff;
- affording students opportunities to meet and develop socially through formal programs of leadership, recreation, and athletics, and informally in inviting indoor and outdoor spaces;
- maximizing the land resources available on the campus while retaining its unique character, quality, and setting, and yet meeting the needs of the large numbers of students, faculty, staff, community members, and visitors who come to the campus every day;
- inviting students, faculty, staff, community members, and visitors to participate in the varied campus and College activities by organizing the campus—including buildings, parking, outdoor athletic facilities, and circulation for pedestrians, the disabled and elderly, cars, and trucks—to make their experience pleasant and successful; and
- anticipating the campus' future development beyond the ten-year planning horizon.

A. Montgomery College

Montgomery College is a dynamic, open access, educational institution of superior quality instruction, which is dedicated to academic excellence and committed to student success.

As a community-oriented, non-residential, multi-campus college, Montgomery College offers diversified post secondary career and transfer educational programs, career training, and support services at moderate cost primarily to the residents, businesses, and other organizations within Montgomery County. Educational programs lead to the realization of such diverse goals as attainment of a two-year degree or a one-year certificate, transfer to baccalaureate institutions, acquisition or enhancement of occupational skills, and pursuit of general knowledge.

The College educates students who bring to the College a rich aggregation of ethnicity, race, culture, age, experience, and prior level of educational participation. Development of social, cultural, and civic values, attainment of basic literacy skills, and lifelong learning opportunities are by-products of the College's broad mission and comprehensive curriculum. Recognizing the value of a diverse student population, the College provides a variety of programs and support services that foster the personal and professional growth of the students. Additionally, the College continuously strives, at all levels of educational programming, to meet the ever-changing needs and interests of the community it serves.

Montgomery College states its mission as follows:

Our Mission

Changing Lives

We are in the business of changing lives.
Students are the center of our universe.
We encourage continuous learning
for our students, our faculty, our staff, and our community.

Enriching our Community

We are the community's college.
We are the place for intellectual, cultural, social and political dialogue.
We serve a global community.

Holding Ourselves Accountable

We are accountable for key results centered around learning.
We will be known for academic excellence by every high school student
and community member.
We inspire intellectual development through a commitment to
the arts and sciences.
We lead in meeting economic and workforce development needs.

We Will Tend to our Internal Spirit

Our Internal Spirit

We are committed to high academic and performance standards and take pride in our collective achievements.

We are welcoming, compassionate, and service-oriented to our diverse communities.

We operate in a creative, innovative, flexible, and responsive manner.

We practice collaboration, openness, honesty, and widely shared communications.

Integrity, trust, and respect guide our actions.

We value and respect academic vitality and excellence.

Our spirit is renewed through enthusiasm, celebration, a sense of humor, and fun.

College Wide Goals and Objectives

Montgomery College is committed to “changing lives, enriching our community and holding ourselves accountable,” as the Mission Statement declares. Based on these principles, the College commits itself to meet the educational needs of its diverse community. The College will seek to provide academic programs of the highest quality so that its diverse student body can achieve its educational goals. As one College providing multiple programs and services to students at various stages of their academic careers, the College dedicates itself to the following eight goals to serve students and the community.

GOAL 1

The first goal of the College is to ensure student satisfaction and student success through programs and support services. The College will continue to foster student achievement through excellence in curriculum, teaching, learning and services that meet multiple needs. Student-centered programs and support services will identify student goals and individual needs, and will facilitate student retention, completion, and goal achievement.

Objective 1: To use the College’s curriculum and program review processes and the input of advisory committees and community assessment initiatives to revise and develop curricula that are characterized by currency, comprehensiveness, relevance, transferability, and the appropriate use of technology.

Objective 2: To continue to promote effective instruction and instructional support and to develop fresh approaches to instruction and instructional support that foster learning through the Center for Teaching and Learning and other internal and external opportunities.

Objective 3: To develop and implement effective processes and procedures to identify and support students’ educational and career goals, including degree completion, transfer, skill development, credentialing and intellectual exploration, through enhanced support for advising and career and transfer planning.

Objective 4: To develop mandatory orientation processes to meet the transition needs of its diverse student populations.

Objective 5: To develop additional distinct and focused services and programs for the College’s diverse student population, including first-generation college attendees, students

with disabilities, students with English as a second language and international students, so that all students' educational and employment potential is strengthened.

Outcome: Student success will increase as will student satisfaction with services. Student goal achievement, retention, completion, employment and transfer rates will increase. Curricula will be considered current and appropriate by students, employers and transfer institutions.

GOAL 2

The second goal of the College is to ensure broad-based education. The College is committed to developing life-long learners who are competent problem-solvers, critical thinkers, effective communicators, ethical citizens and technologically literate contributors to the global community. Students will achieve a broad-based perspective through liberal learning.

Objective 1: To continue to support and promote strong collegiate-level liberal arts and transfer programs.

Objective 2: To further incorporate in curriculum and instruction a commitment to interdisciplinary studies, respect for diversity, critical and information literacy, and appropriate use of technology concepts in the arts, humanities, social sciences, sciences, mathematics, business, economics, technologies, and career programs.

Objective 3: To enrich the College's global learning environment by identifying and mobilizing the cross-cultural experience of its community, faculty, staff and students.

Objective 4: To expand cultural and intellectual activities that highlight and explore social issues for both internal and external audiences.

Outcome: Students will develop critical and information literacy and communication skills, an ability to apply knowledge effectively, a respect for diversity and an appreciation of the value of lifelong learning. The community will recognize and value the College as an intellectual resource and venue for cultural, cross-cultural, and social issue discussions.

GOAL 3

The third goal of the College is to meet the demands of a growing high school population. The College will increase its ability and strengthen partnerships to serve more high school students and graduates.

Objective 1: To expand partnership initiatives with the local public and private high schools to increase college readiness and facilitate the transition or access to college programs.

Objective 2: To increase concurrent enrollment of qualified high school students taking appropriate college coursework.

Outcome: The numbers of Montgomery County Public Schools (MCPS) graduates enrolling at Montgomery College will increase, greater numbers of MCPS graduates will enter Montgomery College prepared to do college level work and more high school students will earn college credits through attendance at Montgomery College. As a result, the reputation of the College as an institution of excellence will be enhanced.

GOAL 4

The fourth goal of the College is to develop a regional workforce for the Washington Metropolitan area. The College will make workforce and business development and preparedness a primary part of its activities.

Objective 1: To assess the community's needs regularly to ensure that its curricula, policies, schedules and partnerships reflect changing workforce needs and practices. Particular attention will be paid to meeting the community's growing needs for certified teachers.

Objective 2: To ensure that courses and programming are responsive to employers' priorities, needs and quality standards.

Objective 3: To ensure that the organizational structure provides a readily identifiable single point of contact within the College to respond to inquiries relating to workforce development, education, and training.

Objective 4: To implement a marketing strategic plan to increase internal and external awareness of the College's workforce development partnerships and initiatives.

Objective 5: To enhance the role of the industry advisory committees in guiding the development of the College's career programs.

Outcome: Montgomery County employers will turn to Montgomery College as their first choice for employee training and development. Employers will express increased satisfaction with employees hired from its career programs. Montgomery College will rank among the top four continuing education providers in the state for workforce development and training.

GOAL 5

The fifth goal is to expand the College's commitment to professional development. The College will create an intellectually stimulating, innovative, and exciting environment that encourages all of its employees to grow professionally and personally, to seek out and implement best practices and to contribute to the College's nurturing and student-centered environment.

Objective 1: To make professional development one of the College's highest institutional priorities and commit sufficient funds to support this priority.

Objective 2: To establish a single entity that coordinates and emphasizes professional development as an expectation of all employees.

Objective 3: To create professional development plans that meet the needs of the individual employee and the institution. These plans will be developed collaboratively by the employee and the supervisor and will become an important component of the performance review process.

Objective 4: To enhance the interchange between full-time and adjunct faculty to take advantage of their respective contributions and meet their differing needs; and to create and support mentoring programs, especially for employees new to their positions.

Outcome: All employees will participate in an expanded professional development program focused on better meeting the needs of students and employees, and the percentage of College resources devoted to professional development will increase.

GOAL 6

The sixth goal of the College is to strengthen pedagogy. The College will incorporate innovation and quality in pedagogy that is responsive to the learning needs of its students.

Objective 1: To ensure that all faculty and instructional support staff continually research and develop classroom and instructional strategies that focus on understanding, enhancing, and facilitating the learning process.

Objective 2: To continue to develop instructional alternative delivery methods for quality programs and access to the College at convenient places and times.

Objective 3: To review, identify and incorporate, as appropriate, in College courses the most effective strategies for ensuring that students acquire communication, computational, and critical and information literacy skills required by employers and transfer institutions.

Outcome: Student outcomes will be improved through incorporation of improvements in teaching and learning by faculty.

GOAL 7

The seventh College-wide goal is to maximize resource distribution. The College will enhance its ability to change lives by focusing resources more efficiently and effectively, implementing a more data-driven planning and budgeting process that supports a student-centered focus, investing in a strong collegiate-level program and incorporating increased accountability into evaluation processes.

Objective 1: To include regular review of academic programs and support services in the College's strategic planning process.

Objective 2: To define a process to determine the College's core programs and disciplines in order to guide growth opportunities, funding priorities, student services, and long-term planning.

Objective 3: To develop and regularly update an integrated academic and facilities master plan as an outgrowth of the strategic plan. This academic and facilities plan will identify programmatic, staffing, and facility needs to enable the College to address changing and diverse student populations.

Objective 4: To provide sufficient student-life facilities and improve the quality of student-life support on each campus by integrating these needs in the budget and planning process of each campus and the College.

Objective 5: To continue to provide state-of-the-market information technology for academic and administrative purposes, consistent with the availability of resources.

Objective 6: To ensure that employee reward systems appropriately recognize participation in a combination of professional development, high job performance and community service.

Outcome: Budget and planning decisions and evaluation processes will reflect the College mission. College facilities, services and staffing will be modified to meet student needs more appropriately.

GOAL 8

The final College-wide goal is to model community leadership. The College will build stronger community ties and model community leadership by serving as a catalyst, resource, and convener for enlightened discourse on vital community issues regarding social justice, economic concerns, environmental stewardship, non-partisan politics, public policy, and culture.

Objective 1: To name a Community Advisory Board to advise the College on issues of community importance and on planning and implementing discussions, including town meetings, instructional television programs, Internet discussions and teleconferencing.

Objective 2: To initiate a community research service through a partnership with Workforce Development and Continuing Education, the Office of Institutional Research and Analysis, deans, faculty, staff, and appropriate community groups.

Objective 3: To take a leadership role in working with the community to narrow the digital divide by improving equal access to technology.

Outcome: Public discourse events involving people of diverse cultures in the community regularly will improve understanding and enhance its commitment to improving life in Montgomery County. The community will value Montgomery College for its role in initiating inclusive discussions and supporting research of the issues that affect the community. The College will be recognized for its efforts in helping to increase community access to technology for education.

B. Rockville Campus

Institutional Characteristics

With an enrollment of 14,817, the Rockville campus has the largest enrollment of the three Montgomery College campuses. With over 14,800 credit students in the 2002 fall term, the campus also serves a substantial non-credit student body through programs of Work Force Development and Continuing Education. Tens of thousands of people come to the campus each year for art exhibits, concerts and theatrical events, athletic events, conferences and lectures, and other events open to the public. The educational offerings of the Rockville campus are organized into five instructional divisions of:

- Business, Management, and Information Science (“BMIS”), comprised of the departments of Business, Management, Computer Applications, and Computer Science
- Fine and Performing Arts (“FPA”), comprised of the departments of Art; Music; Speech, Dance and Theatre; and Visual Communications and Technology
- Humanities (“HUM”), comprised of the departments of Reading, English as a Foreign Language, Foreign Languages, and Philosophy and of English
- Science, Engineering, and Math (“SEM”) comprised of the departments of Biology; Chemistry; Mathematics; and Physics, Engineering, and Geosciences.

- Social Sciences, Education, History, and Health and Physical Education (“SEHHPE”), comprised of the departments of History and Political Science, Health and Physical Education, Psychology, Education, Anthropology, Criminal Justice, and Sociology

These divisions are extended and supported by the Student Development Division, with the Office of the Vice President and Provost providing campus leadership and management. In addition to these units, the Rockville campus is home to the Paul Peck Humanities Institute, the Gordon and Marilyn Macklin Business Institute, and the Arts Institute, each with special programs for the College and outreach to the community. The Robert E. Parilla Performing Arts Center not only supports the College’s academic theatre and dance programs but also serves as a community resource for professional productions by local and national arts organizations. The campus’ intercollegiate athletic program sponsors teams in men’s baseball, golf, and lacrosse; men’s and women’s basketball, cross country, indoor and outdoor track, soccer, and tennis; and women’s softball and volleyball. Campus-based central administration services include the library, information technology support, admissions and registration, financial aid, cashier’s office, physical plant, and auxiliary services including child care, bookstore, and food services.

Academic Programs

Montgomery College is authorized by the Maryland Higher Education Commission to offer four degrees: the Associate of Arts (A.A.), the Associate of Science (A.S.), the Associate of Arts in Teaching (A.A.T.) for students wanting to transfer to baccalaureate programs, and the Associate of Applied Science (A.A.S.) for those seeking immediate employment. The College also awards certificates (“Cert”) that focus on the development of technical skills, as well as letters of recognition (“L of R”) for non-degree seeking students who satisfactorily complete certain courses.

In addition to General Education, Student Development, Honors, Cooperative Education, and Women’s Studies courses, the Rockville campus offers 62 different degree programs, 42 certificate programs, and 5 letter of recognition programs. The Rockville campus offers the highest numbers of academic programs offered at the College. Academic programs uniquely offered at the Rockville campus are related to the fine and performing arts with two A.A.S. degrees and two certificates in Advertising Art, the A.A. degree in Dance, the A.A. degree and certificate in Music, the A.A.S. degree and 5 certificates in Photography, two A.A. degrees in Theatre, and two A.A.S. degrees and four certificates in Radio and Television; Technical Education, including the A.A.S. degrees and five certificates in Automotive Technology, the A.A.S. degree and certificate in Building Trades Technology, two A.A.S. degrees and two certificates in Architecture and Construction Technology, the A.A.S. degree and certificate in Fire Science, the A.A. and A.A.S. degrees in Interior Design, and the A.A.S. degree and two certificates in Printing Technology; and management, including the A.A.S. degree and certificate in Food and Beverage Management and the A.A.S. degree and certificate in Hotel and Motel Management. Other programs only offered at the Rockville campus include the A.A.S. degree in Criminal Justice, the A.A.S. degree and two certificates in Geography, and the five A.A. degrees and certificate in Health and Physical Education. In addition, the A.A.S. degree in Fire Science and Fire Service Management and the certificate program in Fire and Arson Investigation are approved as statewide programs. These statewide programs are available to students from other geographic areas where the local community college does not offer the same program. The College’s Center for Teaching and Learning also finds its home on the Rockville campus, although it is planned to place programs on each campus. Not included here are the programs offered by Workforce Development and Continuing Education.

Delivery of all these programs is expected to change substantially over the coming decade. The College has made significant and substantial investments in its classroom environments to incorporate smart instructional technology and to provide and support technology-based learning centers that help students learn effectively and efficiently. Distance learning alternatives will become more available as options, including both entire and partial course and service delivery. Apart from technology, the College must also prepare to address other changes in pedagogy, including increased and earlier instructional use of specialized learning environments and a continued emphasis on collaborative learning.

These instructional delivery changes, together with the increases projected for enrollment, can be expected to have impact on Rockville's contact hour productions. The ratio of contact hours (WSCH) to credit hours (SCH), which shows the extent to which time scheduled in class is greater than the credit hours earned, is expected to increase only slightly at Rockville from 1.17 to 1.18 in 2012. The majority, 74%, of Rockville's contact hours are expected to be generated during the day (from 8:00 a.m. to 5:00 p.m., Monday through Friday), the same as in 2002. Finally, the relative percentage of contact hours in lab environments is projected to increase from 27% in 2002 to 39% in 2012, reflecting increased availability of lab environments and changes in pedagogy in disciplines such as Mathematics.

To support academic programs, changes in the Rockville library collection are also planned. Overall, in terms of Physically Bound Volume Equivalents ("PBVE"), the library's collection is expected to grow by 15%. This rate is below that usually expected for higher education institutions, where rates of increase for collections are typically planned at 2% to 3% per year.

Enrollment

Over the past three-year period, headcount enrollment has increased 10%, from 13,431 students in 1999 to 14,817 in 2002. Over this same period, however, the average student credit hour load has decreased slightly from 8.4 credits to 8.1 credits, with the result that FTE student enrollment has increased by only 7%. The College 2002 average credit hour load is projected to be 8.7 credits, and the expectation is that the average credit hour load at Rockville will increase by 2012 to 8.2 credits, still below the projected College average credit load of 9.0 credits, but slightly above the 2002 level for Rockville. As a result, the projected 15,793 headcount students are expected to equate to 8,599 FTE students, an increase of 7% over 2002 FTE enrollments.

These enrollment projections reflect the College's understanding that the Rockville campus is at capacity and that demand for the College's programs must be directed to the other two campuses where students can be more readily accommodated. The College is also going to monitor demand carefully and determine whether a physical presence in the eastern sector of the County can be justified relative to educational needs and required resources. Such a presence would not only include credit and non-credit program options but also be in conjunction with other County efforts at developing a science and technology park for this area.

Given the overall goal to control enrollment growth at the Rockville campus to a modest 7% over the next 10 years, higher enrollment growth is expected in GITE (14%), Science, Engineering, and Mathematics (12%), and Social Sciences, History, Health, and Physical

Education (10%). While the Humanities Division will continue to generate the largest amount of credit hours, it is projected grow only by 4%. Similarly, the Fine and Performing Arts Division is expected to grow by only 6%. Only the division of Business, Management, and Information Science is expected to continue to lose enrollments, decreasing from 18,357 SCH in 2002 to 17,888 SCH in 2012, a decline of -3%. This decrease is in addition to the 9% decrease observed over the past three-year period.

Faculty and Staff

The College projects that its number of FTE faculty will increase at a rate comparable to its overall increase in enrollment, from 672.50 to 807.75, an increase of 135.25 FTE faculty, or 20%. Faculty supporting the Rockville campus will increase by much less, only by 8%, from 418.50 FTE faculty to 452.25 FTE faculty. The number of full-time faculty will increase by 31 positions, from 284 to 315, or 11%, while the number of part-time faculty will increase by only 11 positions from 538 to 549, or 2%. Campus and division projections of faculty seek to reduce and/or equalize the credit hours loads of faculty and therefore do not necessarily parallel enrollment growth rates. Thus, the growth rate for faculty at Rockville is slightly more than the 7% growth rate in FTE students.

While the College expects its numbers of full-time, part-time, and FTE staff to increase 21% from fall 2002 to fall 2012, consistent with its overall projected increase in fall term FTE enrollment, the Rockville campus is anticipating a 20% increase in staff, so that this campus can achieve a comparable level of staff support as is present at the other two campuses. Overall, the number of Rockville staff is expected to increase by 77.00 FTE positions, with 47 additional full-time staff and 8 additional part-time staff.

The largest growth in positions, not unexpectedly, is planned for the instructional and student development divisions. The increase in staff within the Office of the Vice President and Provost aligns office staffing with staffing on the other campuses. Finally, growth in campus-based Central Administration is based on College-wide ratios of students to staff and faculty to staff to ensure reasonable comparability across campuses, as well as the overall goal of the College to build on economies of scale in projecting the needs for such functional support.

C. Project Overview

This project proposes the construction of a new academic building supporting the sciences—Biology; Chemistry; and Physics, Engineering, and Geosciences—located in the Science East and West Complex. Also included in the project are the class laboratories, greenhouse, accessible observatory, and some classrooms required to support science instruction as well as enclosed pedestrian link connecting the upper floors of the New Science Center and Science East Building.

Description

The New Science Center will be located on an underdeveloped portion of the southwest sector of the Campus adjacent to the existing storm water pond and onto a portion of an existing surface parking lot.

Illustration 1-1

2. ARCHITECTURAL/ENGINEERING SERVICES SPECIFICATIONS

2. ARCHITECTURAL/ENGINEERING SERVICES SPECIFICATIONS

A. Project Scope

It is the intent of Montgomery College to design, construct, and equip a functional, flexible, maintainable, and attractive facility with will serve the College well for several decades. The College requires innovative design that also provides the best economy both in design and construction. The Architect/Engineer (A/E) is responsible, during each phase of design, to recommend alternatives that will achieve cost efficiencies to maximize available funding. These recommendations should provide creative design solutions, rather than suggest reductions in the defined project scope of work and technical requirements.

The Architect/Engineer (a team of professionals consisting of Architect(s), Engineering Disciplines, and Specialists) is to provide specialized studies, architectural and engineering design, energy and life cycle cost analysis, and preparation of appropriate plans and specifications for each aspect of the work as described in this Section, and the complete program document.

In general, the design solution for both the site and the building should address, but not be limited to, the following:

Site

- A suitable design solution for utilities serving the building and those necessary for further development of the campus as set forth in the new Facilities Master Plan.
- Drop-off area, service, emergency (police and fire apparatus) access, and accessibility for people with disabilities in accordance with ADA regulations.
- Provision and separation of vehicular and pedestrian traffic.
- Development of the site as an amenity and as an integral part of the building and the campus as a whole.
- Specialized studies as required herein, or reasonably inferred from this Program, to facilitate decisions and the design effort to include, but not limited to: utility capacities and connections, energy analyses, and site master planning, massing, scale, and impact of the building footprint.
- Implementation of design solutions should not disrupt the continued operation of activities in buildings outside of the construction area.

Building

- Architectural and space planning solutions for the defined spatial relationships / layouts for the various occupants as set forth in Section 5 of this document.
- A suitable design solution for both the building and the site that responds to issues of architecture, aesthetics, fire, security, and personal safety, ADA regulations, and the surrounding environment insuring that all solutions are integral to the desired end result.
- Energy efficient and sensitive design for 12-month climate control for the building in general and each space specifically, as well as safety and functional flexibility.
- Energy efficient design in accordance with the International Energy Conservation Code and Montgomery College's Energy Design Guidelines.

Master planning of the site as well as performing architectural and engineering design of the building and site-related improvements are a part of the scope of services of the selected A/E.

The specific programmatic requirements and design criteria provided in this Program are as complete and accurate as possible at this point in the project. It will be the responsibility of the Architect/Engineer to consult with the College to verify or make refinements to these requirements and criteria throughout the design process. This process will be coordinated through the College's Department of Facilities and reviewed by the appropriate agencies at the conclusion of phases of the work as indicated below. The Architect/Engineer will be required to work with a project team comprised minimally of representatives from the College's Department of Facilities and the Rockville Campus, who would interact with the Architect/Engineer through a Facilities Project Manager and be active in the review, resolution, and approval of all design work.

- Site Analysis and Program Verification
- Schematic Design
- Design Development
- Interior Design Contract Documents (Concurrent with Construction Documents)
- Construction Documents: 50%, 95%, 100% submittal
- Construction Phasing Coordination
- Bidding of Construction Contract
- Construction Administration
- Completion and Acceptance of Project (including Building Commissioning)
- Post Construction (Record Drawings and Guarantee Period)

As a minimum, the following disciplines are expected for the Architect/Engineer's team/staff:

- Architect
- Interior Designer
- Laboratory Planner/Designer
- Mechanical (HVAC, HVAC Controls, Energy Analyst, & Plumbing) Engineer
- Electrical Engineer including Lighting Specialist
- Structural Engineer
- Site Civil Engineer
- Landscape Architect
- Acoustical Engineer
- Fire Protection Engineer
- Audio-Visual/Technology Specialist(s)
- Traffic Engineer/Planner
- Geo-Technical Engineer
- Independent Cost Estimator

It is the intention of the College to separately engage the services of a Construction Management (CM) firm. The Construction Management firm will be required to secure the services of an Commissioning Agent for the project with the A/E participating in the commissioning activities during design, construction, and the post construction period. A copy of the scope of work for developing a Commissioning Plan will be provided to the selected A/E at the pre-fee negotiation meeting.

B. A/E Scope of Work

This section provides a description of the project goals and objectives and of the major tasks to be accomplished. The scope of services to be provided by the Architect/Engineer shall be divided into specific phases - General Design Requirements, Schematic Design Phase, Design Development Phase, Construction Documents Phase, Construction Administration Phase, and Post Construction Phase. Work done under this section shall respond to the design criteria, space, and equipment requirements, and spatial relationships contained in Section 5 herein entitled "Detailed Space Requirements"; and implement the building energy design standards, pursuant to Section E. in this Section herein entitled "Energy, Building Commissioning, and Maintenance Management Specifications".

The scope of work for the selected A/E involves not only general requirements, but also code and building system requirements.

1. General Requirements

- a. In undertaking the scope of services, the Consultant is responsible for the:
 - Design of the new 81,720 NASF, 142,100 GSF (57.5% efficiency) New Science Center including associated site and utility requirements. As proposed, this project contains four functional categories of space: Shared Facilities (classrooms, conference room, vending, and lounge, IT support, and building support); Biology Department (laboratories and support spaces, Department Suite including departmental and faculty offices, and a greenhouse); Chemistry Department (laboratories and support spaces, Department Suite including departmental and faculty offices, and a hazardous materials room); and Physics, Engineering, and Geosciences Department (laboratories and support, Department Suite including departmental and faculty offices, and an accessible Observatory). A detailed breakdown of the respective spaces comprising each functional category is presented in Section 5, Detailed Space Requirements, of this program.
 - Assessment and design of campus utility infrastructure upgrades and/or extensions. This includes the extension of domestic water supply including the addition of fire hydrants, sanitary sewer, and gas. Based on the FMP assessment, it appears that the New Science Center could be added to the campus central heating plant located in the Humanities Building. It is unclear if there is adequate capacity in the existing plant to provide cooling to the New Science Center. New electrical service will be required from PEPCO. Under a separate study, a single point 13.2 kV services from PEPCO in lieu of separate electric service to each building will be evaluated. This study will also assess on-site power generation, including the use of alternate energy sources such as solar power. Emergency Power, Building Automaton Control, Fire Alarm, Information Technology, and Security Systems to be assessed by the selected A/E in accordance with available College standards. Storm water management will also have to be assessed by the selected A/E.
 - Master planning of the site to include, site development and landscaping in accordance with the College's Facilities Master Plan and MC's *Design Guidelines and Construction Standards*. In addition, site design must address any roadwork to maintain access to and from parking due to the selection of this site for the proposed building, service and emergency vehicle access and

- parking, accessibility for people with disabilities, loading dock/receiving area, and pedestrian walkways.
- An enclosed pedestrian link connecting the upper floors of the New Science Center with the Science East Building.
 - Development of both built-in and movable equipment and furniture requirements, as well as special requirements, utilities, and finishes for several specialized spaces as noted on their respective space sheets in Section 5 of this program.
- b. A 3D computer model with terrain information that would be used throughout the early design phases and developed into a final presentation following the completion of the Design Development Phase. The model shall be suitable for the future development of a College campus computerized site model. In addition, the A/E shall provide a professional quality color rendering for the Bioscience Education Center, 20" x 30" (minimum) framed and matted for both permanent display and black and white reproduction (view to be approved by the College).
- c. The A/E shall submit to the College, 12 copies of all drawings and specifications required for review and approval by the College and the Maryland State agencies. Each submission should consist of two full-size drawing sets and 10 half-size sets unless otherwise stipulated by the College.
- d. Following MC's acceptance of the final Construction Documents and drawings, the A/E shall provide the College with:
- One reproducible copy record drawings on mylar;
 - One hard copy and an electronic file of specifications on most current version of Microsoft Word;
 - One electronic copy of drawing files with layering and 'xref' information on the most current version of AutoCAD comprising Architectural, Mechanical, Electrical, Plumbing, Structural, Site Civil, Landscape Architecture, and any Specialty Consultant's drawings and details.
- e. Provide estimates and projections of all capital costs connected with the construction of the facility; such as, demolition of existing structures (if applicable), cost of new construction, equipment installation, utility extensions, and site development at each submission (i.e., schematics, design development, and each phase of the construction documents). All estimates shall be prepared and presented in CSI Division and DGS formats. Lump sums will not be acceptable. The selected A/E's independent estimator shall provide complete estimates concurrent with the submission of the Schematics and Design Development phases and a review of 50% cost estimate prepared by the College's Construction Management firm. The A/E will not proceed to the next design phase until the cost estimates are reconciled with the available budget and the Construction Management firm's estimates.
- f. Provide space tabulations utilizing the Areas, Volume, Efficiency (AVE) Forms, by room, of net assignable square footage (NASF) and total gross square footage (GSF) for the building, organized by departmental breakdown following the space allocations contained in Section 5 of this document. Indicate programmed net areas and actual along with any difference. If the difference is greater than 10 percent,

indicate the reason. Calculation of Gross and Net Assignable Areas shall be in accordance with the *Facilities Manual for Maryland Community Colleges*.

- g. Provide a complete and integrated interior design package for this project. This includes all services, samples, product information, drawings, specifications, and cost estimates. These services shall include, but not be limited to, the interior design and coordination for the building; selection and/or coordination of interior paint colors, finishes, and materials; design of wall, floor, and window treatments; architectural signage and graphics (interior and exterior); art work; and accessories in accordance with MC's *Design Guidelines and Construction Standards*. The package shall also provide for the inclusion of all furniture, fixtures, and equipment shown in plan and elevation as necessary to demonstrate that all programmed functions can be accommodated.

The A/E shall provide design coordination services for any equipment requiring special environmental conditions and/or building system conditions and connections.

The A/E shall identify methods of installation and connection with building utility services, and provision of necessary clearances for convenient, safe use, and maintenance of equipment shall be included in the interior design documents. These documents shall be fully coordinated with mechanical, electrical, structural, plumbing (i.e., building systems), and all other pertinent construction documents. In addition, the construction documents shall include a project book containing the product specifications and general means and methods of installation of furniture and equipment systems.

The College will assist the selected A/E in preparing a final list of equipment and furniture requirements prior to the finalization of design. These requirements will be presented in two categories: a) Fixed Equipment—equipment that will be included in the construction contract; and b) Movable Equipment—new equipment that will be purchased and installed via separate contracts, or existing equipment which will be reused.

- h. Prepare all documentation and obtain approval of all permits and licenses as required by all agencies and jurisdictions having authority, which includes but is not limited to: Reforestation, Storm Water Management, Fire Marshal, health (animal facilities), safety and security associated with bio waste and chemical disposal as well as storage of volatile chemicals, fire apparatus accessibility, Underground Storage Tanks, installation of new boilers and hot water heaters, elevator, and new service connections with the local utility.
- i. Incorporate the design of energy management, security, and safety into the facility. The building automation controls, security, and fire protection systems shall conform to those defined and adopted as standard systems by the College. The energy monitoring system and security and safety systems shall be Direct Digital Control (DDC) and ASHRAE BACNet Compatible.
- j. Telecommunication and data systems are an integral part of the facility, and the Consultant shall coordinate with the College, including appropriate interfaces on- and off-campus. Adherence to Montgomery College's *standards* for telecommunications distribution systems (a copy of which will be provided to the selected Consultant at

the pre-fee negotiation meeting) as well as any subsequent additional requirements communicated by the College to the selected A/E.

- k. The A/E shall perform a lightning protection analysis. The Consultant shall design a lightning protection system comprised of solid copper, nickel plated, air terminals located around the perimeter of the roof, flat copper conductor cables, and copper coated steel ground rods. This system should be installed by a certified lightning installer, be in full compliance with ANSI/UL 96 and ANSI/SFPA 7658 or latest editions, and have a UL Master Label when completed.
- l. The A/E shall address in the construction specifications the requirements of the contractor to provide detailed and comprehensive operations and maintenance manuals for all equipment and systems in an organized format. The selected A/E shall also stipulate the requirement for attic stock or spare parts allowances for early consumables, e.g. filters for air handling equipment. MC's *Design Guidelines and Construction Standards* should be referenced for the items and information required.
- m. It is expected that the selected A/E will achieve a LEED Silver Certification Building Rating without any additional project costs. In addition, the selected A/E is to incorporate materials and systems into the design that will allow sustainable maintenance and reliability over the life of the facility.
- n. Prior to final completion, the Architect/Engineer shall review record drawings prepared by the Contractors. During the first twelve months of the Post Construction Stage, extended architectural/engineering services will be required to assist the College and the Construction Manager to facilitate proper operation of all aspects of the project, especially the more sophisticated building systems. The Architect/Engineer shall include/provide at least two full team walk-through inspections at mutually established milestones.

The College will engage the services of an independent Commissioning Agent during the design and construction and commissioning of the project. The selected A/E will be responsible for coordinating design services with the Commissioning Agent and shall support the Construction Manager's Commissioning Agent during the construction and commissioning of the project.

2. Code Requirements

- a. In accordance with the building code of the State of Maryland which includes the latest editions of the International Building Code (IBC) for Basic Building, Mechanical, and Energy Conservation Codes, National Electrical Code, and Maryland Accessibility Code, and ASHRAE standards, the A/E shall be responsible for developing the specifications and drawings in strict adherence to meet or exceed these requirements and regulations impacting on the project whether or not it is so defined or listed in the final Construction Documents. The A/E shall prepare all documentation and obtain approval of all permits and licenses as required by city, county, state, and federal agencies. Early submissions of design documents or early review meeting(s) may be required.
- b. Persons with Disabilities: In the preparation of all plans and specifications, the A/E shall be responsive to Federal and College requirements for barrier free design according to all applicable laws, rules, regulations, and codes.

- c. Energy Consumption: In the preparation of all energy analysis and calculations as well as plans and specifications, the A/E shall follow design criteria and performance standards in accordance with the International Energy Conservation Code and Montgomery College's Energy Design Guidelines.

3. *Building Systems Requirements*

- a. The building shall feature materials and systems that create an aesthetically pleasing, and environmentally comfortable educational facility with quality interiors.
- b. Electrical System: The A/E shall design an electrical distribution system to include conduit, conductors, sub-panel, switches, and lighting. Lighting levels shall be in accordance with the College design standards, specific requirements of this program, the International Energy Conservation Code and Montgomery College's Energy Design Guidelines.
- c. Building Systems: All systems such as mechanical, electrical, plumbing, etc. shall be selected and designed based on a life-cycle evaluation.
- d. Telecommunications and Data Systems: The A/E shall design a central distribution system for voice, video, and data cabling in accordance with Montgomery College's IT standards in the building. During the Schematic Design and Design Development phase of the project, the A/E shall meet with the College's CIO IT Facilities and Network Planning team to ensure the incorporation of the College's standards for telecommunications distribution systems into the project design. The CIO IT Facilities and Network Planning team shall review the contract documents at each stage of design.

C. Engineering Disciplines and Specialists

1. *Mechanical Engineer*

The scope of work for the Mechanical Engineer's design of this building shall include the following:

- a. The Mechanical Engineer assigned to oversee the building design compliance with energy conservation guidelines must be a member of the design team at the onset of the project.
- b. Research of, and compliance with, all applicable building codes, the Montgomery College's Energy Design Guidelines and the International Energy Conservation Code.
- c. Design of complete HVAC, plumbing, and fire protection systems suitable for the type and occupancy of the building.
- d. Prepare all required calculations and system analyses for selection and sizing of the systems for each building.
- e. Participate in all phases of design including site visits, interdisciplinary coordination,

and meetings with the College, resulting in a complete set of construction documents, as well as, construction administration.

- f. The construction documents shall include a complete set of drawings containing floor plans, equipment room(s) enlarged plans and sections, installation and piping/ductwork details, all system piping and control diagrams, piping and duct risers, and equipment schedules.

2. *Electrical Engineer*

The Electrical Engineer's design services shall include:

- a. Provide for incoming services for building power, telecommunications, and life safety including the performance of related system calculations and analyses, project meetings, site visits, design development, the production of electrical construction documents, and construction administration.
- b. Design of lighting, emergency, critical, and normal power distribution, fire alarm, telecommunications cabling, and security systems.
- c. Conform to the guidelines of national, state, county, and local building codes, electrical codes, and energy conservation guidelines, as well as, the project guidelines set forth within.
- d. Specify products and general methods of installation that shall be used in the construction of the systems defined in this scope of work.

3. *Site Civil Engineer*

The Site Civil Engineer shall, in addition to providing design services associated with the scope of work set forth in Section 3., subcontract for a title search to determine if there are any rights-of-way or easements affecting the project.

4. *Structural Engineer*

The Structural Engineer's design services shall include:

- a. Review of the applicable codes and selection of the structural systems for the building.
- b. Prepare calculations and structural drawings.
- c. Review of shop drawings and other submittals.
- d. Perform periodic site observation.

5. *Landscape Architect/Engineer*

- a. The Landscape Architect/Engineer shall provide design services for the exterior environment of the pedestrian realm. In this case, the pedestrian realm is defined as areas of parks, plazas, streetscapes, and planting areas. Throughout the project

area, this shall include such elements as sidewalks, screen walls, seating, and site furnishings.

- b. The Landscape Architect/Engineer shall provide an assessment of existing trees throughout the study area. This study shall establish a plan for existing trees to remain and existing trees that may be removed. Tree protection specifications shall be provided as well.
- c. For new landscaping, complete plans and specifications with appropriate plant lists are to be provided, as are pedestrian pavements and site furnishings.

6. *Acoustical Engineer*

The Acoustical Engineer's design services shall include:

- a. Design of room shapes and finishes to insure appropriate reverb times.
- b. Review of space adjacencies.
- c. Specify Sound Transmission Class requirements to maintain privacy.
- d. Analyze the HVAC systems to maintain low background noise levels.
- e. Analyze exterior-to-interior noise.

7. *Telecommunication/Audio-Visual (T/AV) Specialist*

Scope of Telecommunication/Audio-Visual design services shall include:

- a. Develop an audio-visual systems narrative in accordance with Montgomery College's IT-AV standards in the building. This will include preliminary equipment lists with budget pricing. During the Schematic Design and Design Development phase of the project, the T/AV Specialist shall meet with the College's CIO IT Facilities and Network Planning team to ensure the incorporation of the College's standards for AV systems into the project design. The CIO IT Facilities and Network Planning team shall review the contract documents at each stage of design.
- b. Coordinate with the College's CIO IT Facilities and Network Planning team to provide details for infrastructure (power, conduit, floor boxes, etc).
- c. Tie in telecommunication/audio-visual systems to the Campus Central Telecommunications Facility on campus. Meet with the College's CIO IT Facilities and Network Planning team to ensure the incorporation of the College's standards for Telecommunications systems and AV systems into the project design.
- d. Integrate audio-visual systems in architecture, millwork, etc. to provide a pleasing appearance.

- e. Develop a complete and biddable specification based upon the design developed in the audio-visual systems narrative that includes the Montgomery College's standards documentation. Include detail drawings as required.
- f. Assist in the bidding process to select an appropriate installation vendor.
- g. Provide construction administration services to support the Construction Manager during the installation, including conducting Acceptance Testing at project completion.
- h. Design and prepare specifications for a complete and operational TV distribution and satellite receiver systems in the building in accordance with Montgomery College's IT standards in the building. These systems must be compatible with Montgomery College's communication systems standards (i.e. telephone, video, and computer systems, and operations). The system shall be configured and installed for user-friendly operation and low maintenance.

8. *Traffic Engineer/Planner*

The Traffic Engineer/Planner's key services shall include:

- a. Examine the special event scheduling and related user characteristics for the project, as they relate to vehicular access and parking needs.
- b. Assess the impact/alternatives of re-routing Campus Drive near the building site including realignment of an existing parking lot due to the selection of this site for the proposed building.
- c. Assess the traffic impacts during construction, and development of appropriate traffic control plans.

9. *Laboratory Planner/Designer*

The Laboratory Planner/Designer's design services shall include:

- a. Review of program criteria and current standards for flexible, functional laboratory design;
- b. Development of plan layouts and specification recommendations for inclusion in the design development and construction documents;
- c. Development of equipment and furniture requirements and specifications, both built-in and movable;
- d. Review of shop drawings and other submittals
- e. Perform periodic site observation.

D. Sequence of Work

1. *Schematic Design Phase*

- a. The Architect/Engineer shall review with the College and the Construction Manager the space program, schedule, and budget furnished by the College to ascertain the requirements of the Project and shall arrive at a mutual understanding of such requirements with the College
- b. The Architect/Engineer shall review with College and Construction Manager proposed site use and improvements; selections of materials, building systems and equipment; and methods of Project delivery.
- c. The Architect/Engineer shall review with the College and Construction Manager alternative approaches to design and construction of the project.
- d. Based on the mutually agreed upon program, schedule, and construction budget requirements, the Architect/Engineer shall prepare, for approval by the College, Schematic Design Documents consisting of drawings and other documents illustrating the scale and relationship of Project components.
- e. At intervals appropriate to the progress of the Schematic Design Phase and mutually agreeable to the College, Construction Manager and the Architect/Engineer, the Architect/Engineer shall provide schematic design studies for the College review and the Construction Manager's information.
- g. The Architect/Engineer shall attend two (2) progress meetings with representatives from Rockville campus and Montgomery College to prepare the Schematic Design Documents. The Architect/Engineer shall attend meetings as necessary with the College's Office of Information Technology staff as well as the Construction Manager as part of the preparation of the Schematic Design Documents.
- h. The Schematic Design Documents submission shall include: (1) schematic design drawings of building floor plans and roof plan; (2) narrative description of engineering/architectural and site requirements; (3) an engineering analysis of structural, mechanical, electrical, and civil systems; (4) selection of major mechanical, electrical, plumbing and building systems and materials to meet design requirements; and (5) submissions as contained herein.
- i. The Architect/Engineer shall submit or College's approval and the Construction Manager's information a preliminary estimate of construction costs based on current area, volume or other unit costs as part of the Schematic Design Documents. The College, the Construction Manager, and the Architect/Engineer shall mutually agree upon an assumed start of construction date and specific cost elements to be included in the project cost estimate. This phase of the project shall not be considered complete until the College, the Construction Manager, and the Architect/Engineer agree as to the estimated probable construction costs and such estimate is within available funds.
- j. The Architect/Engineer shall submit to the College twelve (12) copies of all drawings and specifications required for review and approval by the College and by the Maryland State agencies.

- k. The Architect/Engineer shall complete all work in the Schematic Design Phase based on the mutually agreed upon design schedule. The Architect/Engineer shall work with the College and the Construction Manager in the review of the Schematic Design documents.
- l. For purposes of compensation, the completion of the Schematic Design Phase shall constitute completion of twenty percent (20%) of the total project.

2. *Design Development Phase*

- a. Based on the approved Schematic Design Documents and any adjustments approved by the College to the design, schedule or construction budget, the Architect/Engineer shall prepare Design Development Documents consisting of drawings, outline specifications, and other documents to further refine and describe the size and character of the project as to the architectural/engineering, structural, mechanical, electrical, and civil work systems, materials, and such other elements as may be appropriate, including furniture and equipment layouts of each space within the proposed building.
- b. The Architect/Engineer shall attend two (2) progress meetings with the representatives from Rockville Campus and Montgomery College to review the Design Development Documents. The Architect/Engineer shall attend meetings as necessary with the College's Department of Facilities as part of the preparation of the Design Development Documents.
- c. At intervals appropriate to the progress of the Design Development Phase and mutually agreeable to the College, Construction Manager and the Architect/Engineer, the Architect/Engineer shall provide design development drawings and specifications for the College review and the Construction Manager's information.
- d. The Architect/Engineer shall further refine project cost estimates and shall keep the College and the Construction Manager informed of any adjustments in the estimated project construction costs. If the Architect/Engineer determines that there will be an increase in the estimated project construction costs, the Architect/Engineer shall notify the College in writing, specifying the reason for the increase, and shall halt work until the College and the Construction Manager review the estimate and the College authorizes work to proceed. If the project should be delayed for this reason, the performance date under this phase shall be extended by the commensurate number of days of delay. This phase of the project shall not be considered complete until the College, the Construction Manager, and Architect/Engineer agree as to the estimated probable construction costs and such estimate is within available funds.
- e. The Architect/Engineer shall structure the design documents with sufficient (10%+) alternates in order to avoid cost delays associated with re-bidding.
- f. The Architect/Engineer shall submit to the College twelve (12) copies of all drawings and specifications required for review and approval by the College, the Construction Manager, and by the Maryland State agencies.
- g. The Architect/Engineer shall complete all work in the Design Development Phase in accordance with the agreed upon design schedule. The Architect/Engineer shall

work with the College and Construction Manager in the review of the Design Development documents.

- h. For purposes of compensation, the completion of the Design Development Phase shall constitute completion of forty-five percent (45%) of the total project.

3. *Construction Documents Phase*

- a. Based on the approved Design Development Documents and any adjustments approved by the College to the design, schedule or construction budget, the Architect/Engineer shall prepare Construction Documents consisting of drawings, specifications and other documents setting forth in detail the requirements for the construction, completion and acceptance of the project. The drawings shall cover the complete building, all site work, all utilities, and all equipment built into the building or requiring actual system's connection to the building. The construction documents shall include bidding information, the general conditions, and specifications.
- b. At intervals appropriate to the progress of the Construction Documents Phase and mutually agreeable to the College, Construction Manager and the Architect/Engineer, the Architect/Engineer shall provide construction documents for the College review and the Construction Manager's information.
- c. The Architect/Engineer shall attend meetings as necessary with the College's Department of Facilities as part of the preparation of the Construction Documents. The Architect/Engineer shall develop and submit finish schedules and color schemes to the College for its approval.
- d. The Architect/Engineer shall be responsible for coordinating all construction documents that shall be prepared in accordance with best professional practice. Drawings and specifications shall determine quality of materials and workmanship, finishes, and shall contain such sufficient information as to enable the Construction Manager and contractors to make accurate estimates of quantities of materials as a basis for bids as well as construction and installation.
- e. The Architect/Engineer must specify by name several (at least three) materials or devices of approximate equality wherever possible, unless a sole source product is the only available product, or by performance specification, or by purchase description of a single item or approved equal.
- f. The Architect/Engineer shall review cost estimates prepared by the Construction Manager at 50% and 95% Construction Documents and shall further refine project costs and keep the College and the Construction Manager informed of any adjustments in the estimated project construction costs.
- g. The Architect/Engineer shall structure the bid package with sufficient (10%+) alternates in order to avoid cost delays associated with re-bidding.

- h. This phase of the project shall not be considered complete until the Architect/Engineer the College and the Construction Manager agree as to the estimated probable construction costs and such estimate is within available funds.
- i. The Architect/Engineer shall submit to the College twelve (12) copies of all drawings and specifications required for review and approval by the College and the Maryland State agencies.
- j. The Architect/Engineer shall perform all of the work required in the Construction Documents Phase after the College approves the Design Development documents. The Architect/Engineer shall submit all required drawings and specifications necessary for all permit reviews.
- k. The Architect/Engineer shall assist the College and the Construction Manager in connection with the College's responsibility for filing documents required for the approval of governmental authorities having jurisdiction over the Project.
- l. Should reviews by the College, the Construction Manager, Maryland State agencies, local, bi-county or regional agencies require changes to the drawings and specifications, at no additional cost to the College the Architect/Engineer shall provide the necessary revisions or re-drawings to the construction documents in order that the necessary approvals and permits may be obtained.
- m. For purposes of compensation, the completion of the Construction Documents Phase shall constitute completion of eighty percent (80%) of the total project.

4. *Bidding and Negotiation Phase*

- a. The Architect/Engineer, following the College's approval of the Construction documents, shall assist the College in the solicitation of competitive bids from construction contractors.
- b. Should the low bid exceed the estimated probably construction cost the Architect/Engineer, at no additional cost to the College, shall provide the necessary revisions to the bid documents in order that the project may be rebid within the funds available. The College and the Architect/Engineer shall mutually agree on the timeframe to meet this redesign requirement.
- d. The Architect/Engineer shall provide the College and the Construction Manager with a reproducible copy of any and all Construction Contract Documents.
- e. For purposes of compensation, the completion of the Bidding and Negotiations Phase shall constitute completion of eighty-five percent (85%) of the total project.

5. *Construction Administration Phase*

The Architect/Engineer shall provide administration of the Contracts for construction in cooperation with the Construction Manager as set forth below:

- a. During the project construction phase, the Architect/Engineer shall attend progress meetings with the Construction Manager, contractors, subcontractors, and the

College to discuss such matters as procedures, progress, problems, and scheduling.

- b. The Architect/Engineer shall review and approve all shop drawings, product data, material samples, schedules, substitutions, and other submittals prior to submission to the College for final approval.
- c. The Architect/Engineer is responsible for reviewing all submittals in a quick and timely manner and for ensuring that all materials conform to the Construction Documents. The Architect/Engineer shall not release to the Construction Manager any submittals until all issues are resolved and accepted by the College.
- d. The Architect/Engineer shall conduct project site observations to determine that the work of the contractor and its subcontractors is being performed in accordance with the requirements of the construction documents. Project site observations shall provide information on the general quality and progress of the project and to ensure that the general contractor is keeping adequate and accurate records of the construction. The Architect/Engineer shall guard the College against defects and deficiencies in the work. Subject to the review by the College, the Architect/Engineer shall reject work that does not conform to the requirements of the Construction Documents.
- e. The Architect/Engineer shall review and respond to requests for information or requests for interpretations of the meaning and intent of the project drawings and specifications, and assist in the resolution of questions which may arise and prepare the response to such requests for information and interpretations.
- f. The Architect/Engineer shall coordinate with the Construction Manager to obtain operation and maintenance manuals for all building systems required by the Contract Documents prior to final payment to the Contractors.
- g. The Architect/Engineer shall make site visit(s) to resolve conflicts due to design deficiencies in a prompt manner.
- h. The Architect/Engineer shall prepare, issue, and submit finish schedules and color schemes to the College for its approval
- i. The Architect/Engineer shall review and comment upon all laboratory reports prior to submission to the College and Construction Manager.
- j. The Architect/Engineer shall review and codify the accuracy of each request submitted by the contractor for a progress payment. Recommendation for approval of the progress payments shall be based on site observation and the Architect/Engineer's professional judgment and supported by such data as the College may reasonably require.
- k. The Architect/Engineer shall review and recommend approval or disapproval of change orders prior to submission of change orders to the College for final action and processing.
- l. In the event that change orders are executed as a result of an architectural/engineering omission or design error, the Architect/Engineer shall

provide, at its sole expense, any related services which shall include site visitations necessary to implement the change order.

- m. The Architect/Engineer shall render written decisions within a reasonable time on all claims, disputes or other matters in question between the College and contractors relating to the execution or progress of the Work as provided in the Contract Documents.
- n. The Architect/Engineer, assisted by the Construction Manager, shall conduct inspections to determine the date or dates of Substantial Completions and the date of final completion. The Architect/Engineer shall forward to the College warranties and similar submittals required by the Contract Documents which have been received from the Construction Manager. The Architect/Engineer shall issue a final Project Certificate for Payment upon compliance with the requirements of the Contract Documents.
- o. For purposes of compensation, the completion of the Construction Administration Phase shall constitute completion of ninety-eight percent (98%) of the total project.

6. *Post Construction Phase*

- a. The Architect/Engineer shall provide the College with Post Construction Phase Services. Such services shall include:
 - Review of record drawings.
 - Coordinate, upon completion of construction, with the Construction Manager and Contractors the preparation and submittal to the College of a set of "record" drawings in distinctive color-line, indicating all changes which have been made during the construction. This information shall be based on records kept on the job site by the contractors.
 - Complete and submit to the College as-built drawings on most current version of AutoCADD.
 - Monitoring of guarantees and corrections.
 - Facilitation of proper operation of systems.
- b. For purposes of compensation, the completion of Post Construction Phase shall constitute completion of one hundred percent (100%) of the total project.

E. Energy, Building Commissioning, and Maintenance Management Specifications

1. *General*

- a. The Architect/Engineer shall during all phases of the design, construction, and commissioning, comply with the requirements of this subsection, to provide a safe, reliable, and economical building. To accomplish this, the Architect/Engineer shall provide quality services to meet the building requirements over the life cycle of the building. During the construction commissioning process the Architect/Engineer will be required to make reports, communicate effectively, and coordinate activities in order to minimize conflicts.

- b. The Architect/Engineer shall employ at his/her expense, either in his/her own work force or as a Consultant, competent registered engineers and architects for structural, mechanical, electrical, and energy analysis and design work and any other major design portion of the work.
- c. The Architect/Engineer shall submit for approval to the College Energy Manager the name of an individual, either in his/her own work force or as a Consultant, to act as Energy Analyst for the College's project. The Energy Analyst shall have proven experience in energy design analysis and shall be a registered engineer or architect. The role of the Energy Analyst shall be to:
 - 1) Coordinate disciplines within the design team to achieve energy efficient design.
 - 2) Review architectural, mechanical, and lighting submittals for compliance to energy guidelines prior to submission to the College.
 - 3) Serve as the primary contact point for the College Energy Manager.
 - 4) Perform energy analysis and influence the building design to achieve the College's desired energy budget.
 - 5) Attend early design meetings with the Architect/Engineer to address building siting, orientation, and shape as factors in energy consumption.
 - 6) Coordinate commissioning into the design and construction process.
 - 7) Ensure the Maintenance Management and Equipment Management process is completed.
 - 8) Prepare required energy, maintenance and commissioning reports and certifications.

2. *Schematic Design Phase*

- a. **Building Energy Budget:** The College will work with the A/E to establish an energy budget assigned for this project (BTU per square foot per year). The Budget figure will include all metered energy use at the facility, including energy for HVAC systems, lighting of the building and grounds, elevators, motors, water heating, and receptacles. The Architect/Engineer is responsible for identifying cost-effective energy conservation strategies that will meet this Building Energy Budget. Energy Analysis will be performed by the College, with data being supplied by the Architect/Engineer. Energy Budget Certification will be performed by the Architect/Engineer. The College's Department of Facilities will determine which strategies are to be analyzed and which options are to be implemented in design. Options that may be required include architectural day-lighting, low temperature VAV air distribution, and ventilation heat recovery. Cost-effectiveness of mechanical and electrical equipment shall be demonstrated by the Architect/Engineer through life-cycle cost analysis of the design options.
- b. **Energy Design Guidelines:** The Architect/Engineer shall comply with Montgomery College's Energy Design Guidelines and ASHRAE Standard 90.1-1989 Energy

Standards, and incorporate those requirements into the design of the project. Design of an Energy Management System compatible with College central computers shall be provided.

- c. Analysis Tools: Analysis tools and methods for life-cycle-cost analysis must receive prior approval by the College. New construction options will generally include day-lighting, options for which advanced, hourly simulation tools are appropriate. However, simplified programs or monographs may also be used to select options in the Schematic phase.
- d. Schematic Energy Analysis: The results of the pre-energy and life-cycle-cost analysis are due with the schematic design submittal; any data required for the College's Energy Analysis must be submitted to the College in a timely manner. Using the results of the Analysis, the Architect/Engineer shall submit a Schematic Energy Analysis report to convey this information, following the format established by Montgomery College.

The report will be reviewed and must be approved by the Energy Manager before Notice-to-Proceed on design development will be issued. The Energy Analyst will meet with the Energy Manager after submitting the report to discuss and clarify the work. The Architect/Engineer must, without additional charge, modify any parameters of the simulation or report that the College determines to be contrary to the guidelines or system options provided by the College's Department of Facilities or are otherwise inappropriate to the case in study. Resubmission of affected parts of the analysis is due within 10 working days of the notification to the Architect/Engineer of necessary changes.

- e. Variances: The Schematic Design submittal must show compliance with the Building Energy Budget within 10 percent. In the event that the budget cannot be attained, the Architect/Engineer shall include in the Schematic Energy Analysis a request for variance from the assigned budget from the College's Department of Facilities. The request must include sound technical documentation as to why the budget cannot be met. If, in the judgment of the Department of Facilities, the request for variance is justified, a new budget reflecting all cost-effective options will be issued. The Architect/Engineer shall, without additional charge, modify his design as necessary to meet the original energy target or the reissued energy target if a waiver is granted.
- f. Meeting Requirements: Prior to commencing any design work, the design team will meet with the Energy Manager. The agenda will be as follows: (1) description and discussion of options to be analyzed for Life-Cycle-Cost, (2) approval of simulation tool(s) to be used, (3) DFS design guidelines in Lighting, Thermal Envelope, Energy Management Systems, and HVAC Controls and (4) economic assumptions and Utility Rates. The Energy Manager may require an onboard review of the base case energy simulation prior to analysis of design options.

3. *Design Development Phase*

- d. Design Development Energy Analysis: The Architect/Engineer must submit a refined energy analysis of the design package selected for Design Development. The analysis must reflect in increased detail the Schematic Design submittal. In particular, the simulation must show use of actual lighting wattages (from fixture

counts on reflected ceiling plans) and actual efficiencies for selected HVAC equipment. The report must include supporting documentation for simulation parameters as specified in the Scope of Services for Design Development.

The report shall be reviewed and Certification must be approved in writing by the Energy Manager before further design. The Analyst will meet with the Energy Manager after submitting the report to discuss and clarify the work. The Architect/Engineer must, without additional charge, modify any parameters of the simulation or report which the College determines to be contrary to the Guidelines or system options provided by the College or are otherwise inappropriate to the case in study. In the event that discrepancies are observed between the design (drawings and specifications) and the simulation, the Architect/Engineer shall, without additional charge, modify the design or the simulation to achieve correspondence. Resubmission of the affected parts of the design or analysis is due 10 working days from notification to the Architect/Engineer of any discrepancies.

- e. Variances: The Design Development Energy Analysis must show full compliance with the Building Energy Budget. In the event that the budget cannot be met, the Architect/Engineer shall include in the Design Development Energy Analysis a request for variance from the assigned budget from Montgomery College Department of Facilities. The request must include sound technical documentation as to why the budget cannot be met. If, in the judgment of the College, the request for variance is justified, a new budget reflecting all cost-effective options will be issued. The Architect/Engineer shall, without additional charge, modify his design as necessary to meet the original energy target or the reissued target if a variance is granted.

4. *Construction Documents Phase*

- a. Efficiency Specifications: The efficiency of all energy consuming equipment must be explicitly stated in the specifications such that no equipment will be qualified "as equal" unless it has equal or superior efficiency to the specified item. "Energy consuming equipment" includes all lamps, ballasts, and light fixtures, HVAC plant and distribution equipment, water heaters, major appliances, and motors.
- b. The Construction Documents must explicitly include all specifications required by Montgomery College's Energy Design Guidelines, including an Energy Management System compatible with College's central computers, as well as all features included in the Certification simulation.

5. *Building Commissioning and Maintenance Management*

The Architect/Engineer shall coordinate with the Construction Management firm's Commissioning Agent in the preparation and implementation of the commissioning and maintenance program. The Architect/Engineer shall ensure that the Building Commissioning Specification is coordinated with the appropriate specification sections.

6. *Testing, Adjustment and Balancing*

The Architect/Engineer shall incorporate the requirements of ANSI/ASHRAE 111-1988, Practices for Measurement, Testing, Adjusting, and Balancing of Building Heating, Ventilation, Air Conditioning, and Refrigeration Systems, into the Commissioning.

7. Maintenance Management

The Architect/Engineer shall develop an equipment numbering scheme, approved by the College and use this numbering scheme to identify the equipment on drawings, submittals, nameplates, and maintenance management forms. The Architect/Engineer will include these comments in the specifications.

F. Information Furnished to the Architect/Engineer

The Architect/Engineer shall collect all required information from Montgomery College, local jurisdictions, and utility owners and operators. Contracting with required support services, e.g. a surveyor, geotechnical services, etc., will be the responsibility of the Architect/Engineer and the Construction Manager.

- a. Available existing building plans, utility plans, and site maps will be given to the A/E. No assurances, however, are given that these records are complete or accurate. It shall be the responsibility of the A/E to establish the precise location of all underground utilities and/or services in the construction area and to show the same in detail on the design drawings.
- b. Field Investigation Requirements. The A/E is fully responsible for accurately defining existing conditions and the impact of these conditions on the design. The selected Consultant is required to examine existing drawings, order test borings, test pits, radar tests, infrared tests, electrical load tests, and any other means necessary to ensure accuracy for the design. Existing drawings, whether "as built" or construction drawings should only be used as a guide and for reference and under no circumstances be construed as accurate. All conditions shall be field verified by the selected A/E team during the design development of this project
- c. Bench Marks. The A/E, with the approval of the College, shall establish sufficient bench marks for the development of the contract documents.
- d. Test Holes. Where there is a doubt as to the actual location of any existing utility or there is the possibility of interfacing with the alignments of new or existing utilities, and if such information is deemed necessary to prepare an accurate design, the selected A/E will make test holes either by performing the work or contracting for the work, only after the approval of the College. It will be the responsibility of the Consultant to inform the College as to the quantity and location of test holes required and field check the utilities after the test holes are open.
- e. Geotechnical Soil. Test borings to determine soil conditions shall be done under the direction of the A/E. It will be the responsibility of the A/E to inform and receive approval from the College as to the quantity and location of the test borings needed.
- f. Survey. The A/E shall prepare a survey that shall document all existing conditions of the site and confirm all information provided by the College. The extent of the information and work required by the survey shall include, but not be limited to, all existing

topography, utilities, roads and improvements, significant vegetation and natural features, existing utilities, boundaries, easements, and any legal restrictions that be applicable.

- g. Outages. All outages anticipated during any investigative work (utilities, roadways, parking, etc.) must be coordinated through the Department of Physical Plant at the Rockville Campus in order to determine the best windows of opportunity for the outage. Once the window has been established, a minimum of ten (10) days advance notice is required prior to all outages.

G. Documents and Data to be Furnished by the College:

1. Montgomery College Facilities Master Plan, 2002-2012.
2. Montgomery College's Energy Design Guidelines.
3. Montgomery College's IT standards.
4. AutoCAD aerial contour survey in 2' increments.
5. Utility Infrastructure and Site Drawings.

3. SITE DEVELOPMENT CRITERIA

3. SITE DEVELOPMENT CRITERIA

The purpose of this section is to provide a basic outline of site problems, assets, and project requirements for the Architect/Engineer. The information provided in this section is intended to supplement the Architect/Engineer's own site evaluation.

In general, the Architect/Engineer will be responsible for the design of all areas within the project's site limits which are directly impacted by the site coverage for the building, or its "footprint", in addition to the utility infrastructure requirements, service parking requirements, circulation, open space requirements, and special constraints, or other required services. Imaginative and responsible solutions must be developed to form a cohesive, unified, economical, and aesthetic design that is consistent with and advances the campus master plan. The critical areas to be addressed include the following:

Parking requirements:

- The number required as established in the program
- Number of spaces for people with disabilities
- The extent of landscaping within the site

Circulation and Open Space requirements:

- On-site and cross-campus pedestrian circulation
- Vehicular circulation and access
- Accessibility for people with disabilities
- Service areas and their access
- Auto circulation to parking areas
- Passenger drop-off areas and pedestrian walkways
- Common open spaces, courtyards, plazas, and landscape buffers
- Emergency apparatus access

Special Constraints and Requirements

- Utility requirements/easements
- Detention, retention, or sediment ponds
- Appearance of building facades (all sides)
- Integration with other major projects
- Environmental regulations (storm water management, erosion and sediment control, etc.)
- Influence or restrictions imposed by any flood plains or wet lands
- Design conforming to Crime Prevention through Environmental Design standards
- Continued operation of the surrounding College

Topographical Characteristics

- Existing vegetation and natural landforms
- Artificial elements
- Drainage patterns
- Building area

A. Land Development

1. Existing Conditions

The Rockville campus of Montgomery College was founded in 1965 and is the College's second campus. The main campus is situated on approximately 82 acres with 19 academic and administrative buildings. The Rockville campus is located approximately 14 miles northwest of the District of Columbia and is within commuting distance from the Washington Metropolitan area.

a. Campus Character and Image

The Rockville campus is located in a suburban setting north of the city center of Rockville, between the Rockville and Shady Grove Metro Stations. A campus loop road enters the campus off Hungerford Drive on the north, circulates to the west, south, and then east, connecting to two campus entrance points from Mannakee Street. Core campus buildings are surrounded on three sides by surface parking lots to the south, west and north. The extensive amount of surface parking is a prominent feature of the campus.

The campus has very little frontage on the most heavily used adjacent roadway, Hungerford Drive/MD 355. The frontage that it has on Hungerford Drive is the Mannakee Building, a central administration office building, and an office building that has been converted to use as the Homer S. Gudelsky Institute for Technical Education. A sign at the corner of Hungerford Drive and North Campus Drive identifies the campus, along with a building mounted sign at Mannakee Street and Hungerford Drive. Neither intersection is fully successful in identifying the campus beyond.

The campus is characterized by a fairly dense core of buildings that are primarily low rise, and of a consistent warm sand color of brick. Buildings have been organized in such a way that the open spaces between them are primarily linear and act as passages from one building to another. The residual space that is used to pause, study, socialize and recreate is scattered and insufficient. Pockets of mature trees are primarily located around the perimeter of campus.

While there are areas of significant topographic changes on the campus, primarily on the western and eastern edges, the core of campus slopes gradually with the exception of the outdoor amphitheater area. On the western edge of campus the buildings are designed to allow internal vertical circulation, with pedestrian connections from these buildings to the core of campus made by bridges between buildings and across the sloping hillside. This western area of campus also contains a significant number of mature trees surrounding the tallest of the campus buildings. The trees, primarily oaks, provide shade and a sense of scale and buffering for the buildings.

b. Adjacent Land Use

The campus is bordered by Mannakee Street to the south. Across the street to the south is the Montgomery County Board of Education. To the north and the west, adjacent properties are single-family homes or multi unit residential developments. Along the eastern property line, townhouse style office buildings and MD 355 (Hungerford Drive) bound the campus with commercial uses occupying the eastern

side of the road. The Washington Gas utility owns the property to the northeast corner of the campus.

c. Existing Campus Entrance Experience

Upon entering at the northern entrance, the view of the campus is of large parking lots, in some cases on both sides of the campus drive. The parking areas are very close to North Campus Drive, with little landscaping to buffer parking or vehicular travel, provide shade, or define pedestrian circulation. Pedestrians must weave through parking and there is little to define their route or crossing points. Once on campus, a pedestrian can easily navigate the campus although there is little hierarchy of scale to the open spaces or circulation to help in wayfinding or to give the campus an identifiable “heart”. The wayfinding signage could be made more clear and attractive.

On the south side of campus, the loop road separates the parking into three distinct areas, with some landscaping provided along the perimeter and within the internal rows of parking. The entrance experience from the south via Mannakee Street includes a view to wooded areas, a pond located in a wooded setting, mature trees and the complex of buildings beyond. The parking areas on the south side of the campus are also prominent. A Metro bus stop is located just inside Mannakee Street on South Campus Drive. Bus riders must traverse the parking lot, aided by a painted median, and a series of stop signs and pedestrian crossing signs to arrive at campus.

d. Building Usage

Buildings on this campus generally fall into five categories of use: Administrative, Academic, Operations (facilities-oriented), Recreational, and Service (student, faculty, and staff oriented). Although some facilities have a mixed-use function, categorizing them in this way assists with the recognition of zones of use that may occur on the campus.

Most of the buildings on the Rockville campus are used for academic purposes. Through the center of the campus, however, there are several facilities that have different functions. The Campus Center is used as a student service building. To its south are the Student Services Building and Counseling and Advising Building, which are classified as administrative buildings. To the east of the Campus Center is the Physical Education building, tennis courts and athletic fields, which are used for recreational purposes. The two buildings located outside of Campus Drive, away from the center of campus, are not academic buildings. The Mannakee Building at the corner of Mannakee Street and MD Rte. 355 is an administrative building, and the Child Care facility is a student and staff service oriented building.

2. Proposed Land and Building Use

The physical goals of the Facilities Master Plan include enhancement of the entrances to the campus, creation of open space, development of additional space to meet the College’s needs, and renovation of existing space.

The Facilities Master Plan illustrates the expansion opportunities made possible by constructing buildings on the surface parking lots near the southern entrance to the campus. Prominent new buildings create a visible front door to the campus from

Mannakee Drive. These include a Science Center, Resource Center and Student Services Center. The reconfigured entrance improves the arrival sequence with a wooded area defined by slightly relocated entrance roads off of Mannakee Drive, a turn-around that provides access to a drop-off area for the Performing Arts Center, connection to the existing ring road, and a future point of connection to an extension of this road to the east to serve future academic buildings anticipated to be built in the ten to twenty year time frame. Eliminated surface parking will be replaced with parking structures.

The existing character of the campus is dense, contributing to the sense that students are crowded in the open spaces that exist between buildings. To address this issue, the Facilities Master Plan creates three significant open spaces. The first, an informal open space on the site of the Computer Science Center, relieves what is currently the densest portion of the campus. This open space builds upon a contiguous smaller existing open space. The second is a more formal entrance plaza that is open to a vehicular and bus drop-off at the southern entrance to the campus, which also addresses the issue of defining an entrance “gateway” at the south of campus. This entrance plaza is proposed to be bounded by three new buildings: the Science Center, Library Resource Center, and Arts Building. The third open space is immediately west of the Performing Arts Center and east of the Student Services Center, and provides a vehicular drop-off for events at the Performing Arts Center. This third open space will be contiguous with the pedestrian Arts Walk that will extend west from the proposed new Fine Arts building, past the existing Theater Arts and Fine Arts buildings and culminate at the Performing Arts Center. The Arts Walk is a concept conceived of by campus occupants that provided an exciting springboard for open space development. Further description of the open space concepts follows discussion of the building projects.

The Facilities Master Plan proposes the following relative to new construction, building renovation, and open space development.:

a. New Construction

- A Science Center adjacent to the existing storm water retention pond. This site is currently used for surface parking and is readily developable as well as prominent. The building will house the biology, chemistry, physics and engineering programs. The building will contain an animal facility, observatory, and greenhouse.
- Physical Plant building to accommodate physical plant needs including offices, shop space and storage.
- A Student Services Center close to the Mannakee entrance. The building will house Student Development (with the exception of Student Life and Athletics), Campus Services, Safety and Security, and the Parking Department. This building is also anticipated to house a new central plant that will support other future buildings.
- A Library Resource Center directly adjacent to the proposed Science Center. The Resource Center will include stack, study, and office space for the Library; a Media Resources facility; an Assessment Center, Writing Center, Math Learning Center, Math Technology Labs, and Computer Training Lab; spaces for Student Organizations including offices and meeting rooms; a Career Center; a Worship Room, a vending area and Café; lounge space for patrons and staff; and meeting rooms for tours and admissions.
- A Child Care facility to be built in phases.

Essential to realization of the Facilities Master Plan is the construction of three parking structures. All of these structures will be located on existing surface parking lots and will be outside of the campus ring road. For safety, the plan proposes above grade pedestrian bridges to cross the ring road for the two structures to the west of West Campus Drive. The other garage located outside the ring road is at a termination point of the ring road in the ten year plan. Traffic in this location will not be as heavy as the other two areas, so it does not require a pedestrian bridge. This structure will provide convenient parking for the Student Services Building and Performing Arts Center. In addition, an interim parking lot to the south of the existing campus will be used to ease parking constraints during construction of new facilities over existing surface parking lots.

The Facilities Master Plan also proposes additions to the following buildings:

- The Humanities building to allow for co-location of the Social Science, English, and Reading Departments, as well as the Humanities Institute. The existing Writing/Reading Center will be co-located with the Writing Center in Macklin Tower. The Center for Teaching and Learning will be relocated to Macklin Tower to be co-located with the Media Center. The addition is proposed to be located on the site of the outdoor amphitheater that is currently under construction and is for that reason likely to be one of the later building projects.
- The Performing Arts Center to provide meeting rooms, additional offices and support spaces including a catering kitchen and additional restrooms. The addition will also improve the loading dock area.
- The Art Building to house music class labs, art class labs, a dance studio, and offices. This addition will be located along the Avenue of the Arts.
- The Physical Education building. The addition will house a fitness center, weight room, squash/racquetball courts, academic labs and support spaces for intercollegiate teams.

These additions provide the College with opportunities to undertake smaller projects that add space to constrained programs and improve co-location of departments.

b. Renovations

Renovations include repositioning many of the campuses existing buildings to new uses. These include:

- Conversion of Science East and West for the Mathematics and Education Departments
- Conversion of Macklin Tower for classrooms; computer labs; computer facilities; the Macklin Business Institute; and offices for Business and Economics, Management, Computer Applications and Computer Science. The campus main computer room and operations will be relocated to this building. The office of the Provost and the Dean's suite currently located in this building will remain. The renovation will include the addition of an elevator to improve accessibility.
- Technical Center to allow for growth of the Visual Communications Technologies and Applied Technology Departments.
- Conversion of the South Campus Instruction Building to Work Force Development and Continuing Education use.

- Campus Center to enhance student life on campus by providing offices for Student Organizations, improvements to the Bookstore and food services, merchandise franchises, space for MC Copies, non-denominational worship space, exhibition space, student lounges, meeting rooms, an open computer lab, recreational spaces, and student lockers. The building will also house a Hospitality Management Lab

These conversions will co-locate programs that are currently distributed on the existing campus. Deferred maintenance items in these existing buildings will be addressed before the conversions take place to enhance the comfort of existing users.

The Facilities Master Plan also envisions growth in the ten to twenty year timeframe. Planning for this timeframe is helpful in creating a vision for the ultimate development of the campus, and to ensure that plans for the ten year timeframe do not preclude rational future development. This Facilities Master Plan presents two options for additional development. The first option proposes construction of new academic buildings to the north of the existing Campus Center and Humanities Buildings. This option contains all academic buildings within the loop road and moves parking to the outside of the road. The second option envisions expansion east into the portion of the campus currently devoted to outdoor recreational facilities. In order to maximize building expansion opportunities, the baseball field, softball field, and soccer field are reconfigured and shifted north. The tennis courts are relocated and reduced in number to a total of 6. The track is eliminated. This twenty-year plan also shows a new storm water retention pond.

c. Open Space

The building program needs and analysis of building conditions offer opportunities to provide much needed central open space for the Rockville campus. The recommended removal of the Computer Science and the Student Services buildings in particular create an open space, the Central Quad, that could accommodate an informal amphitheater on a sloping lawn area, and an area of shaded lawn near the very popular and crowded fountain at the entrance to the Theater Arts Building. Presently an important crossroads near the geographic center of the campus, this area will become increasingly vital as the proposed development on the southern side of the campus is implemented.

Another opportunity to provide open space for incidental learning, group and individual study and recreation is presented with the development of the Sciences Center and the Library Resource Center. Proposed to face one another across an open space that is also the southern pedestrian entrance to campus, these two buildings form two sides of a new quadrangle (Library Quad) that serves as a visual welcome and orientation to the campus. This quadrangle provides an appropriate setting for several key campus buildings, and a pedestrian route from the southern parking areas into campus. The quadrangle accommodates a lay-by with orientation map, lawn of sufficient size to accommodate both active and passive use, shade trees and a terrace associated with the Library Resource Center. The Library Resource Center terrace includes tables, chairs and benches for eating, studying or relaxing. Pedestrian circulation is direct as well as pleasantly curvilinear, a counterpoint to the more rectilinear pedestrian system in the core.

The new quadrangle leads to the western end of the Avenue of the Arts, a linear open space connecting the new open space adjacent to the proposed Science Center on the southwestern end of campus to the Parilla Performing Arts Center on the southeastern end. Along its length, the Avenue of the Arts connects the new network of open spaces,

incorporating space for sculpture and areas for music and dance performances, seating and landscape. It terminates at the Arts Quad, an open space in front of the Parilla Center, featuring a vehicular drop-off area.

To the west, two walkways link the parking structures to campus. Parking Garage #1 has a walkway that extends from the garage over West Campus Drive to Macklin Tower. The link from Parking Garage #3 crosses above the road, travels across the tip of the pond with a boardwalk while encircling the pond on its eastern side, and then connects to the existing network of campus paths.

Similarly, on the northern side of campus, pedestrian linkages from the parking areas are clarified at two locations. Through the use of landscaped islands and gateway structures containing orientation kiosks the campus entrance experience is improved and clarified. The Facilities Master Plan suggests removing the row of parking closest to the buildings on the north side of campus to create a landscape island to shade and buffer the parking and more importantly, to relieve the congestion created by cars backing up directly into the roadway. A pedestrian connection from the Mannakee building to the main campus is also proposed.

New entrance signs and landscaping, near Mannakee Street at the two entrance drives and at the intersection of Route 355 and North Campus Drive, are suggested to provide improved visibility and an enhanced College identity.

Illustration 3-1
Site Vicinity Plan

Illustration 3-2
Proposed Site Plan(?)

1. Project Scope: Building and Site

The Science Center provides a new facility for the Biology; Chemistry; and Physics, Engineering, and Geosciences programs that will be relocated from their current homes in Science East and Science West. The new Center will be located on an underdeveloped portion of the Campus adjacent to the existing storm water pond and onto a portion of an existing surface parking lot and will also contain an animal facility, an observatory, and a greenhouse.

In addition, the project's site related improvements include the following:

- Integration of on-site and off-site pedestrian circulation including separation of pedestrians, vehicles, and service truck traffic.
- Integration with and enhancement of pedestrian access to the Campus.
- Delivery of, and connection to, all required utility services for the new building. All utility services are to be routed underground and all exterior mechanical and electrical service equipment and/or utility service containers appropriately located on-grade and visually and acoustically screened.
- Location of cooling towers, thermal ice storage modules, and fuel oil storage tanks (?).
- Replacement of displaced parking?

The existing site is

Site master planning, landscape design, and site development are important components of this project in order to connect with the campus.

2. Design Objectives

The vision for the Rockville campus must be founded first and foremost on advancing the College's mission by:

- providing sufficient and adequate space—classrooms, labs, offices, study, meeting rooms, and support facilities—based on existing and projected needs, so that each and every area can contribute creatively and productively every day to helping students change their lives;
- co-locating departments and functions rationally so that students, visitors, and the College community itself benefit from the ease, energy, and excitement generated by the synergy of proximity;
- presenting students the needed range of opportunities to study and learn collaboratively in supportive environments with the special assistance of faculty, librarians, counselors, and staff;
- affording students opportunities to meet and develop socially through formal programs of leadership, recreation, and athletics and informally in inviting indoor and outdoor spaces;
- maximizing the land resources available on the campus, while retaining its unique character, quality, and setting and yet meeting the needs of the large numbers of students, faculty, staff, community members, and visitors who come to the campus every day;

- inviting students, faculty, staff, community members, and visitors to participate in the varied campus and College activities by organizing the campus—including buildings, parking, outdoor athletic facilities, and circulation for pedestrians, the handicapped and elderly, cars, and trucks—to make their experience pleasant and successful; and anticipating the campus' future development beyond the ten-year planning horizon.

The design objectives for the New Science Center, which provide programs, services, and out-of-class experiences that enhance the college experience for students and promote the interaction of all members of the College community, must also include:

- Creating a facility that represents an inviting, comfortable, and safe environment for faculty, staff, students, and visitors.
- Providing both interior and exterior spaces for informal interaction among students, faculty, etc.
- ?

3. Scale and Massing

Building massing will be of critical concern because of the nature of the site and the proximity of the proposed building to the existing campus, the existing pond, and future development for the campus. The massing issue is further impacted by the space requirements for the specialized functions within the proposed facility.

Scale and massing issues that impact energy conservation such as orientation of exposures, size of exposures, and use of unconditioned spaces to act as buffers shall be addressed in accordance with Montgomery County Energy Design Guidelines (?).

The following criteria are to guide design development in these areas.

a. Building Scale

The Architect/Engineer must vary the building's scale to respond to surrounding areas. Building facades that are exposed to pedestrian circulation routes or open space should be the most sensitively scaled. Human scale and massing can be successfully accomplished with intermediary landscaped elements between buildings and walkways as well as with architectural detailing. The Architect/Engineer will also be responsible for using landscape elements to alleviate scale problems.

b. Building/Site Transition

The Architect/Engineer must also respond to the unique position of the site. Vertical building surfaces must be analyzed to determine the desirability of transitional landscaping elements between building and ground. These may be unnecessary in service areas but are crucial where building massing lacks human scale. Not only is it possible to reduce building scale by using earth and vegetation forms, but the impact of the building services can be significantly softened.

4. Building Context and Environment

The ultimate development of this project's architectural style, scale, and massing must be coordinated within the context of the prevailing style of adjacent elements. The

Architect/Engineer must carefully gauge the development of the architectural style of this new building to preserve and enhance the general elements within the context of the campus (Reference Illustrations ?).

The building's scale and massing, and development of areas surrounding the site are of critical importance to the preservation of a unified campus environment. The Architect/Engineer must provide design solutions that result in a building that is inviting to the user both as a functional structure and as a newly introduced element to the built environment. Design solutions must consider materials, scale, space, light, and circulation. The Architect/Engineer should vary the building mass to respond to the surrounding area while accommodating the required functions. Building height should minimize excessive transitions from the eave height or cornices of adjacent facilities. The building shall convey a general sense of belonging within the context of the Germantown campus and the Biotechnology Park.

The Architect/Engineer shall include in the design, building elements such as overhangs, shading devices, and entrance vestibules to minimize energy consumption. The use of natural daylight and daylight controls should be designed in accordance with the Montgomery County Energy Design Guidelines.

Illustration 3-3
Site and Site Context Photographs

Illustration 3-4
Site and Site Context Photographs (Continue)

B. Landforms

1. Topography/Soils

Topography is an important element to the development of the site and is a critical component to development decisions. The site has a slope of _____

?

The Architect/Engineer shall contract for the services of a licensed geotechnical engineer to assess existing soil stability and substructural bearing capacity. A geotechnical assessment report shall be prepared to establish required building foundations, pavement structure, and slope stability.

2. Drainage

Drainage patterns around structures shall be directed away from existing and proposed structures, and parking areas so as not to interfere with the function of these site features. Catch basins, storm sewers, and drainage ways shall be designed in compliance with Montgomery County, M-NCPPC, and Maryland Department of the Environment (MDE) regulations and standards.

Any connection to existing systems shall be coordinated with both the College and applicable agencies to assure acceptance of connection or discharge of runoff collection system.

3. Landforms and Vegetation

Vegetation is vital to the character, microclimate and aesthetic quality of the site. The site development and building design solutions should respect vegetation as a potential design element. Plantings of various types and textures to buffer sounds, noises, and odors as well as moderate sun, wind, and precipitation. Vegetation and landscape features should have climatic and aesthetic purpose and relate to the prescribed functions of the facility as well as moderating sun, wind, and precipitation exposure of the building.

4. Vegetation

The critical vegetation for this project is the existence of _____
No tree 24" in caliper or greater shall be removed or disturbed in the siting of the building and its attendant circulation. By disturbance, it is meant any cutting or filling within the drip line of the tree. Trees between 8"-24" should be treated with great care, and the siting of the building should minimize their removal and disturbance. Trees of less than 8" caliper may be removed as necessary to facilitate development. For every tree removed in this area, a new one shall be planted as compensation.

C. Circulation (Vehicular, Parking, Pedestrian, Service, and Accessibility)

1. Existing Conditions

The Rockville Campus is situated northwest of the Hungerford Drive (MD 355)/Mannakee Street intersection, within the City of Rockville. Frederick Road is classified as a “Major” arterial, and Mannakee Street is classified as “Primary” residential facility on the Montgomery County Master Plan of Highways (1992).

]

a. Vehicular Access and Circulation

Direct access to the campus is provided via a signalized entranceway intersection along Hungerford Drive and two (2) unsignalized entranceway intersections along Mannakee Street. The campus access and circulation situation, as well as its parking and public transportation facilities are illustrated in Figure 4.

The roadway and entranceway distributions for campus vehicle trips are as follows:

Roadway Approach	Distribution
From South along MD 355	30%
From North along MD 355	40%
From West along Mannakee Street	30%

Entranceway	Distribution
North Campus Drive off MD 355	40%
East Entranceway off Mannakee Street	25%
West Entranceway off Mannakee Street	35%

The significant percentage indicated above for Mannakee Street (from the west) is primarily due to this roadway’s connection to the I-270/MD Route 28 Interchange to the southwest, via Nelson Street. This percentage is part of the two-way “cut-through” traffic, along Mannakee Street, that is identified as a key concern in the City of Rockville Comprehensive Plan (January, 2002).

Field observations and analysis indicate that the campus’ three external entranceway intersections currently operate within the acceptable planning standards of the Montgomery County Department of Transportation and the City of Rockville. No significant capacity, operational or safety constraints were identified for the access points.

On-site vehicular circulation is provided primarily by a “ring” road (Campus Drive), and its connection to various buildings via minor roadways and parking area drive aisles. No significant internal vehicular circulation deficiencies were identified.

b. Pedestrian Circulation

Pedestrian circulation on campus is provided via a network of sidewalks, crosswalks and related signage. The average pedestrian walking distance between the parking areas and the campus core is 816 feet, which is quite acceptable for educational campuses. No significant pedestrian safety issues were identified on-campus, although improvements to pedestrian circulation within parking areas and crossing Campus Drive would be desirable.

Pedestrian safety related to the crossing of Mannakee Street to and from Parking Lot 14 is an important concern. This lot is located south of Mannakee Street, across from the campus, and its peak period occupancy is approximately sixty-nine percent (69%).

c. Parking

Campus parking is primarily provided within fifteen (15) surface lots. Parking is also allowed along North Campus Drive, and a 265-space overflow lot is located off-campus to the west along Mannakee Street. The total campus parking consists of 3,450 spaces and the peak occupancy is in the range of ninety-five percent (95%). This parking demand could be considered a major issue, as it does not allow for efficient vehicle access, circulation and overall quality of service, whereby a parker is not required to search for the last available space.

d. Public Transportation

The Rockville campus is well served by public transportation on and off-campus. These services include a Washington Metropolitan Area Transit Authority (WMATA) Metrobus route, and two (2) Montgomery County Ride-On routes, which provide connections to several rail stations on the WMATA Red Line. Bus stops and shelters are provided on campus for these transit systems. In addition, the College provides financial support for a “Campus Connection” bus service between the Takoma Park and Rockville Campuses with stops at three intervening Metro stops, as well as at the Shady Grove Campus of the University of Maryland.

e. Issues

The Hungerford Drive/Campus Drive North intersection is the only signalized external access point for the campus; and it is the most utilized access point for vehicles entering and departing from the campus.

A significant volume of campus traffic originates from the west along Mannakee Street; and this situation contributes to the “cut-through” traffic pattern identified as a key concern by the City of Rockville.

The two (2) campus entranceway intersections along Mannakee Street currently operate without any significant capacity, operational and safety deficiencies.

The safety of pedestrian movements across Mannakee Street from Parking Lot No. 14 needs to be evaluated further, particularly if future land use development concepts would result in greater use of this parking lot.

The campus is provided with inadequate parking. The observed peak parking demand occupies 95+ % of the supply, and this situation leads to inefficient vehicle circulation movements in search of available parking spaces. This situation also contributes to undesignated parking along North Campus Drive, as well as parking violations.

2. Proposed FMP Recommendations

Based on a generalized assessment from the campus master plan, from a transportation perspective, the plan proposes several land use initiatives for the 2012 horizon period. The key proposals and potential transportation impacts and needs associated with those changes are presented as follows.

a. Vehicular Access

The plan proposes no significant changes in the existing vehicular access situation. External access is provided off Hungerford Drive at North Campus Drive (which is signalized), as well as off Mannakee Street at two (2) unsignalized access points. The plan calls for the access situation to be modified slightly. The secondary roads around Parking Lots 11 and 12 would be eliminated to facilitate the development of three (3) new academic buildings. However, the predominant on-campus vehicular access and circulation movements would be served by Campus Drive which rings the campus building core to the south, west and north.

Vehicle Trip Generation Impacts

The potential traffic generation and circulation impacts of the Master Plan are primarily based on the types and distribution of land use changes proposed, as well as the projected changes in the campus population. The Master Plan proposes building demolitions, renovations and the development of new building facilities. The proposed new facilities include the Sciences Center, Library Resource Center and Student Services Center, as a southern extension of the existing campus building core. In addition, the Master Plan proposes three (3) garage structures along the southern and western periphery of the campus.

The proposed improvements are based on projected changes in full-time equivalent (FTE) day students, faculty and staff, which would have the greatest impact on trip generation and parking demands. Forecasts developed recently by the College show the total FTE campus population increasing from 6,928 (2002) to 7,455 (2012), representing a change of approximately 7.6 percent. The projected incremental campus population consists of 419 FTE daytime students and 108 FTE daytime faculty and staff members. Based on the Institute of Transportation Engineers (ITE) Trip Generation Manual (7th Edition, 2003), and assuming a transit usage factor of 5 percent, the incremental campus population would generate 227 AM and 200 PM total vehicular peak hour trips. These trips would be well distributed, resulting in minimal impacts on the campus access points along Hungerford Drive and Mannakee Street.

Notwithstanding the above, consideration would need to be given to the potential impacts that other planned land use developments within the immediate campus area, and increased growth in regional (through) traffic could have on year 2012 access conditions. The area land use development activity is currently being researched. However, review of historical Average Daily Traffic (ADT) data obtained from the Maryland State Highway Administration indicates that traffic volumes along Hungerford Drive, have increased at an average annual rate of 2.6 percent over the period 1993 - 2002. These factors may create the need for operational/capacity improvements at the North Campus Drive intersection. Potential improvements would include signal optimization and the widening or re-striping of the North Campus Drive approach to provide for eastbound double left-turn movements.

b. Pedestrian Circulation

The existing pedestrian desire lines from the parking lots to the campus buildings form a radial pattern. This pattern would continue. However, due to the parking redistribution proposed by the Master Plan, a significant proportion of pedestrian movements would be shifted to the new parking structures along West Campus

Drive. The Master Plan calls for each garage to be connected to the campus core via a pedestrian bridge, to obviate the potential impacts of the parking redistribution on pedestrian-vehicular conflicts along West Campus Drive. In addition, to these improvements, pedestrian crosswalks and related signage would need to be provided or upgraded, particularly in the vicinity of the two (2) garages and relocated Child Care Center along West Campus Drive.

c. Parking

The campus is currently served by 3,296 parking spaces, distributed within fourteen (14) surface lots. This supply includes of a 75-space lot situated across Mannakee Street from the campus, and a 265-space overflow lot situated to the west along Mannakee Street. The Master Plan proposes the elimination of 752 \pm spaces within the southern section of the campus to facilitate the development of the Science Center, Library Resource Center, Student Services Center and a 366-space parking garage; the elimination of 539 \pm parking spaces west of West Campus Drive to facilitate the development of two (2) parking garages with a total capacity of 1,600 \pm spaces, as well as the relocation and development of a new Child Care Center; and the elimination of 186 \pm spaces within the northern section of the campus, primarily to facilitate the development of a Physical Plant. The Master Plan also proposes the expansion of a parking lot to include 100 \pm additional spaces.

The planned parking changes would result in a net gain of 589 \pm spaces. There would also be a significant redistribution of the parking, primarily from the southern to western section of the campus, which in turn would result in a redistribution of traffic from the eastern to western access point along Mannakee Street. This redistribution may present operational/capacity constraints at the western access point.

The future parking demand for the campus was developed based on the year 2002 Full Time Equivalent (FTE) day campus population to peak parking demand ratio (0.41), and the application of this ratio to the projected 2012 FTE population. The parking generation rates recommended in "The Dimensions of Parking" (1993) published by the Urban Land Institute (ULI) were also considered for comparative purposes. Based on a projected 2012 FTE population of 2,825, and considering a practical capacity factor of 95 percent, a parking supply in the range of 3,400 spaces would be required to serve the horizon year daytime campus uses. This parking demand would be accommodated adequately by the future parking supply 3,885 spaces. Of that supply, 3,545 would be on-campus within easy walking distances.

In summary, no significant transportation constraints to the implementation of the Master Plan have been identified. However, the projected capacity of the Hungerford Drive/North Campus Drive and Mannakee Street/Western Entranceway would need to be further assessed as part of the Master Plan implementation process. In addition, appropriate traffic control and pedestrian amenity improvements would be required, particularly to minimize the potential impacts of the garages on access and circulation along West Campus Drive.

Illustrations 3-5 through 3-7 on the following pages present existing vehicular access, parking provisions, and pedestrian access and circulation.

Illustration 3-5
Existing Campus Site Layout and Local Vehicular Access

Illustration 3-6
Existing Parking Provisions

Illustration 3-7
Existing Pedestrian Access and Circulation

D. Service and Functional Organization

Building service areas are integral to the functioning of the building operations, but need to be screened to impede visually and audio adverse impacts. The Architect/Engineer shall design the service functions so as not to be incompatible with other activities on the site. The following criteria should govern the design of the service area(s) design.

1. Consolidation

Service activity functions shall be consolidated in a service area so that loading/unloading operations can be minimized. Parking for service vehicles shall be located in the service area. Access points to service activities within the building shall to be located on the exterior to insure ease of access.

2. Location and Screening

Service areas shall be screened from activity centers and pedestrian walkways. Service areas shall be located to avoid conflicts with pedestrians, vehicle circulation, and incompatible activities such as recreation.

3. Design Process

Service requirements should be designed as a unified system from the early stages of design. Service access and egress may prescribe building location or orientation, especially in cases where adjacent compatible support functions exist.

4. Separation of Public and Private Areas

The site development should be designed so that public and private space is clearly defined. Parking areas located directly adjacent to service areas without visual separation can be a source of security problems and vehicular circulation conflict.

5. Fire Apparatus Accessibility

Access requirements for fire apparatus shall be provided for in compliance with the College and the Montgomery County Fire Marshal standards. The Architect/Engineer shall coordinate review of proposed site plans for compliance with the College and the Montgomery County Fire Marshal's Office.

E. Accessibility (for Individuals with Disabilities)

The purpose of this section is to provide an outline of considerations relating to the use of the site by physically disabled individuals in order that there is full compliance with ADA.

All on-site and major entrances to the building must be accessible to people with disabilities. This will include the provision of curb cuts, elimination of excessive grades, handrails, and the construction of parking within ADA design regulation guidelines for accessibility.

Innovative design will be a necessity in attaining total accessibility, especially in light of the requirements of the facilities programmed. The term "people with disabilities" in all possible meanings extends accessibility beyond those who are permanently disabled, to include

temporarily disabled individuals, a common occurrence on a campus of physically active young people.

In general, it may be stated that accessibility to this facility should be integrated into the overall design concept creating a barrier free environment that accommodates everyone. The following are to be incorporated in the design.

a. Parking

Specifically designated and dimensioned parking spaces, designed in accordance with ADA design standards and requirements, are to be located as close as possible to major access points to the building. These should be level and clearly marked as reserved for the disabled. As the main parking facility is somewhat remote from the building; a closer, separate parking area for the disabled is to be provided.

b. Walkways

Walkways connecting accessible building entrances to parking for the disabled, off-site circulation, and other facilities within the Campus must meet identified design criteria for the disabled. Stairs, curbs, and excessive grades should be avoided or alternate means of movement provided. Curb cuts in accordance with current design criteria must be provided where walkways intersect roads or provide access to parking facilities. When excessive grades are encountered, ramps with level resting areas at regular intervals are to be provided. In all emergency access areas, walkways should be 10' wide and capable of supporting 25-ton emergency vehicles.

c. Entries

Major points of entry to the building must facilitate access for the disabled. In addition, all other entry points should be accessible. In all cases, entry points closest to designated parking areas for the disabled must be designed to permit accessibility by people with disabilities. Ramps or other special features are to be integrated into the total design so as not to appear as a special conciliatory feature.

d. Graphics

A graphic system must be included in the site design to indicate parking spaces and to direct people with disabilities to accessible building entrances. Signage must comply with Montgomery College criteria.

e. Lighting

Security lighting is an important element of the site design. The Architect/Engineer is required to provide for the safety and well being of the facility users to provide safe access to and from the site and the building. Montgomery College has standards for campus security lighting and the Architect/Engineer must coordinate this effort with the identified Montgomery College representative.

F. Utilities

New and existing demands on utilities in the building area are to be assessed by the Architect/Engineer. The Architect/Engineer's recommendations as to utility connections are to be submitted in the first stage of design. The Architect/Engineer shall coordinate with all the utility owners to assure service connection and capacity for the new building. Any information concerning problems with providing utility services in the building shall be provided to the College as soon as it is known.

The Architect/Engineer is responsible for the complete system design of all new utility connections from the points of the connection with existing systems to the building site and to establish the precise location and size of all underground utilities and/or services in the construction area. Further, the Architect/Engineer is responsible for a thorough investigation of all existing utilities (location and capacities) in order to properly design and locate the new utility services including capability for expansion. If deficiencies in services to the new buildings are present, an upgrade of the insufficient utility systems serving those buildings is included in the project scope. This is understood to include an evaluation of all on-site utilities and also any demand that may be incurred on "down-stream" utility lines.

The design of potable water, sanitary sewer, gas, electric, telephone, and storm sewer utilities are to meet the requirements and approval of the Agency(s) presiding over the project area. In addition, it is desired that freeze-proof cold water hose bibbs be located at the exterior of the building and on the site to provide a source of water for landscapers and/or maintenance staff. All non-sewered domestic water uses such as the exterior hose bibbs and cooling tower waste water make-up shall be provided with a sub-meter acceptable to WSSC.

Exterior lighting design shall be in accordance with the Montgomery County Energy Design Guidelines.

1. Existing Systems

As part of this Facilities Master Plan process, the 1991 Utilities Master Plans and 1994 update and the 1991 Facilities Master Plan were reviewed to determine the adequacy of existing systems and to ascertain the potential for future expansion. In addition, the Facilities Managers for each campus were interviewed to identify completed and planned improvements and to verify existing information.

a. Water

The college gets all potable water from the City of Rockville. Two metered supply lines come from Mannakee Street and one metered supply line comes from Hungerford Drive. Some of the piping is deteriorating but not at a uniform rate throughout the campus. The existing piping is adequate to handle all of the present and future domestic water needs but hydraulic simulations using the Kentucky Pipe Model Program based on the flow requirements of the Insurance Service Office (ISO) Fire Suppression Rating Schedule in the 1991 Utilities Master Plan indicate the system is inadequate to handle fire flows on the campus.

b. Sanitary Sewer

The college maintains its own sanitary sewer system with two outfalls located on Mannakee Street. The existing sewer system maintained by the college is adequate

for all present and projected future flows based on recommendations and capacity charts in the 1991 Utilities Master Plan.

c. Heating System

The campus is served by a central plant, providing low temperature hot water for space, domestic hot water, and swimming pool heating. The system consists of 3-100 BHP and 1-450 BHP gas-oil fired firetube boilers and centrifugal pumps located in the Humanities building. The water is distributed to the West side of campus by a 10-inch underground heating water loop. The East side of campus is served by a 12-inch underground heating water loop. The 450 BHP boiler has been installed since the 1991 Master Plan and the 3 other boilers were installed in 1987. All campus buildings are served by this system except for Child Care, the Carpenter Shop, Mannakee, and the Interim Technical Training Center (ITTC). The plant boilers have been sized to meet both the current and anticipated loads of the 1991 Utilities Master Plan.

d. Chilled Water System

The current chilled water system consists of water-cooled rotary screw chillers and chilled water distribution via underground piping. The central plant chillers are located in the Humanities building and consist of 2-450 ton screw chillers and 1-150 ton natural gas engine-driven screw chiller, all water-cooled. In addition, there is a 4360 ton-hrs thermal ice storage plant. The underground piping loop has been installed since the 1991 Utilities Master Plan was written. The central plant serves all of the campus buildings except the Performing Arts Building which has a stand alone chilled water system; and the Mannakee Building, Child Care, Carpenter Shop, and Interim Technical Training Center (ITTC) which have packaged systems. The Science East building has a backup chiller but is connected to the plant as its primary source of cooling. This backup 225-ton variable speed centrifugal chiller provides redundancy not only to the Science East building, but also to the entire West Loop.

In Spring of 2004, a new backup chiller will be provided at the Campus Center. This 240-ton variable speed centrifugal chiller will provide redundancy for the East Loop.

Based on Montgomery College projections of future load in the 1991 Utilities Master Plan and assuming all buildings will eventually be connected to the central plant, the system is undersized. The current size is 1,050 tons plus 4360 ton-hrs from the thermal ice storage system. For a typical cooling day, with eight hours of peak cooling, the total plant capacity is 1595 tons. The college projects a campus load of 2,700 tons in Table E-2 of the 1991 Utilities Master Plan. This is assuming no load diversity at peak conditions. This condition will be exacerbated by the additional development proposed in the current Facilities Master Plan.

e. Natural Gas

The current natural gas system consists of three uninterruptible supply systems and one interruptible supply service. Two uninterruptible supply services (Art and Music Buildings and the Gudelsky Institute for Technical Education) serve only instructional needs and not any building mechanical equipment. A third uninterruptible supply service at the Humanities Building feeds the College-owned distribution system that connects to mechanical and other equipment in Science East, Science West, Macklin Tower, Humanities, Technical Center, Student Services, and Campus

Center. The interruptible supply service connects to the Campus Central Plant located in the Humanities Building. The alternate fuel for the central plant is No. 2 fuel oil from a 20,000 gallon underground storage tank located next to the Humanities Building.

f. Electrical

The current electrical power to the campus is supplied directly from the utility company, PEPCO. There is no existing central power plant on the campus. The 1991 Utilities Master Plan recommended that central plant metering for the campus would be cost effective.

Each building in the campus is served and metered separately from the secondary side of the PEPCO's transformers. Primary feeders and transformers are owned and maintained by PEPCO.

According to the 1991 and 1994 Utilities Master Plans, there is adequate power throughout the existing campus. In addition, there should be adequate power available to support any type of campus growth since the electrical power system is distributed and owned by the utility company.

2. Proposed Utilities

a. Water

Potable water is supplied by the City of Rockville through an 8 inch water main that runs on South Campus Drive and an existing 12 inch water line that runs parallel to west Campus Drive through the parking lot. Both lines connect to the 12 inch water main located on Mannakee Street.

Domestic water supply from the existing water supply mains is adequate for expansion planned in the 10-year horizon period. However, additional fire hydrants will be required as part of the campus expansion.

b. Sanitary Sewer

Sanitary Sewer is supplied by the City of Rockville through an 8 inch gravity line that serves all the existing buildings of the Campus. The existing line runs through the west campus drive and flows through the west side of the campus.

The existing 8" sanitary sewer line has adequate capacity to support the expansion of the campus.

c. Heating System

Most of the existing buildings on the Rockville campus are provided with heat from the Humanities Building heating plant. The existing plant can provide up to 25,100 MBH of heating. The plant presently has approximately 3,000 MBH excess capacity for future expansion. The future demolition of Counseling and Advising, Student Services, and Computer Sciences will make available from the plant an additional 2,400 MBH for future growth. While this excess capacity can accommodate some growth, this plant does not have the capacity to accommodate all of the planned construction.

This excess capacity could be used to serve the new Math Center (2,200 MBH), Performing Arts Addition (150 MBH), and Physical Education Addition (1,500 MBH). These additions to the plant were chosen because they will be located within the piping distribution system of the existing plant.

The Heating Plant also has the capacity to accommodate the Gudelsky Expansion (1,600 MBH). The underground distribution piping to Gudelsky has the capacity to carry the additional load since it was sized for expansion in this area of campus.

The new Science Center could be added to the Heating Plant, yielding a plant diversity factor of 86%. This will also require an extension to the West Loop piping distribution loop to the new Science Center.

The new Physical Plant Building will require 1,750 MBH of heating capacity. If there is sufficient additional capacity in the underground distribution piping loop to Gudelsky beyond what is required for the Gudelsky Expansion, the loop may extend to the new Physical Plant. It should be evaluated whether it is more cost effective to extend the piping system or provide a stand-alone heating system.

The remaining new buildings in this Facilities Master Plan include the Art Building (2,600 MBH), the Library Resource Center (4,400 MBH), and Student Services Center (1,900 MBH). These buildings are clustered in the same area of campus and their heating requirements could be combined into a new central heating plant. Because the Student Services Center is the first of these three buildings scheduled for construction, the 8900 MBH plant would be provided in this building. This new heating plant would require gas-fired boilers, circulating pumps, and distribution piping to the Library Resource Center and Art Building.

d. Cooling System

The existing plant, including the ice storage system, has a capacity of 1595 tons. This capacity is not adequate to serve the projected future load of 3000 tons. The Central Cooling Plant has the planned capacity to add two thermal ice storage modules, adding 2400 ton-hrs to the systems. Based on an eight hour peak load, this adds 300 tons to the system. If this additional ice storage capacity is implemented, the total plant capacity will 1895 tons.

The new buildings which will require greater cooling capacity from the plant include the Performing Arts Addition (13 tons), Physical Education Addition (140 tons), Library Resource Center (430 tons), and Student Services Center (190 tons), Gudelsky Addition (146 tons), and Arts Addition (210 tons)

Also, it is possible to switch Science East and Campus Center from the plant to their backup chillers during peak load conditions. This would decrease the plant load by 225 tons and 240 tons, respectively. The total future load would then be reduced to 2535 tons. Therefore, if no diversity factor were used, an additional 640 tons of plant capacity would be required.

This additional 640 tons would most effectively be provided at one of the new buildings, in the form of a smaller second plant, possibly tied into the existing distribution loop for redundancy. The Library Resource Center (430 tons) and Student Services Building (190 tons) most closely match this additional capacity.

The Library Resource Center, similar to Science East and Campus Center, would be provided with a variable speed centrifugal chiller, pumps, and cooling tower.

e. Natural Gas

Natural gas is supplied by Washington Gas Company through a 6-inch gas main within the campus. All the existing buildings are served by various size laterals ranging from 1-1/2 inches to 6 inches that connect to the 6-inch main in Mannakee Street. Based on the 1991 Utilities Master Plan recommendations, the majority of the College-owned wrapped carbon steel pipe has been upgraded to polyethylene pipe. However, some of the original pipe remains and it is recommended that it be replaced as well.

f. Electrical

The design of electrical systems will comply with the Montgomery County and Montgomery College Energy Design Guidelines, ASHRAE Std 90.1, and the National Electrical Code.

New electric services from PEPCO will be required for the proposed new buildings. Each building will be served at 480 volt from its own PEPCO transformer, separately metered. The transformers will be located on grade adjacent to each building. PEPCO will own primary feeders and transformers. PEPCO will also provide secondary conductors up to the property line. Each building will have a main electrical room. The new electric services are estimated as follows:

- The Science Center will require a 2500 ampere, 480 volt service. A 12-way secondary duct bank from PEPCO transformer to the building will be provided by Montgomery College.
- The Physical Plant will require a 1000 ampere, 480 volt service. An 8-way secondary duct bank from PEPCO transformer to the building will be provided by Montgomery College.
- The Student Service Center will require a 1600 ampere, 480 volt service. A 12-way secondary duct bank from PEPCO transformer to the building will be provided by Montgomery College.
- The Library Resource Center will require a 2500 ampere, 480 volt service. A 12-way secondary duct bank from PEPCO transformer to the building will be provided by Montgomery College.
- The Arts Addition will require a 1600 ampere, 480 volt service. A 12-way secondary duct bank from PEPCO transformer to the building will be provided by Montgomery College. The electric service to existing Art Building will be maintained.
- The three structured parking garages will require 2500, 1000, and 600 ampere, 480 volt services respectively. New 12-way, 8-way, and 6-way secondary duct banks from PEPCO transformers to the buildings will be provided by Montgomery College.

For the proposed building additions, the existing electric services will be upgraded to accommodate the additional loads. All these buildings will be served at 480 volts, as well. The additional loads are estimated as follows:

- The addition to the Gudelsky Institute will require a 800 ampere, 480 volt service. (The existing electric service to the building will be upgraded to accommodate this additional load.)
- The addition to the Humanities Building will require a 2000 ampere, 480 volt service. (The existing electric service to the building will be upgraded to accommodate this additional load.)
- The addition to the Performing Arts Center will require a 600 ampere, 480 volt service. (The existing electric service to the building will be upgraded to accommodate this additional load.)
- The addition to the Physical Education Center will require a 800 ampere, 480 volt service. (The existing electric service to the building will be upgraded to accommodate this additional load.)
- The renovation of the Math Center (currently Science East and West), Macklin Tower, Technical Center, Instruction Building, and Campus Center, will also require additional loads.
- The Child Care Center will require a 100 ampere, 480 volt service per unit.

Instead of a separate electric service for each building, a single point 13.2 kV service from PEPCO will also be evaluated. It will require installing a 13.2 kV underground primary loop in a 2-way ductbank around the campus. The 13.2 kV loop will originate from the load side of the PEPCO meter, and will supply power to transformers feeding each building. The College will own and operate all electrical distribution systems on the load side of the meter, i.e. primary and secondary feeders and transformers. The College will also need to enter into a contract with an outside firm to handle both routine maintenance and emergency service.

A feasibility study will be performed for on-site power generation, including the use of alternate energy sources such as solar power. Central inverters vs. on-site power generation systems will be evaluated for each individual building. An engine generator instead of central inverter is proposed for buildings housing critical functions, such as central security, central telephone and information technology system. If central inverters are used to supply the emergency power, one inverter (25-50 kVA) will be provided in each of the proposed new buildings. The inverter will be located in the main electrical room. For additions to existing buildings, the existing emergency power systems will be evaluated and upgraded, if required.

g. Emergency Power Systems

Emergency power will be required for life safety systems (i.e. emergency and egress lighting, fire alarm system, etc). In addition, emergency power may be needed to support telephone and security systems.

If a generator is provided, the emergency equipment will be segregated into Emergency, Legally Required Standby, and Optional Standby Systems in accordance with NEC Article 700-702. The generator will be located adjacent to the building.

The requirement for an Uninterruptible Power Supply (UPS) system to protect any non-interruptible loads will be evaluated at schematic design stage.

h. Building Automation Control Systems

To the maximum extent possible the building systems shall be integrated using IP technology to provide the maximum cost savings and flexibility. The building automation control systems will comply with the ASHRAE Standard 135, Building Automation Control Network, An Open Protocol (BACnet).

i. Fire Alarm System

An upgrade of the existing fire alarm system is required where additions to existing buildings are proposed. An addressable type fire alarm system is recommended for all new buildings. Provisions should also be made for remote monitoring at a central fire command center. Fire alarm systems will have an open protocol, and will be compatible for integration with other building management systems.

j. Information Technology Systems

The telephone and information technology system will be centralized and designed in accordance with Montgomery College's Cable and Wire Infrastructure Specifications, and Information Technologies and Security System Design Guidelines.

The system will include copper and fiberoptic cabling, underground ductbank and manhole systems to the central hub. Presently the central hub for information technology is located in the Computer Science Building and the main telephone room is located in Humanities Building. The central hub will, however, be moved to Campus Tower when Computer Science Building is demolished under the 10 year plan. The conduits must be sized to accommodate the required amount of cabling being routed from one location to another, and the inner duct partitioned to separate the conduits into a series of multiple partitioned raceways.

Telephone and data outlets, and cable tray systems will be provided throughout buildings. Moreover, telecommunication rooms housing MDF/IDF should be provided.

k. Security

The design of building security systems will comply with Montgomery College Information Technologies and Security System Design Guidelines.

The security system for the proposed new buildings will be based on a centralized computer-based Security Management System (SMS) for the safety and protection of students, faculty, assets, property and buildings. The overall SMS will integrate and incorporate CCTV where campus personnel or property may be at risk, access control for various spaces in the building and ground floor entrances, intrusion alarm system at areas subject to robbery or break-in, and alarm monitoring functions. Security systems will have an open protocol, and will be compatible for integration with other building management systems.

The security system will consist of a host, workstations and monitoring and control systems, intelligent data gathering panels, and video transmission equipment.

An Uninterruptible Power Supply (UPS) system will support and sustain key functions of the security system during a power outage.

Illustration 3-8
Water Supply System

Illustration 3-9
Storm Water Drainage

G. Storm Water Management (SWM) and Sediment and Erosion Control

The Architect/Engineer shall submit plans for storm water management (or submit an application for storm water management waiver) and sediment and erosion control for approval to the Maryland Department of the Environment, Sediment and Storm Water Administration, 2500 Broening Highway, Baltimore, Maryland in conformance with the requirements of the following two publications or the most recent additions:

- Maryland Model Storm Water Ordinance (July 2000); and
- 2000 Maryland Storm Water Design Manual Volumes I & II.

(Both publications are issued by the Maryland Department of the Environment (MDE), Water Management Administration.

Quantitative and qualitative storm water management, as required by the Maryland Department of the Environment, shall be included in the site drainage design. Storm Water Management must be addressed on a project if more than 5,000 square feet of surface area is disturbed.

The particular approach to meeting storm water management requirements at Montgomery College often is somewhat different from that which would be appropriate for a smaller self-contained site. It is therefore necessary that the approach to meeting SWM requirements be coordinated with the College and the local jurisdiction having authority before submittal to MDE.

Furthermore, early coordination with the reviewing agency (MDE) is essential to preclude delays. In general, a site/grading plan adequately developed to provide a complete sediment control plan and storm water management plan, including required supporting calculations, must be submitted at or immediately following the Design Development submittal stage

Erosion and sediment control practices shall be in conformance with the 1994 Maryland Standards and Specifications for Soil Erosion and Sediment Control published jointly by Water Resources Administration, Soil Conservation Service, and State Soil Conservation Committee. Sediment and erosion control approval must be obtained from MDE if more than 5,000 square feet of surface area or more than 100 cubic yards is disturbed.

The selected A/E is required to provide SWM in accordance with the MDE July 2001 guidelines and the CMP Ecological Guidelines.

1. Existing

Existing Storm water Management in Rockville Campus consists of series of storm drain pipes, which divert the storm water runoff to the existing duck pond. The existing pond was constructed in mid 1960's and provides for both quantity and quality control for all existing buildings, parking, and access roads.

The existing pond was retrofitted and enlarged in 1992 to provide water quantity control for the Gudelsky Institute (GITE) project site. In addition to the GITE building site, storm water management was provided for the future seven other project sites anticipated at that time.

As part of the retrofit a channel was added on the down stream side of the Campus Drive to provide a 100 year overland flood path.

2. Proposed

Quantity control for this site will be provided through the existing duck pond and a waiver will be requested from the City of Rockville. The pond was retrofitted to provide capacity to control flow for seven proposed buildings totaling an area of approximately 148,000 sq. ft. However, these proposed structures have not been built. The buildings proposed in this Facilities Master Plan include three parking structures and several other building additions and new buildings. Although the number of projects exceeds the seven taken into consideration for the sizing of the pond, the proposed total area (at grade level) is only approximated to be 125,150 sq. ft. Also, the proposed structures are mainly located where there is already impervious ground surface, therefore pre-development and post-development runoff will not be increased.

Under the 2000 Maryland Storm water Management Design Manual, quality control will have to be provided for the first inch of rain fall over the entire proposed impervious area. Therefore the roof drains from the parking structures and the building will be connected to the storm drain system and filtered through under-ground sand filters prior to discharging to the existing pond. These structures will be accessed through manholes for maintenance purposes. Three under ground sand filters are proposed for the three proposed structures.

H. Site Reforestation

Section 1 of the Forest Conservation Act (Chapter 255, Laws of Maryland 1991) contains the provision of the Forest Conservation Program, including conservation thresholds, afforestation, and reforestation standards, and requirements for forest stand delineation and forest conservation plans. The Program provides for the applicability of its requirements to any public or private subdivision plan or application for a grading or sediment control permit by any person, including a unit of State or local government, on areas of 40,000 square feet or more. These provisions are codified as Natural Resources Article, Sec. 5-1601--5-1613, Annotated Code of Maryland.

Section 2 of the Act amends Natural Resources Article, Sec. 5-103 (the "Reforestation Act"). Section 5-103 required units of State Government and persons using State funding for construction activities to minimize the cutting or clearing of trees and to contribute up to \$500 an acre to a Reforestation Fund if the area cut or cleared was one acre or more. Section 2 amends Section 5-103 by increasing the reforestation fee to 10 cents per square foot of the area required to be planted. For any publicly financed construction activity, the requirements of the Forest Conservation Program apply.

The Architect/Engineer will be required to develop the project in accord with the Forest Conservation Act and its pertinent Regulations, 1991. A thorough review of the statute, the regulations, and the Forest Conservation Manual are necessary for a complete understanding of the law, and the performance of the Architect/Engineer's subsequent responsibilities. These responsibilities can be extensive. Copies of all of these documents may be obtained from the Division of State Documents, P.O. Box 2243, Annapolis, MD 21404-2249. Additional information may be obtained by contacting the Department of Natural Resources, Public Lands-Forestry Division, 201 Babbitt Street, Suite #22, Salisbury, MD 21801-4979 (Telephone #: 410-543-6745).

I. Wetlands and Floodplain

The identification of regulated wetlands and Floodplain areas within the site limits is required in accordance with Maryland Department of the Environment (MDE) or U.S. Army Corps of Engineers (COE) regulations and guidelines. The identification of such areas shall be the first priority of the site design and the existence of these areas shall be brought to the immediate attention of the College.

Any disturbance within a non-tidal wetland or its buffer is subject to regulation as is construction within any 100-year Floodplain. Approval from the appropriate reviewing agency(s) is necessary for any such disturbance or construction.

J. Impacting Projects

To reiterate, the following projects have the potential of impacting the development of the proposed site:

1. Proposed Facilities Master Plan for Montgomery College, 2002-2012.
2. Campus utility infrastructure.
3. ?

The selected A/E will be provided with available planning and design documentation of the above at the pre-fee negotiation meeting.

4. BUILDING DESIGN CRITERIA

4. BUILDING DESIGN CRITERIA

The primary criterion governing design shall be one that produces an optimal solution to the stated requirements within budgetary limitations. A functional, pleasing, and economical, both internally and externally, (in terms of both initial cost and cost of operation/maintenance) facility is a major goal to be achieved in the design and completion of this project. Building design solutions must address the functions and spaces detailed in this program, site environmental opportunities and constraints, energy consumption, and life-cycle costs. In addition, the facility should be designed and constructed to be flexible in its initial use, as well as for future space changes and alterations over the life of the building.

The following design considerations must be incorporated into the final project design

A. Architectural Expressions/Details (Exterior)

1. General

The architectural elements and materials employed in new construction shall be tried, low-maintenance systems with a service expectancy of at least forty years. While the high-technology function of the area within the building may suggest the use of the newest technology under development, the exterior expression of this function should be found in dependable, tested materials, and construction details compatible with the Campus and the surrounding areas in general.

The roofscape, including not only the location of elements, but also their color and shape, shall be given design attention throughout all stages of the project to assure an orderly and attractive appearance. In addition, roof top equipment (e.g. exhaust fans, mechanical louvers, etc.) shall be minimized and located or hidden in a ways as to preclude visual exposure from the street. Mechanical equipment preferably shall be accommodated in a central mechanical room within the building with minimal equipment on the roof.

The architectural elements of the building shall be coordinated to minimize energy consumption and optimize the use of natural daylight. The design shall meet the requirements of the International Energy Conservation Code and Montgomery College Energy Design Guidelines.

Entrances should be appropriately designed for accessibility, designed for use by individuals with disabilities as well as service deliveries and other general traffic. Weather protection for entry areas shall be designed and provided by overhangs, canopies, or recessed doorways. Adequately sized vestibules shall be provide at each major entrance

B. Architectural Design/Planning (Interior) - General

1. **The space created by this project shall be aesthetically pleasing yet provide for future adaptation and change - all within a total framework of cost effectiveness.** The internal appearance of the facilities shall present an environment that reflects the highest quality possible. Space, configuration, materials, etc. should be selected to achieve these ends. The materials selected shall not become contaminant sources and

contribute to the degradation of Indoor Air Quality (IAQ). Interior lighting shall be designed using point-by-point lighting analysis to minimize energy consumption and maximize occupant comfort in accordance with Montgomery County Energy Design Guidelines. In addition, the interior design of the building must provide future flexibility/capability to erect or rearrange partitions and space without the need to redesign HVAC systems.

It is difficult to predict the physical requirements that the future programs may impose on the building structure. Advances in technology or changes in activity interest may demand profound spatial adaptation. Hence, the design solution should address adaptation of spaces within the limits of the existing building.

More specifically, the interior environment of the building should be warm and inviting, and should be designed to promote interaction between faculty, staff and students. In accordance with the College design guidelines, the use of wood, stone and other natural materials should be given special consideration for interior finishes with special emphasis on public entrances. All spaces should have access to natural light whenever possible. Public spaces should be designed to encourage social interaction and spontaneous conversation. Public circulation should be organized to facilitate easy orientation for visitors. Each department/program should have its own identity, but should still be perceived as an integral part of the whole building. A hierarchy of public to private spaces should be established without making faculty offices appear inaccessible

2. **Circulation patterns within the structures must provide for ease of use, and shall be appropriately sized.** In the overall design, careful attention shall be given to the circulation patterns for staff, students, and visitors. In addition, the relative sizes of the horizontal circulation elements (lobbies and corridors) shall be based on projected loads and capacity appropriate to those areas directly served and to the movement of persons from one area to another and comply with NFPA requirements. Those elements shall be designed with due consideration to the ratio of net assignable square feet to gross square feet.

The main entrance to the building must immediately convey a sense of the building and its activities to those that enter, be they first time visitors, or persons well acquainted with the building. The space must be warm and inviting, and should indicate a sense of direction to various spaces. Control over persons entering the building should be maintained by surveillance of the entrance space by a normally occupied staff area. It should be clear that this staff area is the place to go to receive future directions. The primary occupant traffic entrances to the building shall have airlock vestibules. The primary occupant traffic entrances to the building shall have airlock vestibules.

Circulation spaces should serve double duty as a means to promote spontaneous social interaction, and therefore, encourage the exchange of ideas and information. This also insures great surveillance of public spaces by the staff, discouraging theft and vandalism. Avoid long, narrow corridors that serve no function but to travel from point to point.

Main entrances to all classroom spaces shall not only be accessible to students with disabilities, but shall also provide an accessible route for faculty and staff.

- 3. Selection of building materials and finishes is critical in the completion of this facility.** Materials and finishes, both interior and exterior, shall be selected to meet the following criteria: aesthetic considerations, durability, acoustical requirements, ease of maintenance, and conservation of energy and be 0% non-asbestos containing ((and non-lead bearing paint <0.5%)). All materials, including design details, shall be analyzed for their effect on durability and ease of maintenance, and attention shall be given to areas of high traffic (corridor), water or chemical (toilets), and other special use functions. Special care shall be taken at building entrances to provide for the removal of dirt and sand. Acoustical ceiling shall be of the lay-in type; exceptions will be considered for special cases.

Architectural finishes are critically important in this facility. Obviously there is a concern for maintainability and durability. In addition, surfaces must be selected to provide a monolithic, scrubbable surface, free of cracks or ridges. Floor-wall joints must be designed to allow easy cleaning. Doors shall be sealed against pests and vermin and all penetrations of pipe, conduit, etc. shall be sealed. If some form of cavity wall is selected, special attention must be paid for prevention of infestation in the cavity.

The building materials shall be selected using low VOC components to minimize contaminant sources and not contribute to degradation of IAC.

Finally, the nature of the facility insures a certain amount of abuse from the movement of equipment and persons. Measures should be taken to protect the building surfaces and corners from occupant damage. The Architect/Engineer must work closely with the College's maintenance staff to benefit from their knowledge and experience in the maintainability of various surfaces and systems. Care in the design of the building will insure significant life cycle cost savings.

- 4. Consideration must be given to the acoustical properties of each functional space in the project.** Each space in this project shall be designed to provide optimal hearing conditions within the space, with consideration given to the preclusion of unwanted sounds from entering the space. Spaces that will contain noise-generating sources shall be designed away from spaces requiring quiet, or shall be adequately isolated acoustically in accordance with MC or best practices. Consideration shall be given to the transmission of sound through a ceiling, or through the mechanical system, or over a partition that does not extend to the structure.

Meeting and gathering spaces require special care, particularly considering reverberation. Consideration shall be given to sculptured ceilings, acoustical flooring, non-parallel walls that cover in the direction of the source of sound and other techniques that will avoid the necessity of adding sound absorbing materials after the facility is completed.

The Architect/Engineer is responsible for determining anticipated noise levels that will be generated by equipment and occupants of the building and specifying sound transmission coefficients (STC's) of walls, floors, and other elements of enclosure needed to maintain acceptable noise levels. .

- 5. Quality of light is as important as quantity of light.** The design of lighting systems shall include detailed consideration of the normal tasks performed in the room, reflectance of all surfaces, special lighting effects required, normal sight lines, and zone

control of larger areas. Unique ergonomic circumstances in spaces where computer monitors are used extensively require special analyses and provision for appropriate lighting quality.

Point-by-point lighting analysis shall be performed and fixtures and controls designed to meet the requirements of the International Energy Conservation Code (or Montgomery County Energy Design Guidelines). The use of natural light is required to supplement the building's lighting system. Consideration should be given to the use of indirect lighting in classrooms. For those spaces requiring blackout capability, windowless space in the building should be given consideration.

6. **Location of toilets, custodial closets, maintenance services/storage, drinking fountains, trash receptacles, public phones, vending/concessions, display of the building directories, bulletin boards and exhibits etc. must be convenient.** The various comfort and convenience functions must be accommodated in locations that depend on the design scheme and code requirements. Accessible toilet facilities for men and women shall be provided in each area of the facility and comply with OSHA and National Sanitation Foundation requirements/recommendations. Chilled water drinking fountains should be located conveniently in corridors. A minimum of one custodial closet per floor shall be provided, and shall be sized to accommodate the equipment required for the space served. Custodial closets shall be provided, and shall be sized to accommodate the equipment required for the space served. Custodial closets shall have easily cleaned surfaces and have a floor-mounted service sink, mop hooks, shelves for supplies, and other items as may be required. The number of custodial closets and their requirements shall be coordinated with Montgomery College Germantown Campus Department of Physical Plant.

Provisions shall be made at the entrance of the building for attractive display of a building floor plan. In addition, bulletin and announcement (change-letter type or electronic) boards for College announcements, as well as provisions for the display of hanging of artwork, pictures, and paintings, with appropriate lighting shall be provided in an attractive and secure manner.

In public spaces, provide functional as well as aesthetically compatible trash receptacles. At a minimum, provide public telephones/TTY in the building lobby.

7. **Additional storage shall be provided.** In many instances throughout this document, requisite storage spaces are identified and included. However, if the Architect/Engineer has the opportunity to provide additional storage areas within the specific design NASF, this should be done.
8. **Material delivery and removal from the building.** The need for delivery of materials and the removal of wastes from the building dictates that consideration be given to designation of a delivery entrance, separate and removed from the principal access of the building, and for the location of a dumpster where it can be readily collected. Space should also be provided for the collection and storage of recycled waste such as aluminum cans and paper.

The trash container enclosure must be accessible from the delivery area. Trash trucks will require a straight-line approach to the trash container enclosure. This area must be

visual screened. Additionally, provide space for trash compactor(s) in a convenient space near the refuse removal areas as required.

9. **The Architect/Engineer shall coordinate with the College for specific types of data.** Items, such as door and lock hardware, security devices, toilet fixtures and accessories, telecommunication types and devices, and mechanical equipment, are part of an overall standard. The Architect/Engineer shall make certain that all items specified comply with current or projected standards set forth by the College's Department of Facilities and in accordance with the College's IT standards.
10. **Communication of building information through signage and graphics is essential.** It is the Architect/Engineer's responsibility to design an identification and directional system to communicate information essential to the operation of the new facility. The interior/exterior graphic system is to assist individuals moving to and within the facility. In accordance with ADA requirements, particular attention must be given to the needs of individuals with disabilities to access the building from parking areas and walkways and to move freely throughout the building. The graphic system must be consistent with MC campus standards, and include:
 - a. Exterior building identification signs at the main entrance(s).
 - b. Interior signage with room numbering system to be used for sign fabrication at 50% Construction Documents.
 - c. Interior building directory at the main entrance(s) on each floor and all elevator lobbies.
 - d. Room number identification for all rooms including stairwells and corridors.
 - e. Room numbers and name identification plates for all departmental offices and all support areas including toilets and mechanical/electrical rooms.
 - f. Identification signs for all hazardous areas, evacuation procedures, and means of egress in accordance with the fire and building codes.
 - g. Directional signs as required.
 - h. Information and display facilities in public and departmental areas as required.
 - i. Campus map outside the building.
11. **Fire and life safety are major design considerations.** The Architect/Engineer is directed to investigate all potential fire and life safety problem areas, including those that may be generated by the program requirements. Below is a partial list of requirements:
 - a. All fire equipment is to be clearly visible and graphically designated.
 - b. All materials used in the building are to be selected with regard to flammability contents and the types of gasses produced by combustion.
 - c. Emergency access and egress routes are to be clearly identified and physically

apparent to the building occupants.

- d. Ventilation systems are to comply with the standards set by the American Conference of Industrial Hygienists and all other applicable codes and standards.
- e. Where emergency egress routes do not exist to grade, provide for Areas of Refuge Assistance.
- f. All fire and life safety alarm systems design must be approved by the Fire Marshal prior to installation.
- f. The Architect/Engineer shall design all fire and life safety alarm systems to be Direct Digital Control (DDC) and ASHRAE BACNet comparable with other DDC systems on the Germantown Campus.

MC's Department of Facilities to provide the selected A/E the campus criteria for installation of fire alarm systems, extinguisher cabinets, sprinkler systems, fire lanes, and ventilation.

- 12. Floor surfaces finishes shall be appropriate to the function of the space.** Surface materials shall be selected to respond to maintenance needs as well as to the function and acoustical needs of the spaces. Materials shall generally be long lasting and easily cleaned. The ease of maintaining floor coverings is a primary consideration. Durable materials shall be specified in heavy use areas. During design, all floor coverings specified shall be accompanied with maintenance requirements.

It is well recognized that carpeting is of assistance in the control of sound and environment, and should be specified in those areas where acoustical needs and comfort are essential. The Architect/Engineer must be aware of potential maintenance problems, and must take special notice of requirements for change in texture of floor surface where potential dangers to the visually disabled exist. The Architect/Engineer shall develop detailed product and installation specifications, and coordinate the review of these with the College prior to adoption. The minimum specifications for any carpet used shall include performance requirements for static protection, Radiant Panel and Aminco Smoke Chamber Test passage, Steiner Tunnel Test (ASTM84) passage, lightfastness, tuft bind, delamination, abrasion resistance, compression resistance, and acoustical qualities. Floor surface materials, binders, and glues shall be specified to minimize the out gassing of contaminants that cause Indoor Air Quality (IAQ) complaints.

- 13. Furniture and equipment layouts shall be used to illustrate the function of each space.** The spaces in this project are described in terms of square feet of space required for the function. Linear dimensions are not generally given in order to avoid undue restrictions on architectural design. However, it must be recognized that the shape of a given space will obviously influence the way in which it can be used. Therefore, the Architect/Engineer shall complete a layout for all furniture and equipment at the Design Development phase to insure that the space configuration supports the function of the space. Mechanical, electrical, and other equipment and systems that may encroach on these architectural spaces must be taken into account. The selection of movable furniture and equipment is not the responsibility of the Architect/Engineer, but of the College. However, the Architect/Engineer is required to provide a layout to

demonstrate space functionality. The Architect/Engineer must coordinate the task lighting design and equipment layouts to meet the requirements of the Energy Design Guidelines.

Primary lists of equipment required to support this project are outlined in the Space Requirements section of the Facility Program. These lists are provided within the individual space sheets. These sheets detail the overall requirements of each spatial element of the facility. The Architect/Engineer is responsible for providing a design that will accommodate this equipment. The Architect/Engineer will be required to provide floor plans that illustrate how all of this equipment will be accommodated and how and where utilities will be provided to it. Items identified as “built-in” are items which the A/E is to include in the contract documents and the A/E is to specify manufacturer, style, sizes, finishes, color, and location of this equipment and require that the construction contractor provides this equipment and any necessary utilities and services as part of their contract. The A/E shall consider ergonomic factors in the selection of furniture and development of equipment layouts.

Montgomery College will give direction to the A/E during the Schematic Design phase as to which furniture, fixtures, and equipment will be considered “in construction contract” versus those that will be purchased and installed separately as moveable furniture, fixtures, and equipment.

14. **For each space, the Architect/Engineer shall label design drawings with the net assignable square feet designed and the net assignable square feet programmed.** Below the label of each space designation on the drawings, the Architect/Engineer shall indicate the net assignable square feet designed and the net assignable square feet programmed. In addition, the Architect/Engineer shall provide a summary comparison of programmed and provided spaces, separately from the drawings using the standard Areas, Volume, and Efficiency (AVE) sheets. The combination of the individual space comparisons and space summaries shall be carried through the approval of Construction Development phase.
15. **The design shall provide for the convenient usage of the facility by individuals with disabilities.** Design pertaining to use of the facilities by individuals with disabilities shall conform to the ADA regulations. It is important that the selected Architect/Engineer have a clear understanding of each programmed use of the space and the design impact on people with disabilities. The selected Architect/Engineer shall consider both the physical and programmatic concerns during design. Elevators, restrooms, entrances, doorways, connecting corridors, and all other aspects of the building, including furniture and equipment for lounging/eating, meeting and gathering spaces, and offices, must provide for convenient use by the people with disabilities. Special consideration should be given to travel both horizontally and vertically to allow multiple accessible means of travel between levels. Note especially the requirements to accommodate the visually and aurally disabled.

The selected Architect/Engineer, however, however regard to elevator design, shall comply with the State of Maryland requirements, as well as, noting that the more stringent must be satisfied.

16. **The gross square feet in the design of the facility may not exceed the gross square feet specified in the program.** The Architect/Engineer must make every

attempt to execute a design solution within this limitation. Exceptions to this requirement are allowed only under extreme circumstances and must be approved by Montgomery College. The aggregate net assignable square footage of the spaces identified in the program represents the minimum space allocation permitted for this facility.

17. **Structural Foundation Systems.** The Architect/Engineer is responsible for investigating the soil, its type, suitability, and stability at the project site. This investigation is critical in the development of an appropriate foundation system. A geotechnical survey under the direction of the Architect/Engineer shall be performed to provide the information needed for determining an appropriate foundation system for the building. The Architect/Engineer will be expected to identify the specific foundation system to be utilized during the Design Development phase of his effort.

Floor Loading - The Architect/Engineer is required to determine the live load and provide it uniformly in all areas of the building excluding sloped roofs. In areas requiring special attention to floor loading, the Architect/Engineer is required to investigate the specific support requirements of these areas and design for these spaces accordingly. In no event shall the design live load be less than what is required by the applicable codes.

18. **Potential security problems including assault, vandalism, and theft shall be considered in the design process.** Assault on campus usually involves either rape or robbery. While this type of crime is not as common as many others, it is the most serious in terms of human consequence. Vandalism is probably the most prevalent form of crime on campus and generally occurs in isolated areas. Materials and equipment that are easy to deface or break often encourage this activity. Equipment such as calculators, dictating equipment, laboratory apparatus, and personal computers are typical of College equipment that is prone to theft.

Studies of public buildings have shown that the safety and security of both users and equipment are strongly influenced by the design of the facility. The new facility must avoid a penal atmosphere while attaining the level of security necessary on a campus. It should be open, inviting, flexible, and accessible yet safe for users and secure for equipment.

The following list represents design recommendations that may discourage theft from campus buildings. While not exhaustive, it may aid the Architect/Engineer in developing methods of avoiding crime through physical solutions.

- a. As required, all entrances are to have an alarm system connected to the Central Control System. Each exterior door should be equipped with either an alarm, a card reader, an electric strike, or a combination of these three. After working hours, access shall be controlled by a computer-coded card. Designated doors shall be locked or unlocked from a central location.
- b. All exterior doors that are designated as "EXIT ONLY" should be installed without hardware on the exterior.
- c. Emergency exits required by code should be supplied without exterior hardware and should be supplied with an automatic door closer as well as with an alarmed panic device with local and remote annunciating capability.

- d. Any spaces requiring alarms and/or access control systems must be compatible with College standards.
 - e. Stairwells and elevators must utilize public spaces for access and egress. Elevators or stairwells should not allow access directly into private office areas which would jeopardize security to the area.
 - f. Long corridors are to be avoided. Shortened corridors increase the feeling of territoriality in each area so that the casual pedestrian who enters the particular area is discouraged from being there unless there is a valid reason.
 - g. Toilet rooms and stairwells should not be separated from areas of high usage.
 - h. Fire doors to stair towers are to include vision panels.
 - i. Different units within the facility should be separately securable without interfering with required egress routes from the building.
 - j. Surface materials or windows that can be easily vandalized should be avoided.
 - k. Service and rear entry doors are to be as entry-proof as possible. They should be constructed of heavy-duty construction with locking systems that provide an appropriate degree of security.
 - l. All doors should have hinge pins that are not exposed to public areas.
 - m. Locks shall be provided on all doors, locks to have removable core cylinders to match the existing College system. All cylinders shall be keyed submastered and master keyed as directed by the Montgomery College.
 - n. Emergency telephone(s) and blue indicator light(s) should be installed on the exterior, as well as, inside of the building as needed.
 - o. It may be desirable to install an intrusion alarm or camera to protect such interior spaces such as computer equipment rooms, confidential record rooms, and areas used to secure cash overnight. If the Security System is not interfaced with the central control system, both local and remote alarms are required. Card readers for access control will be monitored with the College's computer security system and should have the capability of being connected to the Campus Safety and Security Office. The intrusion alarm should be interfaced with the alarm system located at the Campus Safety and Security Office and at the site.
 - p. It may be desirable to extend all interior partitioning to the structure above. Walls that allow access through drop ceilings should be minimized.
 - q. Lighting occupancy sensors and controls when specified shall be provided with auxiliary contacts and connected to the building's Energy Management Control System (EMCS) with alarm points into the Campus Safety and Security Office.
19. **Maintenance costs associated with new construction must be a consideration in the design of systems.** Life-cycle studies have shown that the cost of maintaining a

building over its normal life exceeds the cost of constructing that facility. The Architect/Engineer is expected to play a major role in minimizing maintenance problems by obtaining input from Montgomery College in locating facilities, designing and laying out building systems, selecting equipment and finish materials, and designing other areas that directly affect annual maintenance costs. Montgomery College will approve the systems design and equipment and material selection. Considering the project's available resources (budget, space, etc.), the Architect/Engineer will recommend the best available equipment, but not equipment soon to be obsolete. Some specific requirements the Architect/Engineer must meet when designing the facility are:

- a. Mechanical spaces must be accessible from public corridors and not require access through private spaces. Mechanical equipment or spaces that require either rooftop access or allow access from the exterior into the remainder of the building should be avoided. All mechanical spaces shall have a minimum width of 6'-0" (double doors) and minimum height of 7'-0". If large equipment to be installed that can't be broken down, then knockout panels shall be provided.
- b. Specification of equipment that requires highly technical skills and procedures or specialized equipment/tools for its repair will require thorough evaluation to determine its acceptability to the College.
- c. The ease of maintaining floor coverings is a primary consideration. Durable materials shall be specified for high use areas.
- d. All corridors, stairwells, and public areas must have masonry walls with finished interiors.

The Architect/Engineer will be responsible for ensuring accessibility to equipment for its maintenance, repair, removal, and replacement with minimal effort.

C. Mechanical and Plumbing Design Criteria

1. General Requirements

The Architect/Engineer shall coordinate the design of all elements of the building to meet the requirements of function, energy, and aesthetics. The design shall comply with all applicable codes, standards, good engineering practice, and Montgomery College. The Architect/Engineer shall obtain copies of the Montgomery College's Energy Design Guidelines, form a Design Team based upon the Guidelines, and explicitly follow the requirements of these Guidelines. These Design Guidelines require that the Design Team select the building orientation, massing, structural types, day-lighting, equipment location, and building materials as part of the earliest discussions in the pre-schematic phase of the project. Selection should be made so that they will flow smoothly into the other design phases of the project and not create roadblocks that would interfere with complying with the Design Guidelines and LEED Silver Building Rating Certification.

In general, the work must be designed to provide maximum reliability. This may required the use of standard equipment or alternate modes of operation for critical systems or equipment. The requirement for reliability also includes the avoidance of systems or equipment for which there is inadequate history of satisfactory performance. In addition, the work must be designed to be readily maintainable. Adequate clearances for

servicing must be provided for all operating equipment. No operating equipment shall be located above ceilings unless specifically designed for above ceiling applications.

In addition to the other team members, the Architect/Engineer is required to designate an "Energy Analyst" on the design team. It is the Energy Analyst's responsibility to become intimately familiar with the Energy Design Guidelines and ensure that the project design team is aware of their responsibilities, to review project design for compliance, and prepare written reports at the Schematic and Design Development Phase.

The Architect/Engineer shall comply with the format and content to meet the reporting requirements of the Energy Design Guidelines. To comply with these reporting requirements the Architect/Engineer shall ensure that the design has been sufficiently developed and the appropriate design decisions made to meet the requirements of the Design Guidelines.

The Montgomery College's Energy Design Guidelines have been written to provide design guidance for the various building systems and components constructed by County Agencies. The Guidelines require that various analyses be performed to aid in making design decisions and demonstrate compliance with the requirements of the Guidelines. The Design Guidelines require building energy simulations and life cycle cost analysis to select building envelope and HVAC systems. Where more than one solution to a design problem may seem appropriate, the A/E must perform life cycle cost and operation comparisons in determination of the solution. For other systems such as the envelope design, the College requires compliance with the Guidelines by meeting the prescriptive requirements of ASHRAE Standard, 90.1-1989 and the building envelope guidelines established by NIST. However, the Architect/Engineer is required to design task lighting with point-by-point calculations, optimize day-lighting, enter data into the various ASHRAE and IES spread sheets to accomplish the design and demonstrate compliance with the Energy Design Guidelines. In general, Montgomery College uses all energy efficient features and systems in their buildings. Energy analysis and life-cycle cost analysis required for those systems that would normally not be found in the standard college building.

2. Mechanical Systems

The design of the building mechanical systems shall comply with the Montgomery County Energy Design Guidelines, the Program Justification and Description, ASHRAE, and SMACNA. The College has standardized on roof top mounted, low temperature, Variable Air Volume (VAV) air-handling units, using Variable Frequency Drives (VFD) and parallel fan powered terminal VAV boxes. The air handlers have hot water and chilled water coils. Low temperature hot water and low temperature chilled water is supplied from the central plant. The air-handling units distribute the low temperature air to the zones through the VAV boxes. The fan powered VAV boxes have hydronic heating coils.

The air handling units shall be of highest quality designed for rooftop exposure. They shall be of the penthouse type with double wall construction, durable finishes, airtight doors, and internal access walkways. The College prefers return fans in the exhaust position rather than dedicated return fans. All dampers, regardless of service, shall be motor-operated with tight fitting stainless steel perimeter and lip seals. The air handlers

shall be appropriately dampened and soundlined so that noise from the air handler is not transmitted to the building structure or to the ductwork.

The ductwork shall be of appropriate class, thickness, sound lined and insulated to minimize fan horsepower, minimize sound transmission, meet the leakage requirements for the class of duct and minimize moisture and heat transfer. The ductwork shall be provided with access doors for inspection and duct cleaning. The ductwork shall be galvanized steel from the air-handling unit to the terminal devices. Insulated flexible ductwork may be used on the low side of the terminal devices to the diffusers provided the runs are limited to providing flexibility in diffuser to ceiling grid alignment. Return air shall generally flow through ceiling plenums and into return air ducts. The return air ducts shall be extended into the plenums in order to provide balanced flows throughout the building.

Ventilation shall be provided in accordance with the Montgomery College's Energy Design Guidelines and ASHRAE Std 62. The ventilation rates shall be based upon the prescriptive standards with the appropriate diversities applied. Ventilation fan systems shall be designed to provide quiet and appropriate exhaust flows. All ventilation systems shall have dampers with motor operators that are interlocked to the motor starter circuits. The dampers shall be low leakage, tightly fitting with stainless steel perimeter and lip seals. All exhaust fans shall be connected to the Energy Management Control System and interlocked with their respective air handling system.

3. Building Plumbing Systems

Shall comply with the Montgomery College standards, National Plumbing Code, WSSC, and as applicable, be ADA compliant. All devices specified shall be low flow to minimize water consumption. The buildings shall have separate master water meters unless a master water meter is provided by WSSC. The building shall be provided with sub-meters for landscaping hose-bibs, cooling tower water make-up, and other non-sewered uses.

D. Electrical Design

The design shall comply with all applicable codes, standards, good engineering practice, and Montgomery College specifically, the design of the building electrical systems shall comply with the Montgomery College's Energy Design Guidelines, ASHRAE Std 90.1, and the National Electric Code. For those buildings with central plant facilities a separate electrical service and electrical infrastructure shall be provided. The buildings that are involved in new construction for the campus shall be designed with provisions for lighting, emergency, receptacle and HVAC power, and life safety. Building power shall be segregated to the separate load classes and sized in accordance with ASHRAE Std 90.1. All electrical power systems shall be encased in galvanized steel conduit and properly supported from the overhead structural steel. Conduits shall not be buried in the slab of the building unless it is the primary underground feed from the building transformer to the main distribution panels. Underground electrical conduits shall be Schedule 40 PVC encased in concrete. Motors shall be premium efficiency and meet IEEE standards for Variable Frequency Drive compatibility.

1. General Electrical Considerations

In general, all spaces shall be controlled to conserve energy either by sensors or by other means. All exit lights shall be low wattage LED's. All equipment, transformers, and motors will be energy efficient types deigned to minimize the production of harmonic distortion.

Although energy efficiency is of major consequence, priority considerations in the design of the facilities shall be given to operational, environmental safety, functional, and flexibility requirements.

2. Electrical Distribution System

The Architect/Engineer shall coordinate the provision of power from the electrical utility with the College's Department of Facilities. Power will be provided by PEPCO. The power will be stepped down by dry-type transformers to 120/208-V for receptacle power and other less consequential loads. In addition, the main electrical distribution systems will consist of 480/277-V main switchboards, distribution and branch circuit panelboards for lighting and some HVAC loads, 120/208-V branch circuit panelboards for receptacles, and associated appurtenances for a complete electrical distribution system.

3. Emergency Power System

The emergency power system shall include a status monitoring system with annunciation at the building's management system. Emergency power and protection equipment will be provided to support the life safety, emergency, and fire protection requirements. A new emergency generator should be provided that is sized to handle emergency loads (i.e., fire pumps, emergency and egress lighting, fire alarm requirements, telephone, and security systems). A sub-base, diesel fuel tank, automatic transfer switch with provisions for manual bypass, weatherproof housing, and residential grade muffler should be specified.

4. Lighting System

Design of the lighting shall be in accordance with the latest engineering practices and IES recommendations to meet the standards for quality and energy efficiency. The lighting layouts shall be coordinated with the architectural design so as to control interior and exterior brightness and glare.

The building lighting systems shall meet the requirements of the Montgomery College's Energy Design Guidelines and ASHRAE Std 90.1. Point-by-point lighting analysis is required for most spaces. The Architect/Engineer shall optimize the use of natural daylight and provide appropriate lighting controls. Lighting shall be HID and fluorescent sources with high efficiency ballasts. The fluorescent fixtures shall be 2-tube and 3-tube parabolics that use T-8 lamps. Occupancy sensors are required for lighting control in most areas and shall include auxiliary dry contacts for connection to the spare auxiliary dry terminals on the DDC terminal equipment controllers. The actual building lighting loads shall be used to size the electrical system and HVAC system.

In general, fixtures shall be located with regard to predictable or unpredictable position or orientation of desks, location of chalkboards and/or marker boards, location and

proximity of windows, existence of visual display units and photometric characteristics of the luminaires. Learning resource areas shall be accommodated in a similar manner in accordance with IES recommended design practice. The lighting systems in these areas shall also be designed so that lighting levels can be adjusted for audio/visual presentations. Classrooms with high ceiling spaces shall be provided with suspended direct/indirect luminaires. Fixtures in corridor areas shall be surface or recessed mounted 2-lamp fixtures on 10 to 14 foot centers. Exit signage shall be illuminated with LED fixtures and emergency lighting should be provided with battery powered emergency lighting. Exterior lighting should be surface or recessed HID as applicable and shall be controlled by a time clock and photocell system. Lighting power densities for the various areas of the building shall comply with applicable guidelines.

In addition to energy efficient lighting fixtures the Architect/Engineer shall consider the use of automatic lighting controls, exterior and interior time controls, and occupancy sensors. The Architect/Engineer shall also analyze the applicability of day-lighting controls to turn lights off in response to natural light availability. Additional general energy efficient design considerations are discussed below.

5. Fire Alarm System

A fire alarm system shall be provided as follows. The building fire alarm system shall be a microprocessor based, logic controlled, advanced protection control unit that supervises intelligent, addressable, smoke detection devices. A graphic fire alarm annunciator panel that will indicate trouble, power on, tamper, sprinkler flow, pull station activation, fire pump status, and emergency generator status will be located at the main entrance. The annunciator panel will be tied into the emergency generator, elevator, and elevator recall. Additional contacts will be provided in order for the fire alarm system to report to both an off-site control monitoring station and the campus security office. Combination audio/visual devices and, manual and automatic initiating devices will be provided per applicable local, state, national, and ADA codes and requirements. The entire fire alarm system is to be UL-listed and compliant with all applicable national and local code requirements.

6. Security System

A conduit, backbox, and cable system shall be installed per the College's standard system and manufacturer's requirements for any security system equipment and devices. At a minimum, the following system elements should be considered by the Architect/Engineer and evaluated for their applicability: closed circuit television surveillance where campus personnel may be at risk, electrically operated locks at ground level stairwell exit doors, electrical security device at each desktop computer in computer labs, intrusion alarm systems at areas subject to break-in, and card access systems to control access to various parts of the building and ground floor entrances.

Monitoring of alarms shall be at the building designated for central security control. Any inter-connection between a building security system and an external monitor shall be designed in conjunction with the College's input.

7. Lightning Protection System

The Architect/Engineer shall perform a lightning protection analysis to evaluate the requirement for a lightning protection system. If it is required, the Architect/Engineer shall design a lightning protection system comprised of solid copper, nickel plated, air terminals located around the perimeter of the roof, flat copper conductor cables, and copper coated steel ground rods. This system should be installed by a certified lightning installer; be in full compliance with ANSI/UL 96 and ANSI/NFPA 768 or latest editions, and have a UL Master Label when completed.

E. Telecommunications System

Today's high-technology buildings have increasingly sophisticated users with ever expanding communications systems requirements. These information technology users need faster and wider access to a variety of media for the exchange of information. Today's cabling system requirements include high speed optical fiber and unshielded twisted pair copper transmission systems, voice, communications systems requirements supporting data transport systems utilizing Fast Ethernet, and Gigabit Ethernet, and audio, video, and audio graphic teleconferencing systems utilizing state-of-the-art cameras, projection, sound systems, and other multimedia equipment. These are just a small part of the total "Intelligent Building" concept the College students, faculty, and staff require.

The Architect/Engineer shall design a central distribution system for voice, video, and data cabling in accordance with Montgomery College's IT standards in the building. During the Schematic Design and Design Development phases of the project, the A/E shall meet with the College's CIO IT Facilities and Network Planning team to ensure the incorporation of the College's standards for telecommunications distribution systems into the project design. The CIO IT Facilities and Network Planning team shall review the contract documents at each stage of the design.

The system will include copper and fiberoptic cabling, underground ductbank and manhole systems to the central hub. Presently the central hub for information technology is located in the Computer Science Building and the main telephone room is located in Humanities Building. The central hub will, however, be moved to Campus Tower when Computer Science Building is demolished under the 10 year plan. The conduits must be sized to accommodate the required amount of cabling being routed from one location to another, and the inner duct partitioned to separate the conduits into a series of multiple partitioned raceways.

Montgomery College has preliminarily estimated the need for 1800 to 2,200 possible points of access for the building. The A/E is required to determine and incorporate in the design documents the actual number and location of each.

F. TV System

The A/E is required to provide a TV distribution system in the building following input and coordination with the College to determine whether it should be provided via digital satellite system, satellite dish, cable and/or the latest technology available.

G. Building Energy Management Control System (EMCS)

The EMCS shall be a stand alone Direct Digital Control (DDC) and ASHRAE BACNet compatible system. The system shall consist of DDC terminal devices networked to a Graphical User Interface (GUI) terminal through a network of intermediate control units. The GUI shall provide a real time display of all HVAC and mechanical systems, contain all of the standard DDC control programming, and provide secure local and remote operator access. A dedicated and secure space shall be provided in the building to locate the GUI and provide sufficient work area and storage for the building's drawings and other records. Communications through modem phone lines and a telephone shall be provided. The EMCS shall meet the requirements of the Montgomery County Energy Design Guidelines.

H. Building Commissioning

The Architect/Engineer shall develop specifications and plans for the commissioning of the building in accordance with the Montgomery College's Energy Design Guidelines and ASHRAE Commissioning Guidelines. The commissioning includes the design, construction, and start-up process as well as post commissioning, warranty related monitoring. The commissioning includes requirements for the level of detail required in the submittal process, equipment labeling, provisions for documentation for the College maintenance management system, requirements for documentation of equipment tests, and measurement, operator training, and submittal of maintenance manuals. The Architect/Engineer is required to coordinate the provisions of this section with the CM and the Commissioning Agent.

I. Operation, Maintenance, Instructional Manuals, and Spare Parts

The College maintains a maintenance and operations staff capable of troubleshooting and repairing most mechanical, plumbing, electrical and telecommunications equipment systems. Therefore, it is required that five copies of suitable manuals are furnished with the equipment and systems. The following items and information are minimum requirements:

- Manufacturer's catalog descriptions of specific items of equipment.
- Manufacturer's operating and maintenance instructions.
- Wiring diagrams for inter- and intra- connections of components.
- Schematics and location drawings of components and systems with "troubleshooting" guidance.
- Component breakout lists for ordering replacement parts, etc.

Operations and Maintenance Manuals shall be provided to the Montgomery College Department of Facilities two weeks in advance of any testing or commissioning of any equipment.

5. Detailed Space Requirements

5.

SPACE REQUIREMENTS

A. OVERVIEW

The proposed facility program for the New Science Center includes Shared Spaces (Classrooms and support, Computer Laboratory and support, Assembly Lecture hall and support, Vending, Lounge, Computer Server Room, It Staging and Repair, General Storage, Loading Dock, Housekeeping, Waste, Recycling, and Hazardous Materials), Biology Department, Chemistry Department, and Physics, Engineering, and Geosciences Department.

This proposed facility will also include animal facilities, a greenhouse, and observatory.

B. SPATIAL RELATIONSHIPS

Certain relationships among and between spaces associated with the proposed New Science Center are important in assuring the functionality of space in this new facility as described latter in this section.

During the design of the new facility, the following general relationships criteria shall also be observed.

- The building should have a main entrance lobby that presents a presence and relationship to both the existing campus and the proposed Biotech Park.
- Most used (high traffic) spaces shall be most accessible to general campus circulation including general classrooms. This main entry level should also accommodate building support spaces.
- Specialized laboratories for security reasons, should not be located on the main entrance level.
- Departmental office spaces should be located within suites and arranged to optimize shared use of administrative staff and offices as indicated on the space sheets.
- Departments are generally provided with an administrative suite, comprised of individual offices for the delineated positions including a reception area, administrative workroom, and secure file/storage room.
- The Lounge and Vending area should be conveniently located to the General Classrooms and Class laboratories. The design must address the potential noise disturbance and congestion impact on the instructional spaces.
- The Greenhouse should be convenient and preferably directly accessible to the Environmental Science Laboratory.
- The Observatory, to be located on the roof should be ADA accessible but with controlled access for safety and security reasons.
- The loading dock and general storage areas should be positioned away from the main entrance and directly accessible to a service/delivery area.
- The freight elevator should be located in the building with direct access to at-grade loading and receiving area and provide access to all levels within the building.

C. SPACE REQUIREMENTS

The combination of the Space Summary Tables 5.2 through 5.5 and the space descriptions immediately following their respective functional groups will provide the name of each space, the expected occupancy or capacity and square footage and the major activities to be accommodated, special design characteristics and type of furniture and equipment required respectively. This is followed by general and specific design criteria and furniture and equipment requirements for the more generic type spaces classrooms, class laboratories, offices, etc.

These statements are not intended to hinder or restrict the creative capabilities of the Consultant team; rather they represent project parameters that must be observed and included. They are intended to provide assistance to the Consultant and to establish the framework that will allow the complete project to serve the needs of Montgomery College.

It should be noted that, during the Schematic Design Phase, a complete list of equipment and furnishings for each space (including support spaces), will be provided by the College to the Consultant.

In addition, the Consultant must incorporate a number of non-assignable, general building requirements into the design and construction of the project. At a minimum, they include the following:

- Lobby/vestibule(s)
- Shipping/Receiving Support including waste/recycling*
- Building Storage*
- Housekeeping Supplies Storage*
- Housekeeping Closets
- Toilet Rooms
- Communication/Data Equipment Rooms (including Server Rooms for instructional spaces)
- Mechanical Equipment Room(s)
- Electrical Equipment Room(s)
- Circulation (corridors, elevators, stairs)

Spaces marked with an asterisk (*) have separate space sheets in the program.

Table 5.1 on the following page presents a summary of the NASF for each of the primary building functions by HEGIS Room Use Code as well as the building GSF.

Table 5-1
 Space Summary for Proposed New Science Center
 Montgomery College, Rockville

		Change	Current Total	Proposed Total	Shared Facilities	Biology	Chemistry	Phys/Engr Geosci
Classroom	100	-7,171	9,741	2,570	2,570	0	0	0
Class Lab	210	+33,019	28,621	61,640	0	27,260	17,500	16,880
Open Lab	220	+3,915	765	4,680	0	1,080	1,080	2,520
Office	300	+4,110	4,770	8,880	450	3,090	2,490	2,850
Animal Fac	570	+300	0	300	0	300	0	0
Greenh'se	580	-918	1,918	1,000	0	1,000	0	0
Food	630	+250	0	250	250	0	0	0
Lounge	650	+400	0	400	400	0	0	0
Data Proc	710	+200	0	200	200	0	0	0
Storage	730	+1,200	0	1,200	1,200	0	0	0
Cen Serv	750	+273	77	350	350	0	0	0
Haz Mat	760	+69	181	250	125	0	125	0
Total NASF		+35,647	46,073	81,720	5,545	32,730	21,195	22,250
Total GSF				142,100				

Table 5-2
Proposed Shared Facilities Program, MCR New Science Center

<u>HEGIS</u>	<u>Type of Facility</u>	<u>Capacity</u>	<u>NASF</u>	<u>Quantity</u>	<u>Total</u>
110	30 General Classroom (table)	30	660	2	1,320
110	50 General Classroom (table)	50	1,100	1	1,100
115	Classroom Storage	N/a	150	1	150
	Sub-total Classroom				2,570
350	Conference Room	18	450	1	450
	Sub-total Office				450
630	Vending	n/a	250	1	250
650	Lounge	20	400	1	400
710	Computer Server Room	n/a	200	1	200
730	IT Staging and Repair	1	500	1	500
730	General Storage	n/a	500	1	500
730	Loading Dock	n/a	200	1	200
	Sub-total Storage				1,200
750	Housekeeping	n/a	150	1	150
750	Waste/Recycling/Trash Storage	n/a	200	1	200
	Sub-total Central Services				350
760	Hazardous Materials Waste	1	125	1	125
	Total				5,545

UNIT:	Shared Facilities
GROUP:	Classrooms
SPACE:	General Classroom (Table)
CAPACITY:	30
AREA:	660 NASF
NO. REQUIRED:	2
TOTAL AREA:	1,320 NASF
ROOM USE CODE:	110
FUNCTION:	Medium sized, general purpose classroom for lecture in various science disciplines.
RELATIONSHIP:	Locate in close proximity to other classrooms.
NEW EQUIPMENT:	
Built-In (Each Space)	<ul style="list-style-type: none"> • Motorized projection screen, 8' x 8', to close flush with the ceiling surface • Whiteboard, 4' x 16', non-glare • Two-way teleconference audio/video studio setup • Digitizing tablet wallboard • Ceiling-mounted color TV receivers/monitors connected into playback system • Ceiling- mounted LCD projector • Wall mounted Periodic Table of Elements • Coat storage, wall mounted
Movable (Each Space)	<ul style="list-style-type: none"> • 15 mar-resistant tables and wired for internet/laptop plug-in and 30 ergonomic chairs. At least one student station must be wheelchair accessible • Smart Instructor's workstation with movable lectern and upholstered chair; wheelchair accessible
EXISTING EQUIPMENT:	<ul style="list-style-type: none"> • None
UTILITIES:	<ul style="list-style-type: none"> • Provide audio, voice and data outlets at lecture station connected to building and campus networks
SPECIAL REQUIREMENTS:	<ul style="list-style-type: none"> • Accessible, flexible system to supply current and future power, data, voice, video connections • Lighting dimmer with blackout with separate switching between instructor's station area and seating

UNIT:
GROUP:
SPACE:

Shared Facilities
Classrooms
General Classroom (Table)

SPECIAL
REQUIREMENTS:

- Whiteboard lighting on a separate switch at front of the room
- Easily operated and understood lighting in the instructor area

NOTE: Lights should be zoned and have controls to allow front lights and houselights to be separately controlled to achieve lighting levels that are acceptable for various types of projection and still sufficient for note taking. If incandescent lights are used, then the controls should be dimmers. If fluorescent lights are used, then cut-out switches are needed to allow a minimum number of tubes to be left on for note taking during projection. No dimmers on fluorescent lights.

- Window treatment to provide blackout capability
- Anti-static carpet and acoustical ceiling with sound insulation
- Ideally the top of the projection screen should subtend an angle no greater than 35 degrees from the horizontal from any seating position. However, some compromise may have to be made for seats in the first few rows to allow sufficient space for the whiteboards and a reasonable screen size and not have the front seats too far back

The closest seat to a projection screen should be at a distance twice the width of the screen. The optimum furthest seat distance is six times the screen width; the maximum seat distance is ten times screen width. The vertical angle to the top of the screen from any seating position should be less than 30 degrees from horizontal

Although part of the whiteboard may be blocked when the projection screen is down, a sufficient amount of marker board should be unobstructed to allow it to be used. The screen must be a minimum of 8' x 8' and be mounted high enough to provide a clear angle of view

UNIT: Shared Facilities
GROUP: Classrooms
SPACE: General Classroom (Table)
CAPACITY: 50
AREA: 1,100 NASF
NO. REQUIRED: 1
TOTAL AREA: 1,100 NASF
ROOM USE CODE: 110

FUNCTION: Large general purpose classroom for instruction in various disciplines.

RELATIONSHIP: Locate in close proximity to other classrooms.

NEW EQUIPMENT:

Built-In	<ul style="list-style-type: none"> • Motorized projection screen, sized for the room, capacity, and configuration to close flush with the ceiling surface. • 1 Marker board, 4' x 16', non-glare. • Two-way teleconference audio/video studio setup. • Digitizing tablet wallboard • Ceiling-mounted color TV receivers/monitors connected into playback system • Ceiling- mounted LCD projector • Wall mounted Periodic Table of Elements • Coat storage, wall mounted
Movable	<ul style="list-style-type: none"> • 25 mar-resistant tables and wired for internet/laptop plug-in and 50 ergonomic chairs. At least one student station to be wheelchair accessible • Smart Instructor's workstation with movable lectern and upholstered chair; wheelchair accessible.

EXISTING EQUIPMENT:

- None

UTILITIES:

- Provide audio, voice and data outlets at lecture station connected to building and campus networks.

UNIT:
GROUP:
SPACE:

Shared Facilities
Classrooms
General Classroom (Table)

SPECIAL
REQUIREMENTS:

- Accessible, flexible system to supply current and future power, data, voice, video connections
- Lighting dimmer with blackout with separate switching between instructor's station area and seating
- Whiteboard lighting on a separate switch at front of the room
- Easily operated and understood lighting in the instructor area

NOTE: Lights should be zoned and have controls to allow front lights and houselights to be separately controlled to achieve lighting levels that are acceptable for various types of projection and still sufficient for note taking. If incandescent lights are used, then the controls should be dimmers. If fluorescent lights are used, then cut-out switches are needed to allow a minimum number of tubes to be left on for note taking during projection. No dimmers on fluorescent lights

- Window treatment to provide blackout capability
- Anti-static carpet and acoustical ceiling with sound insulation.
- Ideally the top of the projection screen should subtend an angle no greater than 35 degrees from the horizontal from any seating position. However, some compromise may have to be made for seats in the first few rows to allow sufficient space for the whiteboards and a reasonable screen size and not have the front seats too far back

The closest seat to a projection screen should be at a distance twice the width of the screen. The optimum furthest seat distance is six times the screen width; the maximum seat distance is ten times screen width. The vertical angle to the top of the screen from any seating position should be less than 30 degrees from horizontal

Although part of the whiteboard may be blocked when the projection screen is down, a sufficient amount of marker board should be unobstructed to allow it to be used. The screen must be a minimum of 8' x 8' and be mounted high enough to provide a clear angle of view

UNIT: Shared Facilities
GROUP: Classrooms
SPACE: Classroom Storage
USE CODE: 115
CAPACITY: n/a
AREA: 150 NASF
NO. REQUIRED: 2
TOTAL AREA: 300 NASF

FUNCTION: Storage space for special instructional audio-visual equipment and instructional supply storage for various types of paper, booklets, educational materials.

RELATIONSHIP: Locate convenient to General Classrooms with access from general circulation.

NEW EQUIPMENT:

Built-In
(Each Space)

- None

Movable
(Each Space)

- Heavy duty metal storage units of varying sizes (1' D, 1.5' D and 2' D) and adjustable in height to accommodate different sizes of equipment, software, and materials. Specialized shelf inserts are required for such items as audio tapes, video tapes, slides, projector lamps, etc. In addition, lockable doors on front of shelves are required where smaller, more expensive items can be stored

EXISTING EQUIPMENT: • None

UTILITIES:

- Provide duplex 120 volt electrical outlets as required by code.
- Include two voice service outlet jacks where directed

SPECIAL REQUIREMENTS:

- Accessible, flexible system to supply current and future power, data, voice, video connections
- Flooring of resilient material
- Double-door access from general circulation corridor
- Natural fenestration is not required

UNIT: Shared Facilities
GROUP: Office
SPACE: Conference Room
CAPACITY: 18
AREA: 550 NASF
NO. REQUIRED: 1
TOTAL AREA: 550 NASF
ROOM USE CODE: 350

FUNCTION: Provides space for staff meetings, small group conferences, and seminars.

RELATIONSHIP: Locate convenient to the Departmental Suites and Faculty Offices of Biology, Chemistry, and Physics, Engineering, and Geosciences with direct access from general circulation.

NEW EQUIPMENT:

Built-In

- 1, 4' x 8', marker board, non-glare
- 1, 4' x 8', bulletin board
- Motorized keystone correcting retractable projection screen to close flush with the ceiling
- Stereo speaker and jacks on either side of the projection screen
- Counter with securable storage below
- Coat storage, wall-mounted

Movable

- Modular mar-resistant tables that can be arranged to create different settings
- 24, upholstered swivel armchairs

EXISTING EQUIPMENT:

- None

UTILITIES:

- Provide two completely wired outlet jacks for voice and data service and one video transmission jack

SPECIAL REQUIREMENTS:

- Provide local area network (LAN) service for the suite, connected to local, building, and campus networks
- Accessible, flexible system to supply current and future power, data, voice, and video connections
- Anti-static carpeted floor and acoustical suspended ceiling
- Natural fenestration desirable with room darkening capability

UNIT: Shared Facilities
GROUP: Lounge
SPACE: Vending
CAPACITY: n/a
AREA: 250 NASF
NO. REQUIRED: 1
TOTAL AREA: 250 NASF
ROOM USE CODE: 630

FUNCTION: This space is to accommodate students, faculty, and staff, and visitors in which they can obtain vended drinks, snacks, and prepared food and soups.

RELATIONSHIP: Located on the entry level, convenient to Classrooms, with access to general circulation.

NEW EQUIPMENT:

Built-In

- 1, 4' x 8' Bulletin Board
- Counter top with microwave oven, sink with hot and cold water, and disposal

Movable

- Vending area a combination of dry and wet vending machines

EXISTING EQUIPMENT:

- None

UTILITIES:

- Provide at least one 115 volt duplex electrical outlet on each wall surface. One wall area shall have 115 volt outlets spaced 3' apart to serve vending machines

SPECIAL REQUIREMENTS:

- Provide water supply and floor drain in vending machine area
- Floor surface of resilient material
- Acoustical ceiling with sound insulation
- Accessible system to supply power, data, voice, and video connections
- Natural fenestration desirable

UNIT: Shared Facilities
GROUP: Lounge
SPACE: Lounge
CAPACITY: 20
AREA: 400 NASF
NO. REQUIRED: 1
TOTAL AREA: 400 NASF
ROOM USE CODE: 650

FUNCTION: This space is to accommodate students, faculty, and staff in an informal, comfortable, relaxing environment during breaks from their instructional activities. They can study, obtain vended drinks and snacks, prepare foods, relax, and converse.

RELATIONSHIP: Located on the entry level, convenient to Classrooms, with access to general circulation.

NEW EQUIPMENT:

Built-In

- 1, Bulletin board, 4' x 8'
- Counter top with sink and hot and cold water, disposal, and standard microwave oven.

Movable

- Combination of tables, chairs, and lounge furnishings.
- Vending area for 1-2 wet machines.

EXISTING EQUIPMENT: • None

UTILITIES: • Provide at least one 115 volt duplex electrical outlet on each wall surface. One wall area shall have 115 volt outlets spaced 3' apart to serve vending machines

SPECIAL REQUIREMENTS:

- Provide local area network (LAN) service for the suite, connected to local, building, and campus networks
- Provide water supply and floor drain, in VAT area for vending machines, sufficient to accommodate 3 wet machines
- Floor surface of resilient material
- Acoustical ceiling with sound insulation
- Accessible system to supply power, data, voice, and video connections
- Natural fenestration is required

UNIT: Shared Facilities
GROUP: Building Support
SPACE: Computer Server Room
CAPACITY: 1
AREA: 200 NASF
NO. REQUIRED: 1
TOTAL AREA: 200 NASF
ROOM USE CODE: 710

FUNCTION: To house control equipment for the building's computer operations.

RELATIONSHIP: Accessible to general circulation in service area of the building.

NEW EQUIPMENT:

Built-In

- Coat storage, wall mounted.

Movable

- Work/repair station

EXISTING EQUIPMENT:

- None

UTILITIES:

- Reference Special Requirements below

**SPECIAL
REQUIREMENTS:**

- Accessible system to supply both current and future power, data, voice, and video connections
- Natural fenestration is not required

UNIT: Shared Facilities
GROUP: Storage
SPACE: IT Staging and Repair
CAPACITY: 1
AREA: 500 NASF
NO. REQUIRED: 1
TOTAL AREA: 500 NASF
ROOM USE CODE: 730

FUNCTION: Secure storage and work area for receipt and shipping of Instructional Technology equipment and supplies.

RELATIONSHIP: This area should be close in proximity to the Classrooms and the building's loading dock

NEW EQUIPMENT:

Built-In

- None

Movable

- Temporary storage area with adjustable height heavy duty, utility shelving of varying depths
- Counter height work benches along wall with power, data, voice, and video connectivity

EXISTING EQUIPMENT:

- None

UTILITIES:

- As required by code.
- Reference Special Requirements below

SPECIAL REQUIREMENTS:

- Accessible system to supply both current and future power, data, voice, and video connections
- Durable, easily maintainable floor and wall surfaces.
- Natural fenestration is not required

UNIT: Shared Facilities
GROUP: Storage
SPACE: General Storage
CAPACITY: n/a
AREA: 500
NO. REQUIRED: 1
TOTAL AREA: 500
ROOM USE CODE: 730

FUNCTION: Serve as storage for material brought into the building until distribution can be made to the proper areas of this or other facility.

RELATIONSHIP: Locate near exterior of building, with convenient access to building elevator

NEW EQUIPMENT:

Built-In

- None

Movable

- Heavy-duty adjustable steel shelving of varying depths

EXISTING EQUIPMENT:

- None

UTILITIES:

- Provide at least one 115 volt duplex electrical outlet on each wall surface
- Provide wash area with hot and cold water. Provide a drain to sanitary sewer
- Provide double door access
- Provide local area network (LAN) service, connected to local, building, and campus networks
- Durable, easily maintainable floor (non-slip concrete) and wall surfaces.
- Natural fenestration is not required

UNIT: Shared Facilities
GROUP: Storage
SPACE: Loading Dock
CAPACITY: n/a
AREA: 200 NASF
NO. REQUIRED: 1
TOTAL AREA: 200 NASF
ROOM USE CODE: 730

FUNCTION: Central area for receiving of materials, for convenient removal of waste generated in the building, and as a major access for transport of materials in and out of the building.

RELATIONSHIP: Located for convenient access of trucks (delivery and waste removal) and central to areas of the building to which materials will be distributed. Locate with convenient access to general circulation and elevator.

NEW EQUIPMENT:

Built-In

- A loading dock area provided with heavy duty dock leveler (built-in)

Movable

- Temporary storage area with adjustable height utility shelving of varying depths

EXISTING EQUIPMENT:

- None

UTILITIES:

- As required by code
- Provide voice and data communication service at the receiving area.
- Provide CCMS connection.

SPECIAL REQUIREMENTS:

- Exterior door to be insulated, overhead type (minimum dimensions to be 10' W x 14'H to assure security as well as ease of daily deliveries
- Provide call bell at dock entrance so delivery person can signal arrival
- Dock to be enclosed to expedite deliveries during inclement weather
- Natural fenestration is not required

UNIT: Shared Facilities
GROUP: Central Services
SPACE: Housekeeping Storage
CAPACITY: n/a
AREA: 150 NASF
NO. REQUIRED: 1
TOTAL AREA: 150 NASF
ROOM USE CODE: 750

FUNCTION: Storage of supplies and large floor cleaning machines.

RELATIONSHIP: Locate near loading dock, with convenient access to general circulation and elevator.

NEW EQUIPMENT:

Built-In

- Peg Board for Tools
- Large capacity sink
- Paper towel dispenser

Movable

- Personnel lift
- Work table

EXISTING EQUIPMENT: • None

UTILITIES:

- Electrical as per code plus outlet for a battery charger.
- Voice and data communication connectivity.

SPECIAL REQUIREMENTS:

- Ceiling: Unfinished acceptable, painted GWB or concrete.
- Walls: Painted CMU.
- Floors: Non-skid, sealed concrete.
- Windows: None.
- Access: 3' – 6" clear, controlled and secured.
- Natural fenestration is not required

UNIT: Shared Facilities
GROUP: Central Services
SPACE: Waste/Recycling/Trash
CAPACITY: N/A
AREA: 200 NASF
NO. REQUIRED: 1
TOTAL AREA: 200 NASF
ROOM USE CODE: 750

FUNCTION: Interior space with direct access to movable outdoor waste storage/compacting unit.

RELATIONSHIP: Locate near exterior of building, adjacent to loading dock, with convenient access (direct load-off from loading dock) to waste recycling vehicles

NEW EQUIPMENT:

- Built-In
 - None
- Movable
 - Storage Containers
 - Bailer

EXISTING EQUIPMENT: • None

UTILITIES:

- An area that will accommodate the separation of dry waste materials and provide a holding area for recyclable materials: cardboard, tin cans, plastic, glass, paper, etc.
- Readily accessible by trash removal trucks
- Provide can wash area with hot and cold water and steam
- Provide a drain to sanitary sewer
- Provide a sealed, hardened concrete floor
- All finishes to comply with Health Code Standards
- Provide voice and data connectivity capability
- Natural fenestration is not required

UNIT: Shared Facilities
GROUP: Building Support
SPACE: Hazardous Materials Waste
CAPACITY: 1
AREA: 125 NASF
NO. REQUIRED: 1
TOTAL AREA: 125 NASF
ROOM USE CODE: 760

FUNCTION: Enclosed secure room for storage and control of Hazardous Materials that are scheduled for removal from the building.

RELATIONSHIP: Conveniently located near Loading Dock/general and vertical circulation.

Built-in

- Safety station with drench shower and fire station on outside but adjacent to room entry
- Flammable liquid and vented acid storage cabinets

Movable

- None

EXISTING EQUIPMENT:

- None

UTILITIES:

- As per Code
- Explosion-proof fixtures

SPECIAL REQUIREMENTS:

- Consultant to assist the College in developing a list of equipment and furniture including room finishes that is cost effective yet complies with all applicable regulatory requirements
- Explosion-proof blow out panel(s) as required by code
- Electronically controlled access
- Explosion Relief panels required
- Provide for spill containment (6" door sill)
- Independent heating and cooling
- Must be spark-proof
- Natural fenestration is not required

Table 5-3
Proposed Biology Department Facilities Program, MCR New Science Center

<u>HEGIS</u>	<u>Type of Facility</u>	<u>Capacity</u>	<u>NASF</u>	<u>Quantity</u>	<u>Total</u>
	<u>Biology Laboratories</u>				
210	Biology Laboratory	24	1,200	8	9,600
210	Environmental Science Laboratory	24	1,200	2	2,400
210	Biology/Environ Science Lab Recitation	24	690	5	3,450
210	Anatomy and Physiology Lab	24	1,200	2	2,400
210	Anatomy and Physiology Lab Recitation	24	690	1	690
210	Microbiology Laboratory	24	1,440	1	1,440
210	Genetics Laboratory	24	1,440	1	1,440
210	Microbiology/Genetics Lab Recitation	24	690	1	690
	Class Lab Sub-total Biology				22,110
	<u>Preparation/Storage</u>				
215	Biology Reference Room	12	300	2	600
215	Biology Lab Preparation Room	2	500	7	3,500
215	Biology Laptop Storage	n/a	150	1	150
215	Biology Lab Stock Room	1	500	1	500
215	Biology Model Room	1	150	1	150
215	Biology Preservation Storage	n/a	150	1	150
215	Autoclave Room	1	100	1	100
	Class Lab Sub-total Preparation				5,150
	Sub-total Class Lab				27,260
220	Biology Student/Faculty Project Lab	8	720	1	720
225	Biology Student/Faculty Project Prep	1	360	1	360
	Sub-total Open Lab				1,080
	<u>Department Suite</u>				
310	Department Chair Office	1+3	150	1	150
310	Dept Admin Reception	1+4	180	1	180
310	Administrative Assistant Office	1+2	120	1	120
315	Department Admin Workroom	1	120	1	120
315	Dept Secure File/Storage Room	1	120	1	120
	Office Sub-total Department Suite				690
	<u>Department Offices</u>				
310	Faculty Offices	1+2	120	14	1,680
310	Part Time Faculty Offices	4	120	3	360
310	Technician Office	2	120	3	360
	Office Sub-total Department Offices				2,400
	Sub-total Office				3,090
570	Animal Holding Room	1	100	2	200
575	Animal Support Room	1	100	1	100
	Sub-total Animal Facility				300
580	Greenhouse	1	750	1	750
585	Head House	1	125	1	125
585	Greenhouse Storage	1	125	1	125
	Sub-total Greenhouse				1,000
	Total				32,730
020	Biology Student Half-Lockers	336	AR	1	AR

UNIT:	Biology Department
GROUP:	Class Laboratory
SPACE:	Biology Laboratory
CAPACITY:	24
AREA:	1,200 NASF
NO. REQUIRED:	8
TOTAL AREA:	9,600 NASF
ROOM USE CODE:	210

FUNCTION: Biology laboratory for hands-on and activity based learning and demonstrations.

RELATIONSHIP: Locate in close proximity to other Biology Laboratories and Preparation/Storage areas and adjacent to, and interconnected with, a shared Biology/Environmental Science Lab Recitation.

NEW EQUIPMENT:

Built-In
(Each Space)

- Motorized projection screen, 8' x 8', to close flush with the ceiling surface
- 1, 4' x 8' marker board, non-glare
- 1, 4' x 8' bulletin board
- Smart instructor's station
- 24 laboratory stations; island benches with impervious counter top at standing height; cabinets with shelves and drawers below. Each student to have access to hot and cold water with aspirator, and sanitary drain, electric, and data service. Provide one ADA compliant student workstation with complete services as described for the laboratory stations above
- Eyewash station
- Safety station with drench shower and fire station near laboratory entry
- Maximize laboratory casework and lockable, wall mounted storage cabinets with under cabinet lighting as allowable by room layout. Some wall cabinets should be floor to ceiling to maximize space for model storage
- Demonstration Table: island bench with impervious top and lockable cabinets and drawers, sink, hot and cold water, gas, electrical (not on top), and data port
- Laboratory and demonstration fume hoods (minimum 4' wide) plus one ADA compliant fume hood

Movable
(Each Space)

- 25 stools (students + instructor) with backs, casters, and full adjustability at benches
- Six movable computer workstations and ergonomic, adjustable chairs with casters at room perimeter with electric and MC net connections

UNIT:
GROUP:
SPACE:

Biology Department
Class Laboratory
Biology Laboratory

EXISTING EQUIPMENT:

- None

UTILITIES:

- Utilities master cut-off at visible location and sub-master cut-offs per bench
- GFI outlets at each workstation near water
- Data and one port at each workstation (computer, lab stations, ADA station, and demonstration)

SPECIAL REQUIREMENTS:

- Accessible, flexible system to supply current and future power, data, voice, and video connections
- Natural fenestration is desired with darkening capability such as shades or blinds
- Laboratory to have minimum of 5' aisles and two means of egress
- Access to MC net, video transmission jack, and telephone and data service. Power and data outlets coordinated with casework, laboratory stations, computer stations, and demonstration table
- AV equipment control cabinet
- Floor with chemical resistant material and acoustical tile ceiling

UNIT: Biology Department
GROUP: Class Laboratory
SPACE: Environmental Science Laboratory
CAPACITY: 24
AREA: 1,200 NASF
NO. REQUIRED: 2
TOTAL AREA: 2,400 NASF
ROOM USE CODE: 210

FUNCTION: Biology laboratory for hands-on and activity based learning and demonstrations.

RELATIONSHIP: Locate in close proximity to other Biology Laboratories and Preparation/Storage areas and adjacent to, and interconnected with, a shared Biology/Environmental Science Lab Recitation. Adjacent to, and preferably interconnected with, the Greenhouse.

NEW EQUIPMENT:

Built-In
 (Each Space)

- Motorized projection screen, 8' x 8', to close flush with the ceiling surface
- 1, 4' x 8' marker board, non-glare
- 1, 4' x 8' bulletin board
- Smart instructor's station
- 24 laboratory stations; either island, peninsula, or wall bench with impervious counter top at standing height; cabinets with shelves and drawers below. Each student to have access to hot and cold water with aspirator, and sanitary drain, electric, and data service. Provide one ADA compliant student workstation with complete services
- Eyewash station
- Safety station with drench shower and fire station near laboratory entry
- Maximize laboratory casework and wall mounted storage cabinets with under cabinet lighting as allowable by room layout. Cabinet space for 24 compound microscopes and 24 dissecting microscopes
- Demonstration Table: island bench with impervious top and lockable cabinets and drawers below, electrical (flush with counter top), and data port
- One ADA compliant fume hood

Movable
 (Each Space)

- 25 stools (students + instructor) with backs, casters, and full adjustability at benches
- Six movable computer workstations and ergonomic, adjustable chairs with casters at room perimeter with electric and MC net connections

UNIT:
GROUP:
SPACE:

Biology Department
Class Laboratory
Environmental Science Laboratory

EXISTING EQUIPMENT:

- None

UTILITIES:

- Utilities master cut-off at visible location and sub-master cut-offs per bench
- GFI outlets at each workstation near water
- Data and one port at each workstation (computer, lab stations, ADA station, and demonstration)

SPECIAL REQUIREMENTS:

- Accessible, flexible system to supply current and future power, data, voice, and video connections
- Natural fenestration is desired with darkening capability such as shades or blinds
- Laboratory to have minimum of 5' aisles and two means of egress
- Access to MC net, video transmission jack, and telephone and data service. Power and data outlets coordinated with casework and demonstration table
- AV equipment control cabinet

UNIT: Biology Department
GROUP: Class Laboratory
SPACE: Biology/Environmental Science Laboratory Recitation
CAPACITY: 24
AREA: 690 NASF
NO. REQUIRED: 5
TOTAL AREA: 3,450 NASF
ROOM USE CODE: 210

FUNCTION: Discussion area (“talking about”) portion of the Laboratory (doing) activities.

RELATIONSHIP: Locate four directly accessible from the eight adjoining Biology Laboratories and the fifth to be interconnected with the two Environmental Science Laboratories. Each to have direct egress to general circulation.

NEW EQUIPMENT:

Built-In
(Each Space)

- Motorized projection screen, 8' x 8', to close flush with the ceiling
- 1, 4' x 16' marker board, non-glare
- Smart, instructor's station with ergonomic chair
- AV equipment control cabinet
- 1, 4' x 8' bulletin board

Movable
(Each Space)

- 12 mar-resistant tables and wireless connectivity for laptops
- 24 ergonomic, adjustable chairs on casters, at least 1 student station must be wheelchair accessible
- 12 computer workstations with 12 ergonomic, adjustable chairs on casters for shared use on two parallel walls connected to campus and internet networks
- 2 computer printers

EXISTING EQUIPMENT:

- None

UTILITIES:

- Provide audio, voice, and data outlets at lecture station connected to building and campus networks. Provide convenience outlets spaced 12' o/c

SPECIAL REQUIREMENTS:

- Accessible, flexible system to supply current and future power, data, voice, video connections
- Lighting dimmer with blackout and separate switching between instructors station area and seating
- Whiteboard lighting on a separate switch at front of room

UNIT:
GROUP:
SPACE:

Biology Department
Class Laboratory
Biology/Environmental Science Laboratory Recitation

SPECIAL
REQUIREMENTS:

(continued)

- Easily operated and understood lighting in the instructor's area

NOTE: Lights should be zoned and have controls to allow front lights and houselights to be separately controlled to achieve lighting levels that are acceptable for various types of projection and still sufficient for note taking. If incandescent lights are used, then the controls should be dimmers. If fluorescent lights are used, then cut-out switches are needed to allow a minimum number of tubes to be left on for note taking during projection. No dimmers on fluorescent lights.

- Natural fenestration is desirable
- Window treatment to provide blackout capability
- Anti-static carpet and acoustical ceiling with sound insulation
- The closest seat to a projection screen should be at a distance twice the width of the screen. The optimum furthest seat distance is six times the screen width; the maximum seat distance is ten times screen width. The vertical angle to the top of the screen from any seating position should be less than 30 degrees from horizontal
- Although part of the whiteboard may be blocked when the projection screen is down, a sufficient amount of marker board should be unobstructed to allow it to be used. The screen must be a minimum of 8' x 8' and be mounted high enough to provide a clear angle of view

UNIT: Biology Department
GROUP: Class Laboratory
SPACE: Anatomy and Physiology Laboratory
CAPACITY: 24
AREA: 1,200 NASF
NO. REQUIRED: 2
TOTAL AREA: 2,400 NASF
ROOM USE CODE: 210

FUNCTION: Biology laboratory for hands-on and activity based learning and demonstrations.

RELATIONSHIP: Locate in close proximity to other Biology Laboratories and Preparation/Storage areas and adjacent to, and interconnected with, a shared Anatomy and Physiology Lab Recitation.

NEW EQUIPMENT:

Built-In
(Each Space)

- Motorized projection screen, 8' x 8', to close flush with the ceiling surface
- Smart instructor's station
- 1, 4' x 8' marker board, non-glare
- 1, 4' x 8' bulletin board
- Ceiling-mounted LCD projector
- 24 laboratory stations; island benches with impervious counter top at standing height; cabinets and open space drawers below. Each student to have access to electric and data service. Provide one ADA compliant student workstation with complete services as described for the 24 stations
- Eyewash station
- Safety station with drench shower and fire station near laboratory entry
- Maximize laboratory casework and lockable, wall mounted storage cabinets with under cabinet lighting as allowable by room layout. Some wall cabinets should be floor to ceiling to maximize space for model storage
- Casework to include locking microscope cabinet with individual spaces for 30 microscopes of the following size – 17"H x 14"D x 10"W
- Demonstration Table: island bench with impervious top and lockable cabinets and drawers, sink, hot and cold water, gas, electrical not on top, and data port
- One ADA compliant fume hood
- Built-in anti-theft system, tag sensor type (non metallic) detector inside doors to general circulation. Compatible with tags on current anatomical models and materials kept within the laboratories

UNIT:
GROUP:
SPACE:

Biology Department
Class Laboratory
Anatomy and Physiology Laboratory

NEW EQUIPMENT
(Continued):

Movable
(Each Space)

- 25 stools (students + instructor) with backs, casters, and full adjustability at benches
- Six movable computer workstations and ergonomic, adjustable chairs with casters at room perimeter with electric and MC net connections

EXISTING EQUIPMENT:

- None

UTILITIES:

- Utilities master cut-off at visible location and sub-master cut-offs per bench
- GFI outlets at each workstation near water
- Data and one port at each workstation (benches, computer stations, ADA station, and demonstration)

SPECIAL
REQUIREMENTS:

- Accessible, flexible system to supply current and future power, data, voice, and video connections
- Natural fenestration is desired with darkening capability such as shades or blinds
- Laboratory to have minimum of 5' aisles and two means of egress
- Access to MC net, video transmission jack, and telephone and data service. Power and data outlets coordinated with casework, student stations, computer workstations, and demonstration table
- AV equipment control cabinet
- Floor with chemical resistant material and acoustical tile ceiling
- Each student station should have the capability of interfacing with a digital microscope and individual monitor; monitors to be flat screen, mounted vertically on low partition down the center of each lab table, or below with glass panel in table top with some type of removable cover. All to be networked with demonstration table and computer workstations which would have similar capabilities

UNIT: Biology Department
GROUP: Class Laboratory
SPACE: Anatomy and Physiology Laboratory Recitation
CAPACITY: 24
AREA: 690 NASF
NO. REQUIRED: 1
TOTAL AREA: 690 NASF
ROOM USE CODE: 210

FUNCTION: Discussion area (“talking about”) portion of the Laboratory (doing) activities.

RELATIONSHIP: Locate directly connected to the two Anatomy and Physiology Laboratories with direct egress to general circulation.

NEW EQUIPMENT:

Built-In

- Motorized projection screen, 8’ x 8’, to close flush with the ceiling
- 1, 4’ x 16’ marker board, non-glare
- Ceiling-mounted LCD projector
- Smart, instructor’s station with ergonomic, adjustable chair on casters
- AV equipment control cabinet
- 1, 4’ x 8’ bulletin board

Movable

- 12 mar-resistant tables and wireless connectivity for laptops
- 24 ergonomic, adjustable chairs on casters, at least 1 student station must be wheelchair accessible
- 12 computer workstations with 12 ergonomic, adjustable chairs on casters for shared use on two parallel walls connected to campus and internet networks
- 2 computer printers

EXISTING EQUIPMENT:

- None

UTILITIES:

- Provide audio, voice, and data outlets at lecture station connected to building and campus networks. Provide convenience outlets spaced 12’ o/c

SPECIAL REQUIREMENTS:

- Accessible, flexible system to supply current and future power, data, voice, video connections
- Lighting dimmer with blackout and separate switching between instructors station area and seating
- Whiteboard lighting on a separate switch at front of room

UNIT:
GROUP:
SPACE:

Biology Department
Class Laboratory
Anatomy and Physiology Laboratory Recitation

SPECIAL
REQUIREMENTS:

(continued)

- Easily operated and understood lighting in the instructor's area

NOTE: Lights should be zoned and have controls to allow front lights and houselights to be separately controlled to achieve lighting levels that are acceptable for various types of projection and still sufficient for note taking. If incandescent lights are used, then the controls should be dimmers. If fluorescent lights are used, then cut-out switches are needed to allow a minimum number of tubes to be left on for note taking during projection. No dimmers on fluorescent lights.

- Natural fenestration is desirable
- Window treatment to provide blackout capability
- Anti-static carpet and acoustical ceiling with sound insulation
- The closest seat to a projection screen should be at a distance twice the width of the screen. The optimum furthest seat distance is six times the screen width; the maximum seat distance is ten times screen width. The vertical angle to the top of the screen from any seating position should be less than 30 degrees from horizontal
- Although part of the whiteboard may be blocked when the projection screen is down, a sufficient amount of marker board should be unobstructed to allow it to be used. The screen must be a minimum of 8' x 8' and be mounted high enough to provide a clear angle of view

UNIT: Biology Department
GROUP: Class Laboratory
SPACE: Microbiology Laboratory
CAPACITY: 24
AREA: 1,440 NASF
NO. REQUIRED: 1
TOTAL AREA: 1,440 NASF
ROOM USE CODE: 210

FUNCTION: Biology laboratory for hands-on and activity based learning and demonstrations.

RELATIONSHIP: Locate in close proximity to other Biology Laboratories and Preparation/Storage areas and adjacent to, and interconnected with, a shared Microbiology/Genetics Lab Recitation.

NEW EQUIPMENT:

Built-In

- Motorized projection screen, 8' x 8', to close flush with the ceiling surface
- 1, 4' x 8' marker board, non-glare
- 1, 4' x 8' bulletin board
- Ceiling-mounted LCD projector
- Smart instructor's station
- 24 laboratory stations; island benches with impervious counter top at standing height; cabinets with pull-out shelves and drawers below. Each student to have access to hot and cold water and aspirator, sanitary drain, electric, and data service. Provide one ADA compliant student workstation with complete services as noted for laboratory stations above
- Eyewash station
- Safety station with drench shower and fire station near laboratory entry
- Maximize laboratory casework and wall mounted storage cabinets with under cabinet lighting as allowable by room layout with two additional sinks
- Demonstration Table: island bench with impervious top and lockable cabinets, sink, hot and cold water, gas, electrical (flush with counter top), and data port
- One ADA compliant biological safety cabinet with laminar flow, gas, and electric

Movable
(Each Space)

- 25 stools (students + instructor) with backs, casters, and full adjustability at benches
- Six movable computer workstations and ergonomic, adjustable chairs with casters at room perimeter with electric and MC net connections

UNIT:
GROUP:
SPACE:

Biology Department
Class Laboratory
Microbiology Laboratory

EXISTING EQUIPMENT:

- None

UTILITIES:

- Utilities master cut-off at visible location and sub-master cut-offs per bench
- GFI outlets near water
- Data and one port at each workstation (benches, computer stations, ADA station, and demonstration)

SPECIAL REQUIREMENTS:

- Accessible, flexible system to supply current and future power, data, voice, and video connections
- Natural fenestration is desired with darkening capability such as shades or blinds
- Laboratory to have minimum of 5' aisles and two means of egress
- Access to MC net, video transmission jack, and telephone and data service. Power and data outlets coordinated with casework, student stations, computer workstations, and demonstration table AV equipment control cabinet
- Floor with chemical resistant and dye resistant material and acoustical tile ceiling

UNIT:	Biology Department
GROUP:	Class Laboratory
SPACE:	Genetics Laboratory
CAPACITY:	24
AREA:	1,440 NASF
NO. REQUIRED:	1
TOTAL AREA:	1,440 NASF
ROOM USE CODE:	210
 FUNCTION:	 Biology laboratory for hands-on and activity based learning and demonstrations.
 RELATIONSHIP:	 Locate in close proximity to other Biology Laboratories and Preparation/Storage areas and adjacent to, and interconnected with, a shared Microbiology/Genetics Lab Recitation.
 NEW EQUIPMENT:	
Built-In	<ul style="list-style-type: none"> • Motorized projection screen, 8' x 8', to close flush with the ceiling surface • 1, 4' x 8' marker board, non-glare • 1, 4' x 8' bulletin board • Ceiling-mounted LCD projector • Smart instructor station • 24 laboratory stations; island bench with impervious counter top at standing height; cabinets with shelves and drawers below. Each student to have access to hot and cold water with aspirator, and sanitary drain, electric, and data service. Provide one ADA compliant student workstation with complete services as noted for laboratory stations above • Eyewash station • Safety station with drench shower and fire station near laboratory entry • Maximize laboratory casework and lockable, wall mounted storage cabinets with under cabinet lighting as allowable by room layout • Flammable liquid and vented acid storage cabinets • Demonstration Table: island bench with impervious top and lockable cabinets, sink, hot and cold water, gas, electrical (flush with counter top), and data port • Laboratory and demonstration fume hoods (minimum 4' wide) plus one ADA compliant fume hood
Movable (Each Space)	<ul style="list-style-type: none"> • 25 stools (students + instructor) with backs, casters, and full adjustability at benches • Six movable computer workstations and ergonomic, adjustable chairs with casters at room perimeter with electric and MC net connections

UNIT:
GROUP:
SPACE:

Biology Department
Class Laboratory
Molecular Biology/Genetics Laboratory

EXISTING EQUIPMENT:

- None

UTILITIES:

- Utilities master cut-off at visible location and sub-master cut-offs per bench
- GFI outlets near water
- Data and one port at each workstation (benches, computer stations, ADA station, and demonstration)

SPECIAL REQUIREMENTS:

- Accessible, flexible system to supply current and future power, data, voice, and video connections
- Natural fenestration is desired with darkening capability such as shades or blinds
- Laboratory to have minimum of 5' aisles and two means of egress
- Access to MC net, video transmission jack, and telephone and data service. Power and data outlets coordinated with casework, student stations, computer workstations, and demonstration table AV equipment control cabinet
- AV equipment control cabinet
- Floor with chemical resistant material and acoustical tile ceiling

UNIT:	Biology Department
GROUP:	Class Laboratory
SPACE:	Microbiology/Genetics Laboratory Recitation
CAPACITY:	24
AREA:	690 NASF
NO. REQUIRED:	1
TOTAL AREA:	690 NASF
ROOM USE CODE:	210
FUNCTION:	Discussion area (“talking about”) portion of the Laboratory (doing) activities.
RELATIONSHIP:	Locate directly connected to Microbiology and Genetics Laboratories with direct egress to general circulation.
NEW EQUIPMENT:	
Built-In	<ul style="list-style-type: none"> • Motorized projection screen, 8’ x 8’, to close flush with the ceiling • 1, 4’ x 16’ marker board, non-glare • Ceiling-mounted LCD projector • Smart, instructor’s station with ergonomic, adjustable chair on casters • AV equipment control cabinet • 1, 4’ x 8’ bulletin board
Movable	<ul style="list-style-type: none"> • 12 mar-resistant tables and wireless connectivity for laptops • 24 ergonomic, adjustable chairs on casters, at least 1 student station must be wheelchair accessible • 12 computer workstations with 12 ergonomic, adjustable chairs on casters for shared use on two parallel walls connected to campus and internet networks • 2 computer printers
EXISTING EQUIPMENT:	<ul style="list-style-type: none"> • None
UTILITIES:	<ul style="list-style-type: none"> • Provide audio, voice, and data outlets at lecture station connected to building and campus networks. Provide convenience outlets spaced 12’ o/c
SPECIAL REQUIREMENTS:	<ul style="list-style-type: none"> • Accessible, flexible system to supply current and future power, data, voice, video connections

UNIT:	Biology Department	•
GROUP:	Class Laboratory	•
SPACE:	Microbiology/Genetics Laboratory	•
	Recitation	•

SPECIAL REQUIREMENTS:	(continued)	•
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- Lighting dimmer with blackout and separate switching between instructors station area and seating
- Whiteboard lighting on a separate switch at front of room
- Easily operated and understood lighting in the instructor's area

NOTE: Lights should be zoned and have controls to allow front lights and houselights to be separately controlled to achieve lighting levels that are acceptable for various types of projection and still sufficient for note taking. If incandescent lights are used, then the controls should be dimmers. If fluorescent lights are used, then cut-out switches are needed to allow a minimum number of tubes to be left on for note taking during projection. No dimmers on fluorescent lights.

- Natural fenestration is desirable
- Window treatment to provide blackout capability
- Anti-static carpet and acoustical ceiling with sound insulation
- The closest seat to a projection screen should be at a distance twice the width of the screen. The optimum furthest seat distance is six times the screen width; the maximum seat distance is ten times screen width. The vertical angle to the top of the screen from any seating position should be less than 30 degrees from horizontal
- Although part of the whiteboard may be blocked when the projection screen is down, a sufficient amount of marker board should be unobstructed to allow it to be used. The screen must be a minimum of 8' x 8' and be mounted high enough to provide a clear angle of view

UNIT: Biology Department
GROUP: Preparation/Storage
SPACE: Biology Reference Room
CAPACITY: 12
AREA: 300 NASF
NO. REQUIRED: 2
TOTAL AREA: 600 NASF
ROOM USE CODE: 215

FUNCTION: Work/individual and group student study areas.

RELATIONSHIP: Adjacent to Biology Laboratories and directly accessible from general circulation.

NEW EQUIPMENT:

Built-In

(Each Space)

- Separate room for group study (4) with mar-resistant tables and ergonomic, adjustable chairs on casters with computer and power connectivity, projection screen, and white board

Movable

(Each Space)

- 6, Individual carrels with 6, adjustable ergonomic chairs on casters
- Two individual computer stations with ergonomic, adjustable chairs on casters
- Secure storage cabinets for anatomy parts, slides, and microscopes controlled by a monitoring/equipment checkout station
- Secure display cabinets with glass doors

EXISTING EQUIPMENT: NONE

UTILITIES: • Reference Special Requirements below

SPECIAL

REQUIREMENTS:

- Anti-static carpet and acoustical ceiling with sound insulation
- Accessible system to supply power, data, voice, and video connections
- Walls common to general circulation to contain glazing for visibility
- Natural fenestration is desired

UNIT: Biology Department
GROUP: Preparation/Storage
SPACE: Biology Laboratory Preparation Room
CAPACITY: 2
AREA: 500 NASF
NO. REQUIRED: 7
TOTAL AREA: 3,500 NASF
ROOM USE CODE: 215

FUNCTION: Biology preparation and storage space

RELATIONSHIP: Ideally located between two laboratories with direct access from each including access from general circulation. Need for glass view panels to be determined during design. NOTE:

NEW EQUIPMENT:

Built-In
(Each Space)

- Provide built-in perimeter casework with impervious top and lockable base and wall mounted storage cabinets with under cabinet lighting as allowable by room layout.
- Fume hood
- 1, double sided Laboratory sink with hot and cold water, aspirator, filtered water, and sanitary drain
- Eyewash station
- 1, Biological safety cabinet with laminar flow, gas, and electric
- Flammable liquid and vented acid storage cabinets
- Safety station with drench shower and fire station

Movable
(Each Space)

- Movable cabinets and carts (located in center of space)
- 1, Explosion proof refrigerator
- 1, Icemaker
- Incubator(s) – (1 each at 25°, 37°, 45°, and 60°)
- Steam autoclave with overhead exhaust and ventilation
- Deionizing system

EXISTING EQUIPMENT:

- None

UTILITIES:

- Power and data outlets (110v and 220v) coordinated with casework and equipment
- 2 Gas outlet coordinated with casework
- Compressed air for glassware drying

UNIT:
GROUP:
SPACE:

Biology Department
Preparation/Storage
Biology Laboratory Preparation Room

SPECIAL
REQUIREMENTS:

- Accessible, flexible system to supply current and future power, data, voice, video connections
- Lab to have minimum of 5' aisles
- Floor surface of chemical resistant material and acoustical ceiling with sound insulation
- Natural fenestration is not required
- Provide utilities master cut-off at visible location
- External exhaust fan

UNIT:	Biology Department
GROUP:	Preparation/Storage
SPACE:	Biology Laptop Storage
CAPACITY:	n/a
AREA:	150 NASF
NO. REQUIRED:	1
TOTAL AREA:	150 NASF
ROOM USE CODE:	215
FUNCTION:	Secured storage and for portable Laptop Computers used in the Recitation Rooms.
RELATIONSHIP:	Convenient to the Laboratories with direct access from general circulation. Provide electronically controlled access.
NEW EQUIPMENT:	
Built-In	<ul style="list-style-type: none"> • None
Movable	<ul style="list-style-type: none"> • Rolling Racks of Laptop Computers • 1, 4' x 6' bulletin board • 1, 3' x 6' mar resistant table for opening and processing new materials and equipment
EXISTING EQUIPMENT:	<ul style="list-style-type: none"> • None
UTILITIES:	<ul style="list-style-type: none"> • Provide audio, video, and data outlets connected to building and campus networks
SPECIAL REQUIREMENTS:	<ul style="list-style-type: none"> • Accessible, flexible system to supply current and future power, data, voice, video connections • Floor surface of resilient material and acoustical ceiling with sound insulation • Double-door access from general circulation • Natural fenestration is not required

UNIT: Biology Department
GROUP: Preparation/Storage
SPACE: Biology Laboratory Stock Room
CAPACITY: 1
AREA: 500 NASF
NO. REQUIRED: 1
TOTAL AREA: 500 NASF
ROOM USE CODE: 215

FUNCTION: Biology preparation and storage space

RELATIONSHIP: Locate convenient to Biology Laboratories with direct access from general circulation.

NEW EQUIPMENT:

Built-In

- Provide built-in perimeter casework with impervious top and lockable base and wall mounted storage cabinets with under cabinet lighting as allowable by room layout.
- Fume hood
- 1, Laboratory sink with hot and cold water, aspirator, filtered water, and sanitary drain
- Eyewash station at lab sink
- 1, Biological safety cabinet with laminar flow, gas, and electric
- Flammable liquid and vented acid storage cabinets
- Safety station with drench shower and fire station

Movable:

- Movable cabinets and carts (located in center of space)
- 1, Explosion proof refrigerator
- 1, Icemaker
- Incubator(s)
- Steam autoclave
- Still for water

EXISTING EQUIPMENT:

- None

UTILITIES:

- Power and data outlets (110v and 220v) coordinated with casework and equipment
- 1 Gas outlet coordinated with casework
- Compressed air for glassware drying

UNIT:
GROUP:
SPACE:

Biology Department
Preparation/Storage
Biology Laboratory Stock Room

SPECIAL
REQUIREMENTS:

- Accessible, flexible system to supply current and future power, data, voice, video connections
- Room to meet NFPA 30 and 45 requirements for chemical storage and life safety
- Lab to have minimum of 5' aisles
- Floor surface of chemical resistant material and acoustical ceiling with sound insulation
- Natural fenestration is desirable
- Provide utilities master cut-off at visible location

UNIT: Biology Department
GROUP: Preparation/Storage
SPACE: Biology Model Room
CAPACITY: 1
AREA: 150 NASF
NO. REQUIRED: 1
TOTAL AREA: 150 NASF
ROOM USE CODE: 215

FUNCTION: Storage of models used in various Biology Laboratory experiments and demonstrations.

RELATIONSHIP: Locate convenient to Biology Laboratories

NEW EQUIPMENT:

Built-In

- Perimeter, securable casework

Movable:

- Movable cabinets and carts

EXISTING EQUIPMENT:

- None

UTILITIES:

- Reference Special Requirements below

SPECIAL REQUIREMENTS:

- Accessible, flexible system to supply current and future power, data, voice, video connections
- Doors to be sized to allow supplies, rack, and equipment passage
- Floor surface of resilient material and acoustical ceiling with sound insulation
- Natural fenestration is not required

UNIT: Biology Department
GROUP: Preparation/Storage
SPACE: Biology Preservation Storage
CAPACITY: n/a
AREA: 150 NASF
NO. REQUIRED: 1
TOTAL AREA: 150 NASF
ROOM USE CODE: 215

FUNCTION: Room for the storage of animal specimens

RELATIONSHIP: Locate near Animal Holding Room and Biology Laboratories.

NEW EQUIPMENT:

Built-In

- Perimeter casework with impervious top and lockable base and wall mounted storage cabinets with under cabinet lighting as allowable by room layouts

Movable

- Refrigerator for animal remains storage
- Moveable carts

EXISTING EQUIPMENT:

- None

UTILITIES:

- See Special Requirements below

SPECIAL REQUIREMENTS:

- Accessible, flexible system to supply current and future power, data, voice, video connections
- Floor surface of chemical resistant material and acoustical ceiling with sound insulation
- Doors to be sized to allow supplies, rack, and equipment passage
- Natural fenestration is not required

UNIT: Biology Department
GROUP: Preparation/Storage
SPACE: Autoclave Room
CAPACITY: 1
AREA: 100 NASF
NO. REQUIRED: 1
TOTAL AREA: 100 NASF
ROOM USE CODE: 215

FUNCTION: Shared autoclave room.

RELATIONSHIP: Locate in close proximity to other Biology Labs and Preparation/Storage areas.

NEW EQUIPMENT:

Built-In

- Casework with impervious top and base cabinets and wall mounted storage cabinets with under cabinet lighting as allowable by room layouts
- Autoclave(s)

Movable

- Carts and cabinets

EXISTING EQUIPMENT:

- None

UTILITIES:

- Reference Special Requirements below

SPECIAL REQUIREMENTS:

- Accessible, flexible system to supply current and future power, data, voice, and video connections
- Floor surface of chemical resistant material and acoustical ceiling with sound insulation
- Natural fenestration is not desired

UNIT:	Biology Department
GROUP:	Open Laboratory
SPACE:	Biology Student/Faculty Project Laboratory
CAPACITY:	8
AREA:	720 NASF
NO. REQUIRED:	1
TOTAL AREA:	720 NASF
ROOM USE CODE:	220
FUNCTION:	Students with the assistance of faculty will use this space to conduct work on their special projects.
RELATIONSHIP:	Locate in close proximity to Biology Laboratories with direct access to Biology Student/Faculty Project Laboratory and general circulation.
NEW EQUIPMENT:	
Built-In	<ul style="list-style-type: none"> • 1, 3' x 4' Bulletin Board • 1, 4' x 8' Marker Board, non-glare • Coat storage, wall mounted
Movable	<ul style="list-style-type: none"> • Double-sided island benches for 4 students each with computer workstations along walls • 8 ergonomic, adjustable stools with casters • 4, ergonomic, adjustable chairs with casters • 2 Printers
EXISTING EQUIPMENT:	<ul style="list-style-type: none"> • None
UTILITIES:	<ul style="list-style-type: none"> • Power and data outlets (110v and 220v) coordinated with workstations and equipment
SPECIAL REQUIREMENTS:	<ul style="list-style-type: none"> • Accessible, flexible system to supply current and future power, data, voice, and video connections • Natural fenestration is desired • Floor surface of chemical resistant material and acoustical ceiling with sound insulation • Acoustical separation from adjoining spaces to provide privacy

UNIT: Biology Department
GROUP: Open Laboratory
SPACE: Biology Student Project Preparation
CAPACITY: 1
AREA: 360 NASF
NO. REQUIRED: 3
TOTAL AREA: 1,080 NASF
ROOM USE CODE: 225

FUNCTION: Preparation area associated with Student/Faculty Project Laboratory

RELATIONSHIP: Locate adjacent to, and interconnected with, the Biology Student/Faculty Project Laboratory including direct access to general circulation.

NEW EQUIPMENT:
 Built-In
 (Each Space)

- Provide built-in perimeter casework with impervious top and lockable base and wall mounted storage cabinets with under cabinet lighting as allowable by room layout.
- 1 5' chemical fume hood with hot and cold water, gas, and 110v and 220v electric outlets per side
- 1, Laboratory double basin sink with hot and cold water, aspirator, filtered water, and sanitary drain
- Eyewash station at lab sink
- 1, Biological safety cabinet with laminar flow, gas, and electric in Biology Preparation
- Flammable liquid and vented acid storage cabinets in Chemistry Preparation
- Safety station with drench shower and fire station

Movable
 (Each Space)

- 1 ergonomic, adjustable stool with casters

EXISTING EQUIPMENT:

- None

UTILITIES:

- 1 gas outlet coordinated with casework
- Power and data outlets (110v and 220v) coordinated with casework and equipment
- Clean compressed air for glassware drying

REQUIREMENTS:

- Accessible, flexible system to supply current and future power, data, voice, video connections
- Floor surface of chemical resistant material and acoustical ceiling with sound insulation
- Provide utilities master cutoff at visible location
- Natural fenestration is not required

UNIT:	Biology Department
GROUP:	Department Suite
SPACE:	Department Chair Office
CAPACITY:	1 + 3
AREA:	150 NASF
NO. REQUIRED:	1
TOTAL AREA:	150 NASF
ROOM USE CODE:	310
FUNCTION:	This space will provide an office workstation and conference area for the Chair.
RELATIONSHIP:	Direct access from Chair's Administrative Office. Desirable to locate away from primary building entrance and circulation
NEW EQUIPMENT:	
Built-In	<ul style="list-style-type: none"> • 1, 3' x 4' bulletin board • 1, 3' x 4' marker board • Coat storage, wall mounted
Movable	<ul style="list-style-type: none"> • Executive double-pedestal desk with ergonomic, adjustable chair with casters • Conference table with 4 ergonomic, adjustable chairs with casters • 3, 3' W x 7' H x 1' D, bookcases • 1 credenza with lateral file storage
EXISTING EQUIPMENT:	<ul style="list-style-type: none"> • None
UTILITIES:	<ul style="list-style-type: none"> • Voice and data communications jacks with two duplex convenience outlets at the desk station as well as one or more duplex outlets on each wall, 12' maximum spacing
SPECIAL REQUIREMENTS:	<ul style="list-style-type: none"> • Provide layout to include desk zone and a conference zone • Accessible, flexible system to supply current and future power, data, voice, video connections • Acoustical separation from adjoining spaces to provide privacy • Anti-static carpeted floor and acoustical suspended ceiling • Natural fenestration required

UNIT: Biology Department
GROUP: Department Suite
SPACE: Department Administrative Reception
CAPACITY: 1 + 4
AREA: 180 NASF
NO. REQUIRED: 1
TOTAL AREA: 180 NASF
ROOM USE CODE: 310

FUNCTION: Work station for a full-time secretary and seating for 4 guests

RELATIONSHIP: Central reception area having direct access to offices for the Chair, the Administrative Workroom, and general circulation

NEW EQUIPMENT:

Built-In

- 1, display/bulletin board cabinet
- Coat storage, wall-mounted

Movable

- 1, "U" shaped secretarial workstation with an ergonomic, adjustable secretarial chair with casters
- 2, side chairs
- 4, visitor chairs and magazine stand
- 1, 5-drawer lateral filing cabinet, 30" W
- 1, computer with printer station
- 1, fax machine

EXISTING EQUIPMENT:

- None

UTILITIES:

- Voice and data communications jacks and two duplex convenience outlets at each workstation as well as one or more duplex outlets on each wall, 12' maximum spacing

SPECIAL REQUIREMENTS:

- Accessible, flexible system to supply current and future power, data, voice, and video connections
- Acoustical separation from adjoining spaces to provide privacy
- Anti-static carpeted floor and acoustical ceiling
- Natural fenestration desirable

UNIT: Biology Department
GROUP: Department Suite
SPACE: Administrative Assistant Office
CAPACITY: 1 + 2
AREA: 120 NASF
NO. REQUIRED: 1
TOTAL AREA: 120 NASF
ROOM USE CODE: 310

FUNCTION: Private office for a full-time administrative assistant and seating for 2 guests

RELATIONSHIP: Adjacent to the Department Chair with direct access to Department Administrative Reception

NEW EQUIPMENT:

Built-In

- 1, display/bulletin board cabinet
- Coat storage, wall-mounted

Movable

- 1, "U" shaped workstation with an ergonomic, adjustable chair with casters
- 2, side chairs
- 1, 5-drawer lateral filing cabinet, 30" W
- 1, computer with printer station

EXISTING EQUIPMENT:

- None

UTILITIES:

- Voice and data communications jacks and two duplex convenience outlets at each workstation as well as one or more duplex outlets on each wall, 12' maximum spacing

SPECIAL REQUIREMENTS:

- Accessible, flexible system to supply current and future power, data, voice, and video connections
- Acoustical separation from adjoining spaces to provide privacy
- Anti-static carpeted floor and acoustical ceiling
- Natural fenestration required

UNIT: Biology Department
GROUP: Department Suite
SPACE: Department Administrative Workroom
CAPACITY: 1
AREA: 120 NASF
NO. REQUIRED: 1
TOTAL AREA: 120 NASF
ROOM USE CODE: 315

FUNCTION: Clerical work space for duplicating equipment, fax, and collating machines

RELATIONSHIP: Direct access from Administrative Office

NEW EQUIPMENT:

Built-In

- Along one wall, install 24" deep counter, with under counter storage cabinets, under counter refrigerator, sink, and wall shelving above counter
- 1, 3' x 4' bulletin board
- 1, 3' x 4' marker board, non glare

Movable

- 1, 2' x 5' mar-resistant work table
- 2, ergonomic chairs with casters
- Copier
- Mailboxes for 30
- 1, Fax machine

EXISTING EQUIPMENT:

- None

UTILITIES:

- Two or more duplex convenience outlets above counter, copier outlet, duplex and at least one duplex outlet per wall
- Two data jacks for duplicators/printers
- Two voice jacks for phones/fax machine

SPECIAL REQUIREMENTS:

- Accessible, flexible system to supply current and future power, data, voice, video connections
- Acoustical separation from adjoining spaces to provide privacy
- Anti-static carpeted floor and acoustical suspended ceiling
- Natural fenestration is not required

UNIT: Biology Department
GROUP: Department Suite
SPACE: Department Secure/File Storage Room
CAPACITY: n/a
AREA: 120 NASF
NO. REQUIRED: 1
TOTAL AREA: 120 NASF
ROOM USE CODE: 315

FUNCTION: Secure file and storage room for supplies and materials

RELATIONSHIP: Direct access from Administrative Workroom and Administrative Office

NEW EQUIPMENT:

Built-In

- None

Movable

- 5, 5 drawer lateral file cabinets, 30" W
- 2, 3' W x 7' H x 1.5' D securable supply cabinets
- 2, each 3' W x 7' H x 1' D, bookcases

EXISTING EQUIPMENT:

- None

UTILITIES:

- Two or more duplex convenience outlets above counter, copier outlet, duplex and at least one duplex outlet per wall
- Two data jacks for duplicators/printers
- Two voice jacks for phones/fax machine

SPECIAL REQUIREMENTS:

- Accessible, flexible system to supply current and future power, data, voice, and video connections
- Acoustical separation from adjoining spaces to provide privacy
- Floor surface of resilient material and acoustical ceiling
- Natural fenestration is not required

UNIT: Biology Department
GROUP: Department Offices
SPACE: Faculty Office
CAPACITY: 1 + 2
AREA: 120 NASF
NO. REQUIRED: 14
TOTAL AREA: 1,680 NASF
ROOM USE CODE: 310

FUNCTION: Workstation for 1 full-time faculty member and 2 guests

RELATIONSHIP: Locate near Department Suite and convenient to Labs.

NEW EQUIPMENT:

Built-In
(Each Space)

- 1, 3' x 4' bulletin board
- 1, 3' x 4' marker board
- Coat storage, wall mounted

Movable
(Each Space)

- 1, "L" shaped workstation with computer table or "U" shaped workstation with ergonomic, adjustable chair with casters
- 2, side chairs
- 2, 3' W x 7' H x 1' D bookcases
- 1, 5-drawer lateral filing cabinet, 30" W
- 1, computer with printer

EXISTING EQUIPMENT:

- None

UTILITIES:

- Voice and data communication jack and two duplex convenience outlets at each work station as well as one or more duplex outlets on each wall, 12' maximum spacing

SPECIAL REQUIREMENTS:

- Accessible, flexible system to supply current and future power, data, voice, and video connections
- Acoustical separation from adjoining spaces to provide privacy
- Anti-static carpeted floor and acoustical ceiling
- Natural fenestration required

UNIT: Biology Department
GROUP: Department Offices
SPACE: Part-Time Faculty Offices
CAPACITY: 4
AREA: 120 NASF
NO. REQUIRED: 3
TOTAL AREA: 360 NASF
ROOM USE CODE: 310

FUNCTION: Office space shared by 4 Part-Time Faculty

RELATIONSHIP: Direct access from general circulation and Full-Time Faculty.

NEW EQUIPMENT:

Built-In
(Each Space)

- 1, 3' x 4' marker board, non-glare
- 1, 3' x 4' of bulletin board
- Coat storage, wall-mounted

Movable
(Each Space)

- 4, "L" shaped workstations with computer and ergonomic, adjustable chair with casters
- 2, side chairs
- 1, 5 drawer lateral file cabinet, 30" W
- 1, 3' W x 7' H x 1' D bookcase

EXISTING EQUIPMENT:

- None

UTILITIES:

- Provide voice and data service at each desk station connected to local, building, and campus networks
- Provide at least two duplex 115-volt electrical outlets at desk station in addition to the general standard for wall outlets

SPECIAL REQUIREMENTS:

- Accessible, flexible system to supply current and future power, data, voice, and video connections
- Anti-static carpeted floor and acoustical suspended ceiling
- Natural fenestration desirable

UNIT: Biology Department
GROUP: Department Offices
SPACE: Technician Office
CAPACITY: 2
AREA: 120 NASF
NO. REQUIRED: 3
TOTAL AREA: 360 NASF
ROOM USE CODE: 310

FUNCTION: Office space shared by 2 Technicians

RELATIONSHIP: Adjacent to the Recitation Rooms and Laboratories

NEW EQUIPMENT:

Built-In
(Each Space)

- 1, 3' x 4' marker board, non-glare
- 1, 3' x 4' bulletin board
- Coat storage, wall-mounted

Movable
(Each Space)

- 2, "L" shaped workstations with computers and ergonomic, adjustable chairs with casters
- 2, side chairs
- 1, 5-drawer lateral file cabinet, 30" W
- 2, 3' W x 7' H x 1' D bookcases

EXISTING EQUIPMENT:

- None

UTILITIES:

- Provide voice and data service at each desk station connected to local, building, and campus networks
- Provide at least two duplex 115-volt electrical outlets at desk station in addition to the general standard for wall outlets

SPECIAL REQUIREMENTS:

- Accessible, flexible system to supply current and future power, data, voice, and video connections
- Anti-static carpeted floor and acoustical suspended ceiling
- Natural fenestration required

UNIT: Biology Department
GROUP: Animal Facility
SPACE: Animal Holding Room
CAPACITY: 1
AREA: 100 NASF
NO. REQUIRED: 2
TOTAL AREA: 200 NASF
ROOM USE CODE: 570

FUNCTION: Room for holding mice, rats, frogs, plants, and/or insects for student research and demonstrations.

RELATIONSHIP: All animal housing units are adjacent to each other and adjacent to Animal Support Rooms.

NEW EQUIPMENT:

Built-In
 (Each Space)

- One large sink per housing unit with hot and cold running water, sink to be within a 6 foot chemical laboratory grade countertop
- Wall-mounted water faucet with hot and cold running water

Movable
 (Each Space)

- 1 cabinet (8' L x 3' H x 1' D)
- 1 double-sided animal housing rack 6'-6" H x 5'-0" W X 1'-10" D, (60 individual cages per rack, each 20") for housing rats
 Rack Cage Sizes:
 Rack 78" H x 22" D x 60" W - cage 8" x 10" x 7"
 Rack 68" H x 48" W x 28" D - cage 20" x 22" x 9"
- 2 bins for storage of food and bedding, 6'-6" H x 5'-0" W X 1'-10" D

EXISTING EQUIPMENT: • None

UTILITIES:

- Separate ventilation system from rest of building
- Heating and cooling system capable of maintaining temperature between 64 degrees and 80 degrees Fahrenheit and relative humidity between 40 and 70%
- Adjustable automatic light timer for regulating light/dark cycle in each animal housing room
- Floor drain with acid neutralization
- Provide automatic animal watering system
- Provide hose bib for hot and cold water
- Safety station with drench shower and fire safety station nearby
- Natural fenestration is not required

UNIT:
GROUP:
SPACE:

Biology Department
Animal Facility
Animal Holding Room

SPECIAL
REQUIREMENTS:

- Floor construction consistent with NIH animal laboratory guidelines, current edition (seamless floor with chemical resistant material)
- Provide washable floors, walls, and ceiling
- Accessible, flexible system to supply current and future power, data, voice, and video connections
- Natural fenestration is not required
- Doors should be sized to allow rack and equipment passage
- Electronically controlled access

UNIT: Animal Facility
GROUP: Animal Facility
SPACE: Animal Support Room
CAPACITY: 1
AREA: 100 NASF
NO. REQUIRED: 1
TOTAL AREA: 100 NASF
ROOM USE CODE: 575

FUNCTION: Temporary storage and disposal of animal waste, cleaning of equipment, and storage of equipment.

RELATIONSHIP: Adjacent to and interconnected with the Animal Holding Rooms. In addition, directly accessible to service access to loading dock/building waste disposal.

NEW EQUIPMENT:

Built-In

- Utility sink with hot and cold water
- Non-corrosive, heavy duty adjustable shelving

Movable

- Waste removal cart(s)
- 1 Freezer for animal remains storage

EXISTING EQUIPMENT:

- None

UTILITIES:

- GFI electrical outlets
- Hookup for cage washer
- Hose bibb for hot and cold water
- Floor drain
- Compressed air outlet

SPECIAL

REQUIREMENTS:

- Floor construction consistent with NIH animal laboratory guidelines, current edition (seamless floor with chemical resistant material)
- Provide washable floors, walls, and ceiling
- Accessible, flexible system to supply current and future power, data, voice, and video connections
- Natural fenestration is not required
- Doors should be sized to allow rack and equipment passage
- Electronically controlled access

UNIT: Biology Department
GROUP: Greenhouse
SPACE: Greenhouse
CAPACITY: 1
AREA: 750 NASF
NO. REQUIRED: 1
TOTAL AREA: 750 NASF
ROOM USE CODE: 580

FUNCTION: Greenhouse to support student instruction in Biology.

RELATIONSHIP: Directly connected to both the Headhouse and Greenhouse Storage. Locate with controlled, but direct access to Biology Laboratories; specifically the Environmental Science Laboratory.

NEW EQUIPMENT:

Built-In

- Provide ceiling-mounted retractable GFI moisture proof power reels and continuous strip GFI moisture proof power outlets at perimeter above casework
- Safety station with drench shower and fire station near head house entry.
- Utilities master cut-off at visible location

Movable

- Heavy duty steel-legged standing height tables as layout will allow

EXISTING EQUIPMENT:

- None

UTILITIES:

- Provide time controlled misting system
- Hose bibs at 10' intervals along perimeter walls
- Provide general fluorescent overhead lighting with separate switches; local incandescent lighting; and one high pressure sodium vapor lamp per 100 sf of potting/plant growing floor space.
- Provide temperature and humidity computer controlled thermostat/humidistat
- Provide ability to remotely control environmental conditions
- Provide exhaust/ventilation fans that draw air across the narrow dimension of the greenhouse

SPECIAL REQUIREMENTS:

- Accessible, flexible system to supply current and future power, data, voice, video connections
- Floor surface to be durable and easily maintainable (sealed concrete floor with slopes to drain with sand filters)
- Natural fenestration is essential
- Double 3'-0" wide doors to exterior

UNIT: Biology Department
GROUP: Greenhouse
SPACE: Head House
CAPACITY: 1
AREA: 125 NASF
NO. REQUIRED: 1
TOTAL AREA: 125 NASF
ROOM USE CODE: 585

FUNCTION: Preparation area associated with the Greenhouse.

RELATIONSHIP: Directly accessible to Greenhouse and Greenhouse Storage. Direct access from general circulation and if possible, from the Environmental Science Laboratory.

NEW EQUIPMENT:

Built-In

- Large double basin epoxy resin sink with soil trap and glassware drying rack
- 1 4' fume hood with cold water with cup sink, chemical storage cabinet; power, gas and specialty gas outlets
- Provide standing height perimeter casework with stainless top and wall mounted storage cabinets with under cabinet lighting as allowable by room layout
- Drying Oven
- 1, 3' x 4' marker board
- 1, 3' x 4' bulletin board
- Coat storage, wall mounted

Movable

- Stainless steel workbenches
- 1, 4' x 6' bulletin board

EXISTING EQUIPMENT:

- None

UTILITIES:

- Provide access to GFI moisture proof 208-220v outlet
- Provide access to Natural Gas; locally polished DI water at one lab sink
- Provide access to compressed air with portable compressor

SPECIAL REQUIREMENTS:

- Accessible, flexible system to supply current and future power, data, voice, video connections
- Floor surface to be durable and easily maintainable (sealed concrete floor with slopes to drain with sand filters)
- Double-door access from general circulation
- Natural fenestration is required with room darkening capability
- Provide electronically controlled access

UNIT: Biology Department
GROUP: Greenhouse
SPACE: Greenhouse Storage
CAPACITY: 1
AREA: 125 NASF
NO. REQUIRED: 1
TOTAL AREA: 125 NASF
ROOM USE CODE: 585

FUNCTION: Serve as storage for material brought into the Greenhouse and Head House.

RELATIONSHIP: Locate near exterior of building, with direct access to both the Greenhouse and the Head House and convenient to building deliveries.

NEW EQUIPMENT:

Built-In

- None

Movable

- Non-corrosive, heavy-duty adjustable steel shelving of varying depths

EXISTING EQUIPMENT:

- None

UTILITIES:

- Provide at least one 115 volt duplex electrical outlet on each wall surface

SPECIAL REQUIREMENTS:

- Provide wash area with hot and cold water. Provide a drain to sanitary sewer
- Provide double door access
- Accessible, flexible system to supply current and future power, data, voice, video connections
- Sealed, hardened non-slip concrete floor surface sloped to floor drain
- Natural fenestration is not required

UNIT:	Biology Department
GROUP:	
SPACE:	Biology Student Half-Lockers
CAPACITY:	n/a
AREA:	As Required
NO. REQUIRED:	336
TOTAL AREA:	As Required
ROOM USE CODE:	020
FUNCTION:	Securable student property storage while participating in laboratory experience. To be integrated with, and off-set from, general building circulation.
RELATIONSHIP:	Convenient to all the Biology Laboratories
NEW EQUIPMENT:	
Built-In	<ul style="list-style-type: none"> • 336, half lockers, each approximately 1' x 1.5'
EXISTING EQUIPMENT:	<ul style="list-style-type: none"> • None
UTILITIES:	<ul style="list-style-type: none"> • None
SPECIAL REQUIREMENTS:	<ul style="list-style-type: none"> • Floor surface of resilient material and acoustical ceiling with sound insulation • Natural fenestration is not required

Table 5-4
Proposed Chemistry Department Facilities Program, MCR New Science Center

<u>HEGIS</u>	<u>Type of Facility</u>	<u>Capacity</u>	<u>NASF</u>	<u>Quantity</u>	<u>Total</u>
	<u>Chemistry Laboratories</u>				
210	General Chemistry Laboratory	24	1,200	6	7,200
210	General Chemistry Laboratory Recitation	24	690	3	2,070
210	Organic Chemistry Laboratory	16	960	3	2,880
210	Organic Chemistry Laboratory Recitation	16	320	3	960
210	Chemistry Instrumentation Laboratory	16	800	1	800
	Class Lab Sub-total Chemistry				13,910
	<u>Preparation/Storage</u>				
215	MSDS/Reference Room	12	300	1	300
215	Chemistry Lab Preparation Room	2	500	4	2,000
215	Chemistry Lab Stock Room	1	250	2	500
215	Chemistry Laptop Storage	n/a	150	1	150
215	Chemistry Instrumentation Room	6	320	2	640
	Class Lab Sub-total Preparation				3,590
	Sub-total Class Lab				17,500
220	Chemistry Student/Faculty Project Lab	8	720	1	720
225	Chemistry Student/Faculty Project Prep	1	360	1	360
	Sub-total Open Lab				1,080
	<u>Department Suite</u>				
310	Department Chair Office	1+3	150	1	150
310	Dept Admin Reception	1+4	180	1	180
310	Administrative Assistant Office	1+2	120	1	120
315	Department Admin Workroom	1	120	1	120
315	Dept Secure File/Storage Room	1	120	1	120
	Office Sub-total Department Suite				690
	<u>Department Offices</u>				
310	Faculty Offices	1+2	120	10	1,200
310	Part Time Faculty Offices	4	120	3	360
310	Technician Office	2	120	2	240
	Office Sub-total Department Offices				1,800
	Sub-total Office				2,490
760	Hazardous Materials Supply Room	1	125	1	125
	Total				21,195
020	Chemistry Student Half-Lockers	176	AR	1	AR

UNIT: Chemistry Department
GROUP: Class Laboratory
SPACE: General Chemistry Laboratory
CAPACITY: 24
AREA: 1,200 NASF
NO. REQUIRED: 6
TOTAL AREA: 7,200 NASF
ROOM USE CODE: 210

FUNCTION: Chemistry Laboratory for hands-on and activity based learning and demonstrations.

RELATIONSHIP: Locate in close proximity to other Chemistry Laboratories and Preparation/Storage areas and adjacent to, and interconnected with, a shared General Chemistry Laboratory Recitation.

NEW EQUIPMENT:

Built-In
(Each Space)

- Motorized projection screen, 8' x 8', to close flush with the ceiling surface
- 1, 4' x 8' marker board, non-glare
- 1, 4' x 8' bulletin board
- Ceiling-mounted LCD projector
- Smart instructor's station
- 24 laboratory stations; either island, peninsula, or wall bench with impervious counter top at standing height; fitted with common equipment drawers below. Each student to have access to a large sink with hot and cold water with aspirator and sanitary drain, gas vacuum, electric, and data service. Provide one ADA compliant student workstation with complete services similar to laboratory stations described above
- Built-in upright and horizontal support on bench tops for use with clamps and rings (same for demonstration table)
- Eyewash station at each laboratory sink
- Safety station with drench shower and fire station near laboratory entry
- Maximize laboratory casework and wall mounted, lockable storage cabinets with under cabinet lighting as allowable by room layout
- Demonstration Table: island bench with impervious top and lockable cabinets, sink, hot and cold water, gas and vacuum outlet, electrical (flush with counter top), and data port
- Six chemical fume hoods at 6' each, with hot and cold water, gas, and vacuum and 110v and 220v electric outlets per side plus one ADA compliant fume hood

UNIT:
GROUP:
SPACE:

Chemistry Department
Class Laboratory
General Chemistry Laboratory

NEW EQUIPMENT:

Built-in
(Each Space)

(Continued)

- Flammable liquid and vented acid storage cabinets in each fume hood

Movable
(Each Space)

- 25 stools (students + instructor) with backs, casters, and full adjustability at benches
- Six movable computer workstations and ergonomic, adjustable chairs with casters at room perimeter with electric and MC net connections
- One small icemaker with water supply and drain

EXISTING EQUIPMENT:

- None

UTILITIES:

- Utilities master cut-off at visible location and sub-master cut-offs per bench
- GFI outlets at each workstation near water
- Data and one port at each workstation
- Deionized water

SPECIAL REQUIREMENTS:

- Accessible, flexible system to supply current and future power, data, voice, and video connections
- Natural fenestration is desired with darkening capability such as shades or blinds
- Floor with chemical resistant material and acoustical tile ceiling
- Laboratory to have minimum of 5' aisles and two means of egress
- Access to MC net, video transmission jack, and telephone and data service. Power and data outlets coordinated with casework, laboratory stations, computer stations, and demonstration table
- AV equipment control cabinet
- Ventilation to prevent build-up of fumes

UNIT:	Chemistry Laboratories
GROUP:	Class Laboratory
SPACE:	General Chemistry Laboratory Recitation
CAPACITY:	24
AREA:	690 NASF
NO. REQUIRED:	3
TOTAL AREA:	2,070 NASF
ROOM USE CODE:	210
 FUNCTION:	 Discussion area (“talking about”) portion of the Laboratory (doing) activities.
 RELATIONSHIP:	 Locate one each between and directly connected to each of two General Chemistry Laboratories with direct egress to general circulation.
 NEW EQUIPMENT:	
Built-In (Each Space)	<ul style="list-style-type: none"> • Motorized projection screen, 8’ x 8’, to close flush with the ceiling • 1, 4’ x 16’ marker board, non-glare • Ceiling-mounted LCD projector • Smart, instructor’s station with ergonomic, adjustable chair on casters • AV equipment control cabinet • 1, 4’ x 8’ bulletin board
Movable (Each Space)	<ul style="list-style-type: none"> • 12 mar-resistant tables and wireless connectivity for laptops • 24 ergonomic, adjustable chairs on casters, at least 1 student station must be wheelchair accessible • 12 computer workstations with 12 ergonomic, adjustable chairs on casters for shared use on two parallel walls connected to campus and internet networks • 2 computer printers
 EXISTING EQUIPMENT:	 <ul style="list-style-type: none"> • None
 UTILITIES:	 <ul style="list-style-type: none"> • Provide audio, voice, and data outlets at lecture station connected to building and campus networks and convenience outlets spaced 12’ o/c
 SPECIAL REQUIREMENTS:	 <ul style="list-style-type: none"> • Accessible, flexible system to supply current and future power, data, voice, video connections

UNIT:
GROUP:
SPACE:

Chemistry Department
Class Laboratory
General Chemistry Laboratory Recitation

SPECIAL
REQUIREMENTS:

(continued)

- Easily operated and understood lighting in the instructor's area

NOTE: Lights should be zoned and have controls to allow front lights and houselights to be separately controlled to achieve lighting levels that are acceptable for various types of projection and still sufficient for note taking. If incandescent lights are used, then the controls should be dimmers. If fluorescent lights are used, then cut-out switches are needed to allow a minimum number of tubes to be left on for note taking during projection. No dimmers on fluorescent lights

Whiteboard lighting on a separate switch at front of room

- Natural fenestration is desirable
- Window treatment to provide blackout capability
- Floor with chemical resistant material and acoustical tile ceiling
- The closest seat to a projection screen should be at a distance twice the width of the screen. The optimum furthest seat distance is six times the screen width; the maximum seat distance is ten times screen width. The vertical angle to the top of the screen from any seating position should be less than 30 degrees from horizontal
- Although part of the whiteboard may be blocked when the projection screen is down, a sufficient amount of marker board should be unobstructed to allow it to be used. The screen must be a minimum of 8' x 8' and be mounted high enough to provide a clear angle of view

UNIT: Chemistry Department
GROUP: Class Laboratory
SPACE: Organic Chemistry Laboratory
CAPACITY: 16
AREA: 960 NASF
NO. REQUIRED: 3
TOTAL AREA: 2,880 NASF
ROOM USE CODE: 210

FUNCTION: Chemistry laboratory for hands-on and activity based learning and demonstrations.

RELATIONSHIP: Locate in close proximity to other Chemistry Laboratories and Preparation/Storage areas and adjacent to, and interconnected with, a shared Organic Chemistry Laboratory Recitation.

NEW EQUIPMENT:

Built-In
(Each Space)

- Motorized projection screen, 8' x 8', to close flush with the ceiling surface
- 1, 4' x 8' marker board, non-glare
- 1, 4' x 8' bulletin board
- Smart instructor's station
- Ceiling-mounted LCD projector
- 16 laboratory stations; either island, peninsula, or wall bench with impervious counter top and cabinets at standing height; cabinets with lockable drawers below. Each student to have access to a large sink with hot and cold water with aspirator and sanitary drain, gas vacuum, electric, and data service. Provide one ADA compliant student workstation with complete services
- Eyewash station at each laboratory sink
- Safety station with drench shower and fire station near laboratory entry
- Maximize laboratory casework and wall mounted lockable storage cabinets with under cabinet lighting as allowable by room layout
- Demonstration Table: island bench with impervious top and lockable cabinets, sink, hot and cold water, gas and vacuum outlet, electrical (flush with counter top), and data port
- Eight chemical fume hoods at 6' each, with hot and cold water, gas, and vacuum and 110v and 220v electric outlets per side plus one ADA compliant fume hood
- Flammable liquid and vented acid storage cabinets in each fume hood
- Mounted Periodic Table of Elements

UNIT:
GROUP:
SPACE:

Chemistry Department
Class Laboratory
Organic Chemistry Laboratory

NEW EQUIPMENT:

(Continued)

Movable
(Each Space)

- 17 stools (students + instructor) with backs, casters, and full adjustability at benches
- Four movable computer workstations and ergonomic, adjustable chairs with casters at room perimeter with electric and MC net connections
- 1 Ice machine with water and drain
- 1 Solvent safe and explosion proof refrigerator (freezer)
- 3 bench top centrifuges
- 16 hot plates
- 1 File cabinet
- 16 Magnetic stirrers
- 3 Rotary Evaporators
- 1 Volatile storage cabinet
- 1 Waste storage cabinet
- 2 Ovens
- 1 Muffle furnace
- 1 Cryogenic system/vacuum

EXISTING EQUIPMENT:

- None

UTILITIES:

- Utilities master cut-off at visible location and sub-master cut-offs per bench
- GFI outlets at each workstation near water
- Deionized water system
- Data and one port at each workstation

SPECIAL REQUIREMENTS:

- Accessible, flexible system to supply current and future power, data, voice, and video connections
- Natural fenestration is desired with darkening capability such as shades or blinds
- Floor with chemical resistant material and acoustical tile ceiling

UNIT:
GROUP:
SPACE:

Chemistry Department
Class Laboratory
Organic Chemistry Laboratory

SPECIAL
REQUIREMENTS:

(Continued)

- Access to MC net, video transmission jack, and telephone and data service. Power and data outlets coordinated with casework, laboratory stations, computer stations, and demonstration table
- AV equipment control cabinet
- Laboratory to have minimum of 5' aisles and two means of egress

UNIT:	Chemistry Department
GROUP:	Class Laboratory
SPACE:	Organic Chemistry Laboratory Recitation
CAPACITY:	16
AREA:	320 NASF
NO. REQUIRED:	3
TOTAL AREA:	960 NASF
ROOM USE CODE:	210
FUNCTION:	Discussion area (“talking about”) portion of the Laboratory (doing) activities. Also used for pre-laboratory quizzes and laboratory examinations.
RELATIONSHIP:	Locate one each adjacent to the Organic Chemistry Laboratories with direct egress to Laboratory and general circulation.
NEW EQUIPMENT:	
Built-In (Each Space)	<ul style="list-style-type: none"> • Motorized projection screen, 8' x 8', to close flush with the ceiling • 1, 4' x 16' marker board, non-glare • Ceiling-mounted LCD projector • Smart, instructor’s station with ergonomic, adjustable chair on casters • AV equipment control cabinet • 1, 4' x 8' bulletin board
Movable (Each Space)	<ul style="list-style-type: none"> • 12 mar-resistant tables and wireless connectivity for laptops • 24 ergonomic, adjustable chairs on casters, at least 1 student station must be wheelchair accessible • 2 computer printers
EXISTING EQUIPMENT:	<ul style="list-style-type: none"> • None
UTILITIES:	<ul style="list-style-type: none"> • Provide audio, voice, and data outlets at lecture station connected to building and campus networks and convenience outlets spaced 12' o/c
SPECIAL REQUIREMENTS:	<ul style="list-style-type: none"> • Accessible, flexible system to supply current and future power, data, voice, video connections • Lighting dimmer with blackout and separate switching between instructors station area and seating • Whiteboard lighting on a separate switch at front of room

UNIT:
GROUP:
SPACE:

Chemistry Department
Class Laboratory
Organic Chemistry Laboratory Recitation

SPECIAL
REQUIREMENTS:

(continued)

- Easily operated and understood lighting in the instructor's area

NOTE: Lights should be zoned and have controls to allow front lights and houselights to be separately controlled to achieve lighting levels that are acceptable for various types of projection and still sufficient for note taking. If incandescent lights are used, then the controls should be dimmers. If fluorescent lights are used, then cut-out switches are needed to allow a minimum number of tubes to be left on for note taking during projection. No dimmers on fluorescent lights.

- Natural fenestration is desirable
- Window treatment to provide blackout capability
- Floor with chemical resistant material and acoustical tile ceiling
- The closest seat to a projection screen should be at a distance twice the width of the screen. The optimum furthest seat distance is six times the screen width; the maximum seat distance is ten times screen width. The vertical angle to the top of the screen from any seating position should be less than 30 degrees from horizontal
- Although part of the whiteboard may be blocked when the projection screen is down, a sufficient amount of marker board should be unobstructed to allow it to be used. The screen must be a minimum of 8' x 8' and be mounted high enough to provide a clear angle of view
- Wall mounted Periodic Table of the Elements

UNIT: Chemistry Department
GROUP: Class Laboratory
SPACE: Chemistry Instrumentation Laboratory
CAPACITY: 16
AREA: 800 NASF
NO. REQUIRED: 1
TOTAL AREA: 800 NASF
ROOM USE CODE: 210

FUNCTION: Equipment, experiments, and related functions associated with Organic Chemistry Laboratory.

RELATIONSHIP: Locate near Organic Chemistry Laboratory and Organic Chemistry Instrumentation Room with direct egress to general circulation.

NEW EQUIPMENT:
Built-In

- Motorized projection screen, 8' x 8', to close flush with the ceiling surface
- 1, 4' x 8' marker board, non-glare
- 1, 4' x 8' bulletin board
- Ceiling-mounted LCD projector
- Maximize perimeter laboratory casework and wall mounted storage cabinets as allowable by room and equipment layouts. Provide one ADA compliant student workstation with complete services
- Eyewash station at laboratory sink
- Safety station with drench shower and fire station near laboratory entry
- Maximize laboratory casework and wall mounted storage cabinets with under cabinet lighting as allowable by room layout
- 1 Laboratory sink with hot and cold water, aspirator, hose rack, and sanitary drain
- 1, 5' chemical fume hood with hot and cold water, gas vacuum, and 110v and 220v electric outlets per side
- Flammable liquid and vented acid storage at fume hood
- 3 wall brackets for compressed gas cylinders coordinated with equipment locations

UNIT: Chemistry Department
GROUP: Class Laboratory
SPACE: Chemistry Instrumentation Laboratory

NEW EQUIPMENT: (Continued)

Movable

- 16 Mel-Temp Apparatus(es)
- 6 Balances
- 6 Polarimeters
- 8 Gas Chromatographs
- 8 Strip Chart Recorders
- 6 Refractometers
- 1 HPLC
- Eight movable computer workstations at room perimeter with electric and MC net connections

EXISTING EQUIPMENT:

- None

UTILITIES:

- 1 gas and vacuum outlet
- 1 clean compressed air outlet
- Filtered and cooled water with drain as required by equipment
- Power and data outlets (grounded 110v and 220v) coordinated with casework and equipment

SPECIAL REQUIREMENTS:

- Accessible, flexible system to supply current and future power, data, voice, and video connections
- Natural fenestration is desired
- Floor with chemical resistant material and capable of supporting concentrated equipment loads
- Provide utilities master cut-off at visible location
- Natural fenestration is desirable with blackout capability

UNIT: Chemistry Department
GROUP: Preparation/Storage
SPACE: MSDS/Reference Room
CAPACITY: 12
AREA: 300 NASF
NO. REQUIRED: 1
TOTAL AREA: 300 NASF
ROOM USE CODE: 215

FUNCTION: Faculty and student work/individual study areas for Chemistry Laboratory Resource documents

RELATIONSHIP: Adjacent to Chemistry Laboratories and directly accessible from general circulation.

NEW EQUIPMENT:

Built-In

- Built-in casework with adjustable shelves for MSDS Manuals
- 1, 4' X 8' Marker board, non-glare
- 1, 4' X 8' Bulletin board

Movable

- Mar-resistant tables and ergonomic chairs for 12
- Two to three individual computer stations

EXISTING EQUIPMENT: NONE

UTILITIES:

- virtually wired

SPECIAL

REQUIREMENTS:

- Anti-static carpet and acoustical ceiling with sound insulation
- Accessible system to supply power, data, voice, and video connections
- Walls common to general circulation to contain glazing for visibility
- Natural fenestration is not required

UNIT: Chemistry Department
GROUP: Preparation/Storage
SPACE: Chemistry Laboratory Preparation Room
CAPACITY: 2
AREA: 500 NASF
NO. REQUIRED: 4
TOTAL AREA: 2,000 NASF
ROOM USE CODE: 215

FUNCTION: Chemistry preparation and storage space

RELATIONSHIP: Ideally located between two laboratories with direct access and glass view panels from each including access from general circulation. Three Preparation Rooms are associated with the 6 General Chemistry Laboratories and one with the three Organic Chemistry Laboratories.

NEW EQUIPMENT:

Built-In
(Each Space)

- Maximize built-in perimeter casework with impervious top and lockable base and wall mounted storage cabinets with under cabinet lighting as allowable by room layout.
- 1, 5' chemical fume hood with hot and cold water, gas, vacuum, and 110v and 220v electric outlets per side
- 1, 4' x 8' marker board, non-glare
- 1, 4' x 8' bulletin board
- 2 Laboratory sinks with hot and cold water, aspirator, deionized water, and sanitary drain not to be used for disposal of chemical waste
- Eyewash station at lab sink
- 1 Icemaker with water supply and drain
- dishwasher
- Flammable liquid and vented acid storage cabinets at fume hood
- Safety station with drench shower and fire station at laboratory entry

Movable
(Each Space)

- Movable cabinets and carts (located in center of space)
- 1, 5 drawer lateral file cabinet

UNIT: Chemistry Department
GROUP: Preparation/Storage
SPACE: Chemistry Laboratory Preparation Room

NEW EQUIPMENT: (Continued)
Built-In
(Each Space)

1 Mar-resistant work table with ergonomic chair

**EXISTING
EQUIPMENT:**

- None

UTILITIES:

- Power and data outlets (110v and 220v) coordinated with casework and equipment
- 2 Gas and vacuum outlets coordinated with casework
- Deionized water

**SPECIAL
REQUIREMENTS:**

- Accessible, flexible system to supply current and future power, data, voice, video connections
- Lab to have minimum of 5' aisles
- Floor surface of chemical resistant material and acoustical ceiling with sound insulation
- Natural fenestration is desirable
- Provide utilities master cut-off at visible location

UNIT: Chemistry Department
GROUP: Preparation/Storage
SPACE: Chemistry Laboratory Stock Room
CAPACITY: 1
AREA: 250 NASF
NO. REQUIRED: 2
TOTAL AREA: 500 NASF
ROOM USE CODE: 215

FUNCTION: Chemistry Laboratory Stock (storage) room

RELATIONSHIP: Locate near Laboratories and support spaces with direct access from general circulation. Secured access required.

NEW EQUIPMENT:

Built-In
(Each Space)

- Maximize built-in perimeter casework with impervious top and lockable base and wall mounted storage cabinets with under cabinet lighting as allowable by room layout.
- 1, 5' chemical fume hood with hot and cold water, gas, vacuum, and 110v and 220v electric outlets per side
- Eyewash station
- Flammable liquid and vented acid storage cabinets at fume hood
- Safety station with drench shower and fire station at laboratory entry

Movable
(Each Space)

- Movable cabinets and carts (located in center of space)
- 1 computer workstation
- 1, Explosion proof and solvent safe refrigerator

EXISTING EQUIPMENT:

- None

UTILITIES:

- Power and data outlets (110v and 220v) coordinated with casework and equipment

UNIT:
GROUP:
SPACE:

Chemistry Department
Preparation/Storage
Chemistry Laboratory Stock Room

SPECIAL
REQUIREMENTS:

- Accessible, flexible system to supply current and future power, data, voice, video connections
- Room to meet NFPA 30 and 45 requirements for chemical storage and life safety
- Lab to have minimum of 5' aisles
- Floor surface of chemical resistant material and acoustical ceiling with sound insulation
- Natural fenestration is not required
- Provide utilities master cut-off at visible location
- Electronically controlled access

UNIT:	Chemistry Department
GROUP:	Preparation/Storage
SPACE:	Chemistry Laptop Storage
CAPACITY:	n/a
AREA:	150 NASF
NO. REQUIRED:	1
TOTAL AREA:	150 NASF
ROOM USE CODE:	215
FUNCTION:	Secured storage and for Laptop Computers used in the Recitation Rooms
RELATIONSHIP:	Convenient to the Laboratories with direct access from general circulation. Provide electronically controlled access.
NEW EQUIPMENT:	
Built-In	<ul style="list-style-type: none"> • None
Movable	<ul style="list-style-type: none"> • 6 Rolling Racks of Laptop Computers • 1, 4' x 6' bulletin board • 1, 3' x 6' mar resistant table for opening and processing new materials and equipment
EXISTING EQUIPMENT:	<ul style="list-style-type: none"> • None
UTILITIES:	<ul style="list-style-type: none"> • Provide audio, video, and data outlets connected to building and campus networks
SPECIAL REQUIREMENTS:	<ul style="list-style-type: none"> • Accessible, flexible system to supply current and future power, data, voice, video connections • Floor surface of resilient material and acoustical ceiling with sound insulation • Double-door access from general circulation • Natural fenestration is not required

UNIT:	Chemistry Department
GROUP:	Preparation/Storage
SPACE:	Chemistry Instrumentation Room
CAPACITY:	6
AREA:	320 NASF
NO. REQUIRED:	2
TOTAL AREA:	640 NASF
ROOM USE CODE:	215
 FUNCTION:	 NMR/Balance/FTIR Instrumentation, and GC-MS Instrumentation Room as support to laboratories
 RELATIONSHIP:	 Locate in close proximity to Organic Chemistry Laboratories and Preparation/Storage areas.
 NEW EQUIPMENT:	
Built-In (Each Space)	<ul style="list-style-type: none"> • Maximize built-in perimeter casework and wall mounted lockable base and wall mounted storage cabinets with under cabinet lighting as allowable by room layout. • 1, 5' chemical fume hood with hot and cold water, gas, vacuum, and 110v and 220v electric outlets per side • 1 Laboratory sink with hot and cold water, aspirator, and sanitary drain • 1, 4' x 8' marker board, non-glare • 1, 4' x 8' bulletin board • Eyewash station at lab sink • Flammable liquid and vented acid storage cabinets at fume hood • Safety station with drench shower and fire station nearby • 2 wall brackets for compressed gas cylinders coordinated with equipment locations
Movable (Each Space)	<ul style="list-style-type: none"> • Movable cabinets and carts (located in center of space) • 1 computer workstation with printer • 1 Explosion proof and solvent safe refrigerator • 1 Icemaker with water supply and drain
 EXISTING EQUIPMENT:	<ul style="list-style-type: none"> • Provide for the protection, relocation, and recalibration (as required) of the following equipment: 2-Perkin Elmer FTIR, 1-Anasazi FT-nmr, and analytical balances

UNIT:
GROUP:
SPACE:

Chemistry Department
Preparation/Storage
Chemistry Instrumentation Room

UTILITIES:

- Power and data outlets (110v and 220v) coordinated with casework and equipment
- 1 Gas and vacuum outlet coordinated with casework
- 1 Clean compressed air outlet
- Filtered and cooled water with drain as required by equipment

**SPECIAL
REQUIREMENTS:**

- Accessible, flexible system to supply current and future power, data, voice, video connections
- Lab to have minimum of 5' aisles
- Floor surface of chemical resistant material and capable of supporting concentrated equipment loads-vibration dampening and acoustical ceiling with sound insulation. Equipment is vibration sensitive and may require slab isolation
- Natural fenestration is desirable
- Provide utilities master cut-off at visible location
- Climate controlled room with independent temperature and humidity control

UNIT: Chemistry Department
GROUP: Open Laboratory
SPACE: Chemistry Student/Faculty Project Laboratory
CAPACITY: 8
AREA: 720 NASF
NO. REQUIRED: 1
TOTAL AREA: 720 NASF
ROOM USE CODE: 220

FUNCTION: Students with the assistance of faculty and faculty themselves will use this space to conduct work on student special projects and faculty research.

RELATIONSHIP: Locate in close proximity to Chemistry Laboratories with direct access to Chemistry Student/Faculty Project Preparation and general circulation.

NEW EQUIPMENT:

Built-In

- 1, 3' x 4' Bulletin Board
- 1, 4' x 8' Marker Board, non-glare
- Coat storage, wall mounted
- Built-in perimeter casework with impervious top and lockable base and wall mounted storage cabinets with under cabinet lighting as allowable by room layout. Each student to have access to a large sink with hot and cold water with aspirator and sanitary drain, gas, filtered water, vacuum, electric, and data service
- 1, 5' chemical fume hood with hot and cold water, gas, and 110v and 220v electric outlets per side
- Eyewash station at lab sink
- Safety station with drench shower and fire station

Movable

- Double –sided island benches for 4 students each with 2 computer workstations along walls with ergonomic chairs on casters, 1 station to be ADA accessible
- 10 ergonomic chairs or stools on casters
- 1 Printer

EXISTING EQUIPMENT:

- None

SPECIAL REQUIREMENTS:

- Accessible, flexible system to supply current and future power, data, voice, and video connections
- Natural fenestration is desired
- Floor surface of chemical resistant material and acoustical ceiling with sound insulation

UNIT:	Chemistry Department
GROUP:	Open Laboratory
SPACE:	Chemistry Student/Faculty Project Preparation
CAPACITY:	1
AREA:	360 NASF
NO. REQUIRED:	1
TOTAL AREA:	360 NASF
ROOM USE CODE:	225
FUNCTION:	Preparation area associated with Student/Faculty Project Laboratory
RELATIONSHIP:	Locate adjacent to, and interconnected with, the Chemistry Student/Faculty Project Laboratory including direct access to general circulation.
NEW EQUIPMENT:	
Built-In	<ul style="list-style-type: none"> • Provide built-in perimeter casework with impervious top and lockable base and wall mounted storage cabinets with under cabinet lighting as allowable by room layout. • Flammable liquid and vented acid storage cabinets
Movable	<ul style="list-style-type: none"> • Carts
EXISTING EQUIPMENT:	<ul style="list-style-type: none"> • None
UTILITIES:	<ul style="list-style-type: none"> • 1 gas outlet coordinated with casework • Power and data outlets (110v and 220v) coordinated with casework and equipment • Clean compressed air for glassware drying
REQUIREMENTS:	<ul style="list-style-type: none"> • Accessible, flexible system to supply current and future power, data, voice, video connections • Floor surface of chemical resistant material and acoustical ceiling with sound insulation • Provide utilities master cutoff at visible location • Natural fenestration is not required

UNIT: Chemistry Department
GROUP: Department Suite
SPACE: Department Chair Office
CAPACITY: 1 + 3
AREA: 150 NASF
NO. REQUIRED: 1
TOTAL AREA: 150 NASF
ROOM USE CODE: 310

FUNCTION: This space will provide an office workstation and conference area for the Chair.

RELATIONSHIP: Direct access from Chair's Administrative Office. Desirable to locate away from primary building entrance and circulation

NEW EQUIPMENT:

Built-In

- 1, 3' x 4' bulletin board
- 1, 3' x 4' marker board
- Coat storage, wall mounted

Movable

- Executive double-pedestal desk with ergonomic adjustable chair on casters
- Conference table with 4 ergonomic chairs on casters
- 3, 3' W x 7' H x 1' D, bookcases
- 1 credenza with lateral file storage

EXISTING EQUIPMENT:

- None

UTILITIES:

- Voice and data communications jacks with two duplex convenience outlets at the desk station as well as one or more duplex outlets on each wall, 12' maximum spacing

SPECIAL REQUIREMENTS:

- Provide layout to include desk zone and a conference zone
- Accessible, flexible system to supply current and future power, data, voice, video connections
- Acoustical separation from adjoining spaces to provide privacy
- Anti-static carpeted floor and acoustical suspended ceiling
- Natural fenestration required

UNIT: Chemistry Department
GROUP: Department Suite
SPACE: Department Administrative Reception
CAPACITY: 1 + 4
AREA: 180 NASF
NO. REQUIRED: 1
TOTAL AREA: 180 NASF
ROOM USE CODE: 310

FUNCTION: Work station for a full-time secretary and seating for 4 guests

RELATIONSHIP: Central reception area having direct access to offices for the Chair, the Administrative Workroom, and general circulation

NEW EQUIPMENT:

Built-In

- 1, display/bulletin board cabinet
- Coat storage, wall-mounted

Movable

- 1, "U" shaped secretarial workstation with an ergonomic, adjustable secretarial chair on casters
- 2, side chairs
- 4, visitor chairs and magazine stand
- 1, 5-drawer lateral filing cabinet, 30" W
- 1, computer with printer station

EXISTING EQUIPMENT:

- None

UTILITIES:

- Voice and data communications jacks and two duplex convenience outlets at each workstation as well as one or more duplex outlets on each wall, 12' maximum spacing

SPECIAL REQUIREMENTS:

- Accessible, flexible system to supply current and future power, data, voice, and video connections
- Acoustical separation from adjoining spaces to provide privacy
- Anti-static carpeted floor and acoustical ceiling
- Natural fenestration desirable

UNIT:	Chemistry Department
GROUP:	Department Suite
SPACE:	Administrative Assistant Office
CAPACITY:	1 + 2
AREA:	120 NASF
NO. REQUIRED:	1
TOTAL AREA:	120 NASF
ROOM USE CODE:	310
FUNCTION:	Private office for a full-time administrative assistant and seating for 2 guests
RELATIONSHIP:	Adjacent to the Department Chair with direct access to Department Administrative Reception
NEW EQUIPMENT:	
Built-In	<ul style="list-style-type: none"> • 1, display/bulletin board cabinet • Coat storage, wall-mounted
Movable	<ul style="list-style-type: none"> • 1, "U" shaped workstation with an ergonomic, adjustable chair on casters • 2, side chairs • 1, 5-drawer lateral filing cabinet, 30" W • 1, computer with printer station • 1, fax machine
EXISTING EQUIPMENT:	<ul style="list-style-type: none"> • None
UTILITIES:	<ul style="list-style-type: none"> • Voice and data communications jacks and two duplex convenience outlets at each workstation as well as one or more duplex outlets on each wall, 12' maximum spacing
SPECIAL REQUIREMENTS:	<ul style="list-style-type: none"> • Accessible, flexible system to supply current and future power, data, voice, and video connections • Acoustical separation from adjoining spaces to provide privacy • Anti-static carpeted floor and acoustical ceiling • Natural fenestration desirable

UNIT: Chemistry Department
GROUP: Department Suite
SPACE: Department Administrative Workroom
CAPACITY: 1
AREA: 120 NASF
NO. REQUIRED: 1
TOTAL AREA: 120 NASF
ROOM USE CODE: 315

FUNCTION: Clerical work space for duplicating equipment, fax, and collating machines

RELATIONSHIP: Direct access from Administrative Office

NEW EQUIPMENT:

Built-In

- Along one wall, install 24" deep counter, with under counter storage cabinets, under counter refrigerator, sink, and wall shelving above counter
- 1, 3' x 4' bulletin board
- 1, 3' x 4' marker board, non glare

Movable

- 1, 2' x 5' mar-resistant work table
- 2, chairs
- Copier
- Mailboxes for 30
- Fax machine

EXISTING EQUIPMENT:

- None

UTILITIES:

- Two or more duplex convenience outlets above counter, copier outlet, duplex and at least one duplex outlet per wall
- Two data jacks for duplicators/printers
- Two voice jacks for phones/fax machine

SPECIAL REQUIREMENTS:

- Accessible, flexible system to supply current and future power, data, voice, video connections
- Acoustical separation from adjoining spaces to provide privacy
- Anti-static carpeted floor and acoustical suspended ceiling
- Natural fenestration is not required

UNIT:	Chemistry Department
GROUP:	Department Suite
SPACE:	Department Secure/File Storage Room
CAPACITY:	n/a
AREA:	120 NASF
NO. REQUIRED:	1
TOTAL AREA:	120 NASF
ROOM USE CODE:	315
FUNCTION:	Secure file and storage room for supplies and materials
RELATIONSHIP:	Direct access from Administrative Workroom and Administrative Office
NEW EQUIPMENT:	
Built-In	<ul style="list-style-type: none"> • None
Movable	<ul style="list-style-type: none"> • 5, 5 drawer lateral file cabinets, 30" W • 2, 3' W x 7' H x 1.5' D securable supply cabinets • 2, each 3' W x 7' H x 1' D, bookcases
EXISTING EQUIPMENT:	<ul style="list-style-type: none"> • None
UTILITIES:	<ul style="list-style-type: none"> • Two or more duplex convenience outlets above counter, copier outlet, duplex and at least one duplex outlet per wall • Two data jacks for duplicators/printers • Two voice jacks for phones/fax machine
SPECIAL REQUIREMENTS:	<ul style="list-style-type: none"> • Accessible, flexible system to supply current and future power, data, voice, and video connections • Acoustical separation from adjoining spaces to provide privacy • Floor surface of resilient material and acoustical ceiling • Natural fenestration is not required • Electronically controlled access

UNIT: Chemistry Department
GROUP: Department Offices
SPACE: Faculty Office
CAPACITY: 1 + 2
AREA: 120 NASF
NO. REQUIRED: 10
TOTAL AREA: 1,200 NASF
ROOM USE CODE: 310

FUNCTION: Workstation for 1 full-time faculty member and 2 guests

RELATIONSHIP: Locate near Department Suite and convenient to Labs.

NEW EQUIPMENT:

Built-In
(Each Space)

- 1, 3' x 4' bulletin board
- 1, 3' x 4' marker board
- Coat storage, wall mounted

Movable
(Each Space)

- 1, "L" shaped workstation with computer table or "U" shaped workstation with ergonomic, adjustable chair on casters
- 2, side chairs
- 2, 3' W x 7' H x 1' D bookcases
- 1, 5-drawer lateral filing cabinet, 30" W
- 1, computer with printer

EXISTING EQUIPMENT:

- None

UTILITIES:

- Voice and data communication jack and two duplex convenience outlets at each work station as well as one or more duplex outlets on each wall, 12' maximum spacing

SPECIAL REQUIREMENTS:

- Accessible, flexible system to supply current and future power, data, voice, and video connections
- Acoustical separation from adjoining spaces to provide privacy
- Anti-static carpeted floor and acoustical ceiling
- Natural fenestration required

UNIT:	Chemistry Department
GROUP:	Department Offices
SPACE:	Part-Time Faculty Offices
CAPACITY:	4
AREA:	120 NASF
NO. REQUIRED:	3
TOTAL AREA:	360 NASF
ROOM USE CODE:	310
FUNCTION:	Office space shared by 4 Part-Time Faculty
RELATIONSHIP:	Direct access from general circulation and Full-Time Faculty.
NEW EQUIPMENT:	
Built-In (Each Space)	<ul style="list-style-type: none"> • 1, 3' x 4' marker board, non-glare • 1, 3' x 4' of bulletin board • Coat storage, wall-mounted
Movable (Each Space)	<ul style="list-style-type: none"> • 4, "L" shaped workstations with computer and ergonomic, adjustable chair on casters • 2, side chairs • 1, 5 drawer lateral file cabinet, 30" W • 1, 3' W x 7' H x 1' D bookcase
EXISTING EQUIPMENT:	<ul style="list-style-type: none"> • None
UTILITIES:	<ul style="list-style-type: none"> • Provide voice and data service at each desk station connected to local, building, and campus networks • Provide at least two duplex 115-volt electrical outlets at desk station in addition to the general standard for wall outlets
SPECIAL REQUIREMENTS:	<ul style="list-style-type: none"> • Accessible, flexible system to supply current and future power, data, voice, and video connections • Anti-static carpeted floor and acoustical suspended ceiling • Natural fenestration desirable

UNIT: Biology Department
GROUP: Department Offices
SPACE: Technician Office
CAPACITY: 2
AREA: 120 NASF
NO. REQUIRED: 2
TOTAL AREA: 240 NASF
ROOM USE CODE: 310

FUNCTION: Office space shared by 2 Technicians

RELATIONSHIP: Adjacent to the Preparation Rooms and Laboratories

NEW EQUIPMENT:

Built-In
(Each Space)

- 1, 3' x 4' marker board, non-glare
- 1, 3' x 4' bulletin board
- Coat storage, wall-mounted

Movable
(Each Space)

- 2, "L" shaped workstations with computers and ergonomic, adjustable chairs on casters
- 2, side chairs
- 2, 5-drawer lateral file cabinet, 30" W
- 2, 3' W x 7' H x 1' D bookcases

EXISTING EQUIPMENT:

- None

UTILITIES:

- Provide voice and data service at each desk station connected to local, building, and campus networks
- Provide at least two duplex 115-volt electrical outlets at desk station in addition to the general standard for wall outlets

SPECIAL REQUIREMENTS:

- Accessible, flexible system to supply current and future power, data, voice, and video connections
- Anti-static carpeted floor and acoustical suspended ceiling
- Natural fenestration required

UNIT: Chemistry Department
GROUP: Hazardous Materials
SPACE: Hazardous Materials Supply Room
CAPACITY: 1
AREA: 125 NASF
NO. REQUIRED: 1
TOTAL AREA: 125 NASF
ROOM USE CODE: 760

FUNCTION: .Storage of volatile chemicals.

RELATIONSHIP: Direct access to Loading Dock and service elevator access to Laboratories, if required.

NEW EQUIPMENT:

Built-In

- 1, 3' x 4' bulletin board
- 1, 3' x 4' marker board
- Safety station with drench shower and fire station on outside but adjacent to room entry
- Flammable liquid and vented acid storage cabinets

Movable

- None

EXISTING EQUIPMENT:

- None

UTILITIES:

- As per Code
- Explosion-proof fixtures

SPECIAL

REQUIREMENTS:

- Accessible, flexible system to supply current and future power, data, voice, and video connections
- Natural fenestration is not required
- Electronically controlled access
- Explosion Relief panels required
- Provide for spill containment (6" door sill)
- Independent heating and cooling
- Must be spark-proof

UNIT: Chemistry Department
GROUP: Preparation/Storage
SPACE: Chemistry Student Half-Lockers
CAPACITY: n/a
AREA: AR
NO. REQUIRED: 176
TOTAL AREA: AR
ROOM USE CODE: 020

FUNCTION: Securable student property storage while participating in laboratory experience. To be integrated with, and off-set from, general building circulation.

RELATIONSHIP: Convenient to all the Laboratories

NEW EQUIPMENT:

Built-In

- 176, half lockers, each approximately 1' x 1.5'

Movable

- None

EXISTING EQUIPMENT:

- None

UTILITIES:

- None

SPECIAL REQUIREMENTS:

- Floor surface of resilient material and acoustical ceiling with sound insulation
- Natural fenestration is not required

Table 5-5
Proposed Physics, Engineering, and Geosciences Department Facilities Program,
MCR New Science Center

<u>HEGIS</u>	<u>Type of Facility</u>	<u>Capacity</u>	<u>NASF</u>	<u>Quantity</u>	<u>Total</u>
	<u>Physics/Geosciences Laboratories</u>				
210	General Physics Laboratory	24	1,200	2	2,400
210	General Physics Laboratory Recitation	24	690	1	690
210	Astronomy/Physical Sci Laboratory	24	1,200	2	2,400
210	Astronomy Lab Recitation	24	690	1	690
210	Observatory	24	300	1	300
210	Geology/Meteorology Laboratory	24	1,200	1	1,200
210	Geology Laboratory Recitation	24	690	1	690
	Class Lab Sub-total Physics/Geosci				8,370
	<u>Engineering/Physics Laboratories</u>				
210	Electrical Engineering/Physics Laboratory	24	1,200	1	1,200
210	EE/Physics Laboratory Recitation	24	690	1	690
	Class Lab Sub-total Engineering				1,890
	<u>Engineering Sci Computer Laboratories</u>				
210	ES Computer Lab	24	840	2	1,680
215	ES Computer Lab Studio	6	150	2	300
215	ES Computer Lab Storage	n/a	100	1	100
	Class Lab Sub-total Computer Lab				2,080
	<u>Preparation/Storage</u>				
215	Physics/Geoscience Reference Room	12	300	1	300
215	Physics/Geoscience Laptop Storage	n/a	150	1	150
215	Observatory Control ("Warm") Room	1	150	1	150
215	Dark Room	2	100	2	200
215	Lapidary/Power Tool Room	12	540	1	540
215	Physics/Engr Lab Shop	20	1,200	1	1,200
215	Physics/Engr Lab Preparation Room	2	500	3	1,500
215	Physics/Engr Lab Stock Room	1	500	1	500
	Class Lab Sub-total Preparation				4,540
	Sub-total Class Lab				16,880
220	Physics Student/Faculty Project Lab	8	720	2	1,440
225	Physics Student/Faculty Project Prep	1	360	2	720
225	Physics Student/Faculty Project Storage	1	360	1	360
	Sub-total Open Lab				2,520
	<u>Department Suite</u>				
310	Department Chair Office	1+3	150	1	150
310	Dept Admin Reception	1+4	180	1	180
310	Administrative Assistant Office	1+2	120	1	120
315	Department Admin Workroom	1	120	1	120
315	Dept Secure File/Storage Room	1	120	1	120
	Office Sub-total Department Suite				690

Table C-6 (continued)
Proposed Physics, Engineering, and Geosciences Department Facilities Program
MCR New Science Center

<u>HEGIS</u>	<u>Type of Facility</u>	<u>Capacity</u>	<u>NASF</u>	<u>Quantity</u>	<u>Total</u>
	<u>Department Offices</u>				
310	Faculty Offices	1+2	120	12	1,440
310	Part Time Faculty Offices	4	120	4	480
310	Technician Office	2	120	2	240
	Office Sub-total Department Offices				2,160
	Sub-total Office				2,850
	Total				22,250
020	Physics Student Half-Lockers	120	AAR	1	AR

UNIT: Physics, Engineering, & Geosciences Department
GROUP: Class Laboratory
SPACE: General Physics Laboratory
CAPACITY: 24
AREA: 1,200 NASF
NO. REQUIRED: 2
TOTAL AREA: 2,400 NASF
ROOM USE CODE: 210

FUNCTION: Laboratory for hands-on and activity based learning and demonstrations

RELATIONSHIP: Locate in close proximity to other Physics, Engineering, & Geosciences Laboratories and Preparation/Storage areas.

NEW EQUIPMENT:

Built-In
 (Each Space)

- Motorized projection screen, 8' x 8', to close flush with the ceiling surface
- 1, 4' x 8' marker board, non-glare
- 1, 4' x 8' bulletin board
- Ceiling-mounted LCD projector
- Smart instructor's station
- 24 laboratory stations in groupings of 4 each; either island, peninsula, or wall bench with impervious counter top at standing height; cabinets with lockable drawers below. Each student should have access to hot and cold water, gas, electric, and data services. Provide one ADA compliant student workstation with complete services
- Eyewash station
- Safety station with drench shower and fire station near laboratory entry
- Counter with sink, at least 8'L x 2'D x 3' H with cabinets under the counter
- Maximize perimeter laboratory casework and wall mounted storage cabinets, 2'-6" D with under cabinet lighting as allowable by room layout
- Demonstration Table: island bench with impervious top and lockable cabinets, sink, hot and cold water, gas, electrical (flush with counter top), and data port

Movable
 (Each Space)

- 25 stools (students + instructor) with backs, casters, and full adjustability at benches
- Six movable computer workstations and ergonomic, adjustable chairs with casters at room perimeter with electric and MC net connections

UNIT:
GROUP:
SPACE:

Physics, Engineering, & Geosciences Department
Class Laboratory
General Physics Laboratory

EXISTING EQUIPMENT:

- None

UTILITIES:

- Utilities master cut-off at visible location and sub-master cut-offs per bench
- GFI outlets at each workstation near water
- Data and one port at each workstation (computer, lab stations, ADA station, and demonstration)

SPECIAL REQUIREMENTS:

- Accessible, flexible system to supply current and future power, data, voice, and video connections
- Natural fenestration is desired with darkening capability such as shades or blinds
- Laboratory to have minimum of 5' aisles and two means of egress
- Access to MC net, video transmission jack, and telephone and data service. Power and data outlets coordinated with casework, laboratory stations, computer stations, and demonstration table
- AV equipment control cabinet
- Floor with chemical resistant material and acoustical tile ceiling

UNIT:	Physics, Engineering, & Geosciences Department
GROUP:	Class Laboratory
SPACE:	General Physics Laboratory Recitation
CAPACITY:	24
AREA:	690 NASF
NO. REQUIRED:	1
TOTAL AREA:	690 NASF
ROOM USE CODE:	210
 FUNCTION:	 Discussion area (“talking about”) portion of the Laboratory (doing) activities.
 RELATIONSHIP:	 Locate between and interconnected with General Physics Laboratories with direct egress to general circulation.
 NEW EQUIPMENT:	
Built-In	<ul style="list-style-type: none"> • Motorized projection screen, 8’ x 8’, to close flush with the ceiling • 1, 4’ x 16’ marker board, non-glare • Ceiling-mounted LCD projector • Smart, instructor’s station with ergonomic, adjustable chair on casters • AV equipment control cabinet • 1, 4’ x 8’ bulletin board
Movable	<ul style="list-style-type: none"> • 12 mar-resistant tables and wireless connectivity for laptops • 24 ergonomic, adjustable chairs on casters, at least 1 student station must be wheelchair accessible • 12 computer workstations with 12 ergonomic, adjustable chairs on casters for shared use on two parallel walls connected to campus and internet networks • 2 computer printers
 EXISTING EQUIPMENT:	 <ul style="list-style-type: none"> • None
 UTILITIES:	 <ul style="list-style-type: none"> • Provide audio, voice, and data outlets at lecture station connected to building and campus networks. Provide convenience outlets spaced 12’ o/c
 SPECIAL REQUIREMENTS:	 <ul style="list-style-type: none"> • Accessible, flexible system to supply current and future power, data, voice, video connections • Lighting dimmer with blackout and separate switching between instructors station area and seating • Whiteboard lighting on a separate switch at front of room

UNIT:
GROUP:
SPACE:

Physics, Engineering, & Geosciences Department
Class Laboratory
General Physics Laboratory Recitation

SPECIAL
REQUIREMENTS:

(continued)

- Easily operated and understood lighting in the instructor's area

NOTE: Lights should be zoned and have controls to allow front lights and houselights to be separately controlled to achieve lighting levels that are acceptable for various types of projection and still sufficient for note taking. If incandescent lights are used, then the controls should be dimmers. If fluorescent lights are used, then cut-out switches are needed to allow a minimum number of tubes to be left on for note taking during projection. No dimmers on fluorescent lights.

- Natural fenestration is desirable
- Window treatment to provide blackout capability
- Anti-static carpet and acoustical ceiling with sound insulation
- The closest seat to a projection screen should be at a distance twice the width of the screen. The optimum furthest seat distance is six times the screen width; the maximum seat distance is ten times screen width. The vertical angle to the top of the screen from any seating position should be less than 30 degrees from horizontal
- Although part of the whiteboard may be blocked when the projection screen is down, a sufficient amount of marker board should be unobstructed to allow it to be used. The screen must be a minimum of 8' x 8' and be mounted high enough to provide a clear angle of view

UNIT:	Physics, Engineering, & Geosciences Department
GROUP:	Class Laboratory
SPACE:	Astronomy/Physical Science Laboratory
CAPACITY:	24
AREA:	1,200 NASF
NO. REQUIRED:	2
TOTAL AREA:	2,400 NASF
ROOM USE CODE:	210
FUNCTION:	Biological laboratory for hands-on activity based learning and demonstrations.
RELATIONSHIP:	Locate in close proximity to other Physics, Engineering, & Geosciences Laboratories and Preparation/Storage areas.
NEW EQUIPMENT:	
Built-In (Each Space)	<ul style="list-style-type: none"> • Motorized projection screen, 8' x 8', to close flush with the ceiling surface • 1, 4' x 8' marker board, non-glare • 1, 4' x 8' bulletin board • Ceiling-mounted LCD projector • Smart instructor's station • 24 laboratory stations in groupings of 4 each; either island, peninsula, or wall bench with impervious counter top at standing height; cabinets with lockable drawers below. Each student should have access to hot and cold water, electric, and data services. Provide one ADA compliant student workstation with complete services • Eyewash station at each laboratory sink • Safety station with drench shower and fire station near laboratory entry • Counter with sink, at least 8'L x 2'D x 3' H with cabinets under the counter • Maximize perimeter laboratory casework and wall mounted storage cabinets, 2'-6" D with under cabinet lighting as allowable by room layout • Demonstration Table: island bench with impervious top and lockable cabinets, sink, hot and cold water, gas, electrical (flush with counter top), and data port
Movable (Each Space)	<ul style="list-style-type: none"> • 25 stools (students + instructor) with backs, casters, and full adjustability at benches • Six movable computer workstations and ergonomic, adjustable chairs with casters at room perimeter with electric and MC net connections

UNIT:
GROUP:
SPACE:

Physics, Engineering, & Geosciences Department
Class Laboratory
Astronomy/Physical Science Laboratory

EXISTING EQUIPMENT:

- None

UTILITIES:

- Utilities master cut-off at visible location and sub-master cut-offs per bench
- Gas outlets with emergency shut-off at perimeter coordinated with casework
- Data and one port at each workstation

SPECIAL REQUIREMENTS:

- Accessible, flexible system to supply current and future power, data, voice, and video connections
- Natural fenestration is desired with darkening capability such as shades or blinds
- Laboratory to have minimum of 5' aisles and two means of egress
- AV equipment control cabinet
- Access to MC net, video transmission jack, and telephone and data service. Power and data outlets coordinated with casework, laboratory stations, computer stations, and demonstration table
- Floor with chemical resistant material and acoustical tile ceiling

UNIT:	Physics, Engineering, & Geosciences Department
GROUP:	Class Laboratory
SPACE:	Astronomy Laboratory Recitation
CAPACITY:	24
AREA:	690 NASF
NO. REQUIRED:	1
TOTAL AREA:	690 NASF
ROOM USE CODE:	210
 FUNCTION:	 Discussion area (“talking about”) portion of the Laboratory (doing) activities.
 RELATIONSHIP:	 Locate between and interconnected with Astronomy/Physical Science Laboratories with direct egress to general circulation.
 NEW EQUIPMENT:	
Built-In	<ul style="list-style-type: none"> • Motorized projection screen, 8’ x 8’, to close flush with the ceiling • 1, 4’ x 16’ marker board, non-glare • Ceiling-mounted LCD projector • Smart, instructor’s station with ergonomic, adjustable chair on casters • AV equipment control cabinet • 1, 4’ x 8’ bulletin board
Movable	<ul style="list-style-type: none"> • 12 mar-resistant tables and wireless connectivity for laptops • 24 ergonomic, adjustable chairs on casters, at least 1 student station must be wheelchair accessible • 12 computer workstations with 12 ergonomic, adjustable chairs on casters for shared use on two parallel walls connected to campus and internet networks • 2 computer printers
 EXISTING EQUIPMENT:	 <ul style="list-style-type: none"> • None
 UTILITIES:	 <ul style="list-style-type: none"> • Provide audio, voice, and data outlets at lecture station connected to building and campus networks. Provide convenience outlets spaced 12’ o/c
 SPECIAL REQUIREMENTS:	 <ul style="list-style-type: none"> • Accessible, flexible system to supply current and future power, data, voice, video connections • Lighting dimmer with blackout and separate switching between instructors station area and seating • Whiteboard lighting on a separate switch at front of room

UNIT:
GROUP:
SPACE:

Physics, Engineering, & Geosciences Department
Class Laboratory
Astronomy Laboratory Recitation

SPECIAL
REQUIREMENTS:

(continued)

- Easily operated and understood lighting in the instructor's area

NOTE: Lights should be zoned and have controls to allow front lights and houselights to be separately controlled to achieve lighting levels that are acceptable for various types of projection and still sufficient for note taking. If incandescent lights are used, then the controls should be dimmers. If fluorescent lights are used, then cut-out switches are needed to allow a minimum number of tubes to be left on for note taking during projection. No dimmers on fluorescent lights.

- Natural fenestration is desirable
- Window treatment to provide blackout capability
- Anti-static carpet and acoustical ceiling with sound insulation
- The closest seat to a projection screen should be at a distance twice the width of the screen. The optimum furthest seat distance is six times the screen width; the maximum seat distance is ten times screen width. The vertical angle to the top of the screen from any seating position should be less than 30 degrees from horizontal
- Although part of the whiteboard may be blocked when the projection screen is down, a sufficient amount of marker board should be unobstructed to allow it to be used. The screen must be a minimum of 8' x 8' and be mounted high enough to provide a clear angle of view

UNIT: Physics, Engineering, & Geosciences Department
GROUP: Class Laboratory
SPACE: Observatory
CAPACITY: 10
AREA: 300 NASF
NO. REQUIRED: 1
TOTAL AREA: 300 NASF
ROOM USE CODE: 210

FUNCTION: An ADA accessible dome shaped structure designed and equipped for making observations of astronomical, meteorological, or other natural phenomena. Orientation of telescope to be towards Polaris (north-south).

RELATIONSHIP: Locate on the roof of the building directly connected to the Observatory Recitation Room. Provide controlled, secured access.

NEW EQUIPMENT:

Built-In

- Computer controlled with manual override dome opening
- Telescope with a minimum of 16" diameter aperture

Movable

- 10 folding chairs

EXISTING EQUIPMENT:

- None

UTILITIES:

- 110v quad plex outlets in sidewalls and a six plex outlets in floor near telescope
- Three sets of red and white lights

SPECIAL REQUIREMENTS:

- Accessible, flexible system to supply current and future power, data, voice, and video connections
- Locate to avoid any penthouse structures or obstructions in the path of the sun
- Dome temperature to always match that of the exterior
- Provide sufficient space within dome for everyone to have 360 mobility around the telescope
- Structural isolation (vibration free) for telescope
- Ramp up to telescope platform should be internal to dome
- Prevent lights from shining on to the roof
- Provide open deck space around the dome to accommodate 24 students and the instructor. This area should also provide two piers for mounting telescopes
- Provide data and visual connectivity to Astronomy Recitation Room

UNIT: Physics, Engineering, & Geosciences Department
GROUP: Class Laboratory
SPACE: Geology/Meteorology Laboratory
CAPACITY: 24
AREA: 1,200 NASF
NO. REQUIRED: 1
TOTAL AREA: 1,200 NASF
ROOM USE CODE: 210

FUNCTION: Laboratory for hands-on and activity based learning and demonstrations

RELATIONSHIP: Locate in close proximity to other Physics, Engineering, & Geosciences Laboratories and Preparation/Storage areas.

NEW EQUIPMENT:

Built-In
 (Each Space)

- Motorized projection screen, 8' x 8', to close flush with the ceiling surface
- 1, 4' x 8' marker board, non-glare
- 1, 4' x 8' bulletin board
- Ceiling-mounted LCD projector
- Smart instructor's station
- 24 laboratory stations in groupings of 4 each; either island, peninsula, or wall bench with impervious counter top at standing height; cabinets with lockable drawers below. Each student should have access to hot and cold water, electric, and data services. Provide one ADA compliant student workstation with complete services
- Eyewash station at each laboratory sink
- Safety station with drench shower and fire station near laboratory entry
- Lab sinks at perimeter with hot and cold water, aspirator, and sanitary drain
- Maximize perimeter laboratory casework and wall mounted storage cabinets, 2'-6" D with under cabinet lighting as allowable by room layout
- Demonstration Table: island bench with impervious top and lockable cabinets, sink, hot and cold water, gas (with emergency shut-off), electrical (flush with counter top), and data port

Movable
 (Each Space)

- 25 stools (students + instructor) with backs, casters, and full adjustability at benches
- Six movable computer workstations and ergonomic, adjustable chairs with casters at room perimeter with electric and MC net connections

UNIT:
GROUP:
SPACE:

Physics, Engineering, & Geosciences Department
Class Laboratory
Geology/Meteorology Laboratory

EXISTING EQUIPMENT:

- Provide relocation of the following: Assorted Lapidary Equipment, 1 Van de Graaf Generator, 2 Grinders, 2 Polishing Wheels, 1 Large Slab Saw, 1 Shaker

UTILITIES:

- Utilities master cut-off at visible location and sub-master cut-offs per bench
- Data and one port at each workstation

SPECIAL REQUIREMENTS:

- Accessible, flexible system to supply current and future power, data, voice, and video connections including access to cable television
- Natural fenestration is desired with darkening capability such as shades or blinds
- Laboratory to have minimum of 5' aisles and two means of egress
- AV equipment control cabinet
- Access to MC net, video transmission jack, and telephone and data service. Power and data outlets coordinated with casework, student stations, computer workstations, and demonstration table AV equipment control cabinet
- Floor with chemical resistant material and acoustical tile ceiling

UNIT:	Physics, Engineering, & Geosciences Department
GROUP:	Class Laboratory
SPACE:	Geology Laboratory Recitation
CAPACITY:	24
AREA:	69NASF
NO. REQUIRED:	1
TOTAL AREA:	69NASF
ROOM USE CODE:	210
 FUNCTION:	 Discussion area (“talking about”) portion of the Laboratory (doing) activities.
 RELATIONSHIP:	 Locate directly connected to the Geology/Meteorology Laboratory with direct egress to general circulation.
 NEW EQUIPMENT:	
Built-In	<ul style="list-style-type: none"> • Motorized projection screen, 8’ x 8’, to close flush with the ceiling • 1, 4’ x 16’ marker board, non-glare • Ceiling-mounted LCD projector • Smart, instructor’s station with ergonomic, adjustable chair with casters • AV equipment control cabinet • 1, 4’ x 8’ bulletin board
Movable	<ul style="list-style-type: none"> • 12 mar-resistant tables and wireless connectivity for laptops • 24 ergonomic, adjustable chairs on casters, at least 1 student station must be wheelchair accessible • 12 computer workstations with 12 ergonomic, adjustable chairs on casters for shared use on two parallel walls connected to campus and internet networks • 2 computer printers
 EXISTING EQUIPMENT:	<ul style="list-style-type: none"> • None
 UTILITIES:	<ul style="list-style-type: none"> • Provide audio, voice, and data outlets at lecture station connected to building and campus networks. Provide convenience outlets spaced 12’ o/c
 SPECIAL REQUIREMENTS:	<ul style="list-style-type: none"> • Accessible, flexible system to supply current and future power, data, voice, video connections • Lighting dimmer with blackout and separate switching between instructors station area and seating • Whiteboard lighting on a separate switch at front of room

UNIT:
GROUP:
SPACE:
EXISTING

Physics, Engineering, & Geosciences Department
Class Laboratory
Geology Laboratory Recitation

- None

SPECIAL
REQUIREMENTS:

(continued)

- Easily operated and understood lighting in the instructor's area

NOTE: Lights should be zoned and have controls to allow front lights and houselights to be separately controlled to achieve lighting levels that are acceptable for various types of projection and still sufficient for note taking. If incandescent lights are used, then the controls should be dimmers. If fluorescent lights are used, then cut-out switches are needed to allow a minimum number of tubes to be left on for note taking during projection. No dimmers on fluorescent lights.

- Natural fenestration is desirable
- Window treatment to provide blackout capability
- Anti-static carpet and acoustical ceiling with sound insulation
- The closest seat to a projection screen should be at a distance twice the width of the screen. The optimum furthest seat distance is six times the screen width; the maximum seat distance is ten times screen width. The vertical angle to the top of the screen from any seating position should be less than 30 degrees from horizontal
- Although part of the whiteboard may be blocked when the projection screen is down, a sufficient amount of marker board should be unobstructed to allow it to be used. The screen must be a minimum of 8' x 8' and be mounted high enough to provide a clear angle of view

UNIT: Physics, Engineering, & Geosciences Department
GROUP: Class Laboratory
SPACE: Electrical Engineering/Physics Laboratory
CAPACITY: 24
AREA: 1,200 NASF
NO. REQUIRED: 2
TOTAL AREA: 2,400 NASF
ROOM USE CODE: 210

FUNCTION: Computer hardware equipped space to function as a scheduled laboratory with instructor's station. To support the use of this lab for instructional purposes, audio-visual technology is required.

RELATIONSHIP: Locate in close proximity to other Physics, Engineering, & Geosciences Laboratories and Preparation/Storage areas.

NEW EQUIPMENT:

Built-In
 (Each Space)

- Motorized projection screen, 8' x 8', to close flush with the ceiling surface
- 1, 4' x 8' marker board, non-glare
- 1, 4' x 8' bulletin board
- Ceiling-mounted LCD projector
- Smart instructor's station
- 24 laboratory stations; each station must accommodate a video monitor, computer, oscilloscope, signal generator, digital multimeter, and electronics component tester. The video monitor must be mounted at a height that does not create neck strain. There should be free space at each station for students to work with books, papers, breadboards, components, etc. Provide one ADA compliant student workstation with complete services
- Eyewash station at laboratory sink
- Safety station with electrical fire suppression system
- Provide counter with sink, at least 8'L x 2'D x 3'H with cabinets under the counter
- Smart Instructor's workstation with ergonomic, adjustable chair with casters

Movable
 (Each Space)

- 25 ergonomic chairs (students + instructor) with backs, casters, and full adjustability at work station
- At each workstation and instructor's station, provide the following: Oscilloscope Multimeter function generator, video monitor and computer, and slide-out keyboard all fixed to workstation
- 3 locking equipment cabinets
- 3 computer printers

UNIT:
GROUP:
SPACE:

Physics, Engineering, & Geosciences Department
Class Laboratory
Electrical Engineering/Physics Laboratory

EXISTING EQUIPMENT:

- None

UTILITIES:

- Provide a minimum of 20 amp service to each workstation with a minimum of 6 outlets per station
- Utilities master cut-off at visible location and sub-master cut-offs per workstation
- Data and one port at each workstation
- Access to MC net, video transmission jack, and telephone and data service. Power and data outlets coordinated with casework and demonstration table
- AV equipment control cabinet

SPECIAL REQUIREMENTS:

- Accessible, flexible system to supply current and future power, data, voice, and video connections including access to cable television
- Natural fenestration is desired with darkening capability such as shades or blinds
- Laboratory to have minimum of 5' aisles and two means of egress
- AV equipment control cabinet
- Access to MC net, video transmission jack, and telephone and data service. Power and data outlets coordinated with casework, student stations, and instructor's station
- Floor with chemical resistant material and acoustical tile ceiling
- Provide special attention to cooling because of extreme loads of electrical equipment

UNIT: Physics, Engineering, & Geosciences Department
GROUP: Class Laboratory
SPACE: Electrical Engineering/Physics Laboratory Recitation
CAPACITY: 24
AREA: 690 NASF
NO. REQUIRED: 1
TOTAL AREA: 690 NASF
ROOM USE CODE: 210

FUNCTION: Discussion area (“talking about”) portion of the Laboratory (doing) activities.

RELATIONSHIP: Locate directly connected to the Electrical Engineering/Physics Laboratory with direct egress to general circulation.

NEW EQUIPMENT:

Built-In

- Motorized projection screen, 8' x 8', to close flush with the ceiling
- 1, 4' x 16' marker board, non-glare
- Ceiling-mounted LCD projector
- Smart, instructor’s station with ergonomic, adjustable chair with casters
- AV equipment control cabinet
- 1, 4' x 8' bulletin board

Movable

- 24 ergonomic, adjustable chairs on casters, at least 1 student station must be wheelchair accessible
- 12 computer workstations with 12 ergonomic, adjustable chairs on casters for shared use on two parallel walls connected to campus and internet networks
- 2 computer printers

EXISTING EQUIPMENT:

- None

UTILITIES:

- Provide audio, voice, and data outlets at lecture station connected to building and campus networks. Provide convenience outlets spaced 12' o/c

SPECIAL REQUIREMENTS:

- Accessible, flexible system to supply current and future power, data, voice, video connections
- Lighting dimmer with blackout and separate switching between instructors station area and seating
- Whiteboard lighting on a separate switch at front of room

UNIT:
GROUP:
SPACE:

Physics, Engineering, & Geosciences Department
Class Laboratory
Electrical Engineering/Physics Laboratory Recitation

SPECIAL
REQUIREMENTS:

(continued)

- Easily operated and understood lighting in the instructor's area

NOTE: Lights should be zoned and have controls to allow front lights and houselights to be separately controlled to achieve lighting levels that are acceptable for various types of projection and still sufficient for note taking. If incandescent lights are used, then the controls should be dimmers. If fluorescent lights are used, then cut-out switches are needed to allow a minimum number of tubes to be left on for note taking during projection. No dimmers on fluorescent lights.

- Natural fenestration is desirable
- Window treatment to provide blackout capability
- Anti-static carpet and acoustical ceiling with sound insulation
- The closest seat to a projection screen should be at a distance twice the width of the screen. The optimum furthest seat distance is six times the screen width; the maximum seat distance is ten times screen width. The vertical angle to the top of the screen from any seating position should be less than 30 degrees from horizontal
- Although part of the whiteboard may be blocked when the projection screen is down, a sufficient amount of marker board should be unobstructed to allow it to be used. The screen must be a minimum of 8' x 8' and be mounted high enough to provide a clear angle of view

UNIT: Physics, Engineering, & Geosciences Department
GROUP: Engineering Science Computer Laboratory
SPACE: ES Computer Laboratory
CAPACITY: 24
AREA: 840 NASF
NO. REQUIRED: 2
TOTAL AREA: 1,680 NASF
ROOM USE CODE: 210

FUNCTION: Computer hardware equipped space to function as a scheduled laboratory with instructor's station. To support the use of this lab for instructional purposes, audio-visual technology is required.

RELATIONSHIP: Adjacent to and interconnected with the Computer Lab Studio and Computer Lab Storage, with access to general circulation (and not located on main entrance to building) and in close proximity to the Physics/Engineering Laboratory Shop

NEW EQUIPMENT:

Built-In
(Each Space)

- Motorized projection screen, 8' x 8', to close flush with the ceiling surface
- 1, 4' x 16' marker board, non-glare
- Digitizing tablet wallboard
- Ceiling-mounted color TV receivers/monitors connected into playback system
- Ceiling-mounted LCD projector
- 1, 4' x 8' bulletin board
- Coat storage, wall mounted

Movable
(Each Space)

- 24 state-of-the-art multi-media workstations, each 2' x 3' min. with 24 ergonomic chairs; at least one station must be wheelchair accessible
- 3, LAN networked printers and scanners networked to computers
- Secure equipment storage cabinet

EXISTING EQUIPMENT:

- None

UTILITIES:

- Provide audio, voice, and data outlets connected to building and campus networks at each student and instructor's station

UNIT:
GROUP:
SPACE:

Physics, Engineering, & Geosciences Department
Engineering Science Computer Laboratory
ES Computer Laboratory

SPECIAL
REQUIREMENTS:

(continued)

- Accessible, flexible system to supply current and future power, data, voice, video connections
- Whiteboard lighting on a separate switch at front of room
- Lighting dimmer with blackout and separate switching between instructor's station area and seating

NOTE: Lights should be zoned and have controls to allow front lights and houselights to be separately controlled to achieve lighting levels that are acceptable for various types of projection and still sufficient for note taking. If incandescent lights are used, then the controls should be dimmers. If fluorescent lights are used, then cut-out switches are needed to allow a minimum number of tubes to be left on for note taking during projection. No dimmers on fluorescent lights.

- Anti-static carpet and acoustical ceiling with sound insulation
- Ideally the top of the projection screen should subtend an angle no greater than 35 degrees from the horizontal from any seating position. However, some compromise may have to be made for seats in the first few rows to allow sufficient space for the whiteboards and a reasonable screen size and not have the front seats too far back.
- The closest seat to a projection screen should be at a distance twice the width of the TV screen. The optimum furthest seat distance is six times the screen width; the maximum seat distance is ten times screen width. The vertical angle to the top of the screen from any seating position should be less than 30 degrees from horizontal.
- Although part of the whiteboard may be blocked when the projection screen is down, a sufficient amount of marker board should be unobstructed to allow it to be used. The screen must be a minimum of 8' x 8' and be mounted high enough to provide a clear angle of view
- Natural fenestration is desirable with blackout capability
- Provide electronically controlled access.

UNIT: Physics, Engineering, & Geosciences Department
GROUP: Engineering Science Computer Laboratory
SPACE: Engineering Science Computer Laboratory Studio
CAPACITY: 6
AREA: 150 NASF
NO. REQUIRED: 4
TOTAL AREA: 600 NASF
ROOM USE CODE: 215

FUNCTION: Lab Studio to serve as a tutorial area and for collaborative student work

RELATIONSHIP: Adjacent to and interconnected with the Physics/ES Computer Lab

NEW EQUIPMENT:

Built-In
(Each Space)

- 1, 4' x 8' marker board non-glare
- 1, 4' x 4' bulletin board
- Ceiling-mounted LCD projector
- Window viewing to PE Computer Lab
- Coat storage, wall mounted

Movable
(Each Space)

- Movable mar-resistant table for 6 with 6 ergonomic, adjustable chairs with casters
- Two computer workstations with a printer

EXISTING EQUIPMENT:

- None

UTILITIES:

- Provide audio, voice and data outlets at computer workstations connected to local, building, and campus networks. Include four voice and data service outlet jacks additionally, where directed and convenience outlets spaced 6' o/c

SPECIAL REQUIREMENTS:

- Anti-static carpet and acoustical ceiling with sound insulation
- Accessible, flexible system to supply current and future power, data, voice, and video connections
- Natural fenestration is not required

UNIT: Physics, Engineering, & Geosciences Department
GROUP: Engineering Science Computer Laboratory
SPACE: Engineering Science Computer Laboratory Storage
CAPACITY: n/a
AREA: 100 NASF
NO. REQUIRED: 1
TOTAL AREA: 100 NASF
ROOM USE CODE: 215

FUNCTION: Secured storage and processing space for special instructional/computer equipment for the Physics/ES Computer Lab

RELATIONSHIP: Convenient to the Physics/ES Computer Laboratories with access from general circulation. Provide electronically controlled access

NEW EQUIPMENT:

Built-In

- Coat storage, wall mounted

Movable

- Heavy-duty metal storage units of varying sizes (1' D, 1.5' D and 2' D) and adjustable in height to accommodate different sizes of equipment, software, and materials. Specialized shelf inserts are required for such items as audio-tapes, records, slides, projector lamps, etc. In addition, lockable doors on front of shelves are where smaller, more expensive items can be stored
- 1, 4' x 6' bulletin board
- 1, 3' x 6' mar resistant table for opening and processing new materials and equipment

EXISTING EQUIPMENT:

- None

UTILITIES:

- Provide audio, video, and data outlets connected to building and campus networks

SPECIAL REQUIREMENTS:

- Accessible, flexible system to supply current and future power, data, voice, video connections
- Floor surface of resilient material and acoustical ceiling with sound insulation

UNIT: Physics, Engineering, & Geosciences Department
GROUP: Preparation/Storage
SPACE: Physics/Geosciences Reference Room
CAPACITY: 12
AREA: 300 NASF
NO. REQUIRED: 1
TOTAL AREA: 300 NASF
ROOM USE CODE: 215

FUNCTION: Work/individual study areas for Physics/Geosciences students

RELATIONSHIP: Adjacent to Physics/Geosciences Laboratories and directly accessible from general circulation.

NEW EQUIPMENT:

- Built-In
 - None
- Movable
 - 12, Individual carrels with 12, ergonomic, adjustable chairs with casters
 - Two to three individual computer stations each with an ergonomic, adjustable chair with casters

EXISTING EQUIPMENT:

- None

UTILITIES:

- Reference Special Requirements below

SPECIAL REQUIREMENTS:

- Anti-static carpet and acoustical ceiling with sound insulation
- Accessible system to supply power, data, voice, and video connections
- Walls common to general circulation to contain glazing for visibility
- Natural fenestration is not required

UNIT:	Physics, Engineering, & Geosciences Department
GROUP:	Preparation/Storage
SPACE:	Physics/Geosciences Laptop Storage
CAPACITY:	n/a
AREA:	150 NASF
NO. REQUIRED:	1
TOTAL AREA:	150 NASF
ROOM USE CODE:	215
FUNCTION:	Secured storage and for Laptop Computers used in the Recitation Rooms
RELATIONSHIP:	Convenient to the Laboratories with direct access from general circulation. Provide electronically controlled access.
NEW EQUIPMENT:	
Built-In	<ul style="list-style-type: none"> • None
Movable	<ul style="list-style-type: none"> • Rolling Racks of Laptop Computers (minimum of 5) • 1, 4' x 6' bulletin board • 1, 3' x 6' mar resistant table for opening and processing new materials and equipment
EXISTING EQUIPMENT:	<ul style="list-style-type: none"> • None
UTILITIES:	<ul style="list-style-type: none"> • Provide audio, video, and data outlets connected to building and campus networks
SPECIAL REQUIREMENTS:	<ul style="list-style-type: none"> • Accessible, flexible system to supply current and future power, data, voice, video connections • Floor surface of resilient material and acoustical ceiling with sound insulation • Double-door access from general circulation • Natural fenestration is not required

UNIT:	Physics, Engineering, & Geosciences Department
GROUP:	Preparation/Storage
SPACE:	Observatory Control (“Warm”) Room
CAPACITY:	1-2
AREA:	150 NASF
NO. REQUIRED:	1
TOTAL AREA:	150 NASF
ROOM USE CODE:	215
FUNCTION:	Computerized control room and storage of Observatory Telescope equipment and support.
RELATIONSHIP:	Adjacent to, but separate from, the Observatory with direct access from general circulation.
NEW EQUIPMENT:	
Built-In	<ul style="list-style-type: none"> • Counter space with ergonomic, adjustable chairs with casters • Hand tool wall grid
Movable	<ul style="list-style-type: none"> • Small refrigerator for film • 3-4 Computers with monitors • 2 Printers • Various storage accommodations for Eyepieces, eyepiece/visual back filters, Barlow lenses, star diagonals, reduce/correctors; front cell filters; 8” telescopes in cases, tripod and wedges for 8” scopes; Schmidt camper storage; dewcaps for scopes; step stools; vacuum cleaner and other cleaning supplies; books (star atlas, maps, etc.); imaging equipment; etc.
EXISTING EQUIPMENT:	<ul style="list-style-type: none"> • None
UTILITIES:	<ul style="list-style-type: none"> • Small Sink
REQUIREMENTS:	<ul style="list-style-type: none"> • Accessible, flexible system to supply current and future power, data, voice, video connections • Floor surface of resilient material and acoustical ceiling with sound insulation • Natural fenestration is desirable • Electronic secure access

UNIT: Physics, Engineering, & Geosciences Department
GROUP: Preparation/Storage
SPACE: Dark Room
CAPACITY: 2
AREA: 100 NASF
NO. REQUIRED: 2
TOTAL AREA: 200 NASF
ROOM USE CODE: 215

FUNCTION: Faculty and student photography and processing

RELATIONSHIP: One to be located interconnected with the Astronomy/Physical Science Laboratory and one convenient to the General Physics Laboratories.

NEW EQUIPMENT:

Built-In
(Each Space)

- 1, 2 compartment stainless steel photography sink with hot and cold water and temperature regulator
- 1 DI water station at sink
- Safety station with drench shower and fire safety station nearby
- Perimeter laboratory casework and wall mounted storage as allowable by room and equipment layout

Movable
(Each Space)

- Chemical storage cabinet

EXISTING EQUIPMENT:

- None

UTILITIES:

- Corrosion resistant drains

SPECIAL REQUIREMENTS:

- Accessible, flexible system to supply current and future power, data, voice, video connections
- Floor surface of chemical resistant material and acoustical ceiling with sound insulation
- Provide safety light
- Provide light tight entrance with in-use warning light
- Provide utilities master cut-off at visible location
- Natural fenestration is not required

UNIT: Physics, Engineering, & Geosciences Department
GROUP: Preparation/Storage
SPACE: Lapidary/Power Tool Room
CAPACITY: 12
AREA: 540 NASF
NO. REQUIRED: 1
TOTAL AREA: 540 NASF
ROOM USE CODE: 215

FUNCTION: Geosciences equipment room

RELATIONSHIP: Adjacent to, and interconnected with, Physics Preparation Room and Geology/Meteorology Laboratory..

NEW EQUIPMENT:

Built-In

- Safety station with drench shower and fire station at entry
- Sink and plumbing for 2 rock polishing machines
- Maximize perimeter laboratory casework (3'd x 3'H) as allowable by room and equipment layouts
- Maximize perimeter full-height, lockable cabinets for fossil and rock storage
- Sink and plumbing for 2 rock polishing machines
- Sinks with removable, cleanable filters (located near trap) to catch fine grid used in polishing
- Vacuum system to remove rock debris
- 1 Snorkel fume hood
- Secure locking storage areas within room; size to be assessed during design

Movable

- See Existing Equipment below

EXISTING EQUIPMENT:

- Provide for the relocation of the following equipment: Polishing wheel (21"W x 25"D x 12"H that requires plumbing); Gem cutting and polishing machine (50"W x 34"D x 10"H); Grinding and Polishing Wheels (21"W x 24"D x 10"H); Rock Crusher with 5 ton capacity (24"W x 24"D X 27"H); Table Top Rock Saw (18"W x 24"D X 14"H); Rock Saw (37"W x 21"D x 16"H); Grinding Plate (13"W x 18"D x 4"H); Slide Warmer (9"W x 9" D x 4"H); Stream Table (60"W x 21"D); six tier locker boxes (12"W x 18"D x 72"H); and lockable tool cabinet (48"W x 24"D x 84"H). Note: Grinding machines and thin section machine must be "plumbed-in" and require permanent connections to water and drain.

UNIT:
GROUP:
SPACE:

Physics, Engineering, & Geosciences Department
Preparation/Storage
Lapidary/Power Tool Room

UTILITIES:

- Ceiling-mounted track lighting or wall mounted swing arm lighting that can be positioned behind the equipment operators' shoulders to illuminate the grinding and polishing wheels
- Power and data outlets (grounded 110v and 220v) coordinated with casework and equipment

SPECIAL
REQUIREMENTS:

- Room to have minimum of 5' aisles
- Accessible system to supply power, data, voice, and video connections
- Floor with easily maintainable and durable material and acoustical ceiling with sound insulation
- Natural Fenestration is not required

UNIT: Physics, Engineering, & Geosciences Department
GROUP: Preparation/Storage
SPACE: Physics/Engineering Laboratory Shop
CAPACITY: 1
AREA: 1,200 NASF
NO. REQUIRED: 1
TOTAL AREA: 1,200 NASF
ROOM USE CODE: 215

FUNCTION: Preparatory Laboratory functions and activities to assist both faculty and students.

RELATIONSHIP: Locate in close proximity to Engineering Science Computer Laboratory and one of the Coordinator/Technician Offices with a operable window between.

NEW EQUIPMENT:

Built-In

- 1 large Laboratory sink with hot and cold water, aspirator, and sanitary drain
- 1, 4' x 8' marker board, non-glare
- Large sink (34"L x 18"W x 12"D) with counter space around sink ~192"L x 30"D x 36"H) with drawers below
- Wall-mounted peg board for storage of regularly used hand tools
- Fan ventilator with flexible duct for use with solvents, glues, spray paint, etc.
- Eyewash station at laboratory sink
- Safety station with drench shower and fire station nearby
- 2 wall brackets for compressed gas cylinders coordinated with equipment locations
- Coat storage, wall mounted
- 1, 4' x 8' bulletin board
- 1, 4' x 8' marker board non-glare

Movable

- Maximize perimeter full lockable cabinets as well as heavy duty adjustable industrial height shelving
- 1 120"W x 48"D x 36"H work table for equipment setup and maintenance
- Electronics work bench, 96"W x 24"D x 36"H with cabinets below and space for a stool and two 12"D shelves above starting 60" AFF. Provide a fan ventilator with flexible duct for soldering station at electronics workbench and wall mounted storage cabinets as allowable by room and equipment layouts

UNIT:
GROUP:
SPACE:

Physics, Engineering, & Geosciences Department
Preparation/Storage
Physics/Engineering Laboratory Shop

EXISTING EQUIPMENT:

- Provide for the relocation of the following: Metal Lathe (66"W x 26"D x 54"H and 208v); Milling Machine (60"W x 22"D x 62"H, 110v); Band Saw (21"W x 25"D x 68"H, 110v); 2 Table Mounted Drill Presses (13"W x 21"D x 36"H, 110v); Table Mounted Grinder (15"W x 8"D x 10"H); 3 Vices each 7" x 15" x 9"H; Metallurgical Grinding Stone (26"W x 26"D); Rock Saw (31"W x 31"D x 43"H); 3 sections of double tiered lockers (36"W x 18"D x 78"H); 3 carts; and 6 had carts

SPECIAL
REQUIREMENTS:

- Accessible, flexible system to supply current and future power, data, voice, and video connections
- Natural fenestration is desired
- Floor with easily maintainable material and acoustical ceiling with sound insulation

UNIT: Physics, Engineering, & Geosciences Department
GROUP: Preparation/Storage
SPACE: Physics/Engineering Laboratory Preparation Room
CAPACITY: 2
AREA: 500 NASF
NO. REQUIRED: 3
TOTAL AREA: 1,500 NASF
ROOM USE CODE: 215

FUNCTION: Equipment storage, experiments, and related preparation of laboratory functions.

RELATIONSHIP: Typically located between two laboratories with direct access from each including access from general circulation, the Department is assessing whether it would be more efficient to create two Preparation Rooms within the total space allocation presented above – one for Physics/Engineering Laboratories that is directly accessible to the corresponding Technician's office and second between the two Astronomy/Physical Science Laboratories and adjacent to the Geology/Meteorology Laboratory. Note: specific requirements for either the 2 or 3 different types of Preparation spaces to be confirmed during the early stages of design.

NEW EQUIPMENT:

Built-In
 (Each Space)

- Provide built-in perimeter casework with impervious top and lockable base and wall mounted storage cabinets with under cabinet lighting as allowable by room layout.
- 1 Snorkel hood with hot and cold water, gas, vacuum, and 110v outlets per side
- 1, Laboratory sink with hot and cold water, aspirator, filtered water, and sanitary drain. Provide cleanable, removable filters in sink that is adequate for ground rock materials
- Eyewash station at lab sink
- Maximize perimeter laboratory casework as allowable by room and equipment layouts
- Safety station with drench shower and fire station

Movable
 (Each Space)

- Movable cabinets and carts (located in center of space)
- 1, Explosion proof refrigerator
- 1, Icemaker
- Incubator(s)
- Steam autoclave
- Still for water

EXISTING EQUIPMENT:

- None

UNIT: Physics, Engineering, & Geosciences Department
GROUP: Preparation/Storage
SPACE: Physics/Engineering Laboratory Preparation Room

UTILITIES:

- Power and data outlets (110v and 220v) coordinated with casework and equipment
- 1, Gas outlet at perimeter coordinated with casework
- 1 Clean compressed air outlet at perimeter coordinated with the casework
- Utilities master cut-off at visible location

SPECIAL REQUIREMENTS:

- Accessible, flexible system to supply current and future power, data, voice, video connections
- Lab to have minimum of 5' aisles
- Floor surface of chemical resistant material and acoustical ceiling with sound insulation
- Natural fenestration is not required
- Provide utilities master cut-off at visible location

UNIT: Physics, Engineering, & Geosciences Department
GROUP: Preparation/Storage
SPACE: Physic/Engineering Laboratory Stock Room
CAPACITY: 1
AREA: 500 NASF
NO. REQUIRED: 1
TOTAL AREA: 500 NASF
ROOM USE CODE: 215

FUNCTION: Physics storage space

RELATIONSHIP: Locate convenient to Laboratories with direct access from general circulation.

NEW EQUIPMENT:

Built-In

- Provide built-in perimeter casework with impervious top and lockable base and wall mounted storage cabinets with under cabinet lighting as allowable by room layout.
- 1, Laboratory sink with hot and cold water, aspirator, filtered water, and sanitary drain
- Eyewash station at lab sink
- Safety station with drench shower and fire station

Movable:

- Movable cabinets and carts (located in center of space)

EXISTING EQUIPMENT:

- None

UTILITIES:

- Power and data outlets (110v and 220v) coordinated with casework and equipment
- 1, Gas outlet coordinated with casework

SPECIAL REQUIREMENTS:

- Accessible, flexible system to supply current and future power, data, voice, video connections
- Lab to have minimum of 5' aisles
- Floor surface of durable and easily maintainable material and acoustical ceiling with sound insulation
- Natural fenestration is desirable
- Provide utilities master cut-off at visible location

UNIT: Physics, Engineering, & Geosciences Department
GROUP: Preparation/Storage
SPACE: Physics Student/Faculty Project Laboratory
CAPACITY: 8
AREA: 720 NASF
NO. REQUIRED: 2
TOTAL AREA: 1,440 NASF
ROOM USE CODE: 220

FUNCTION: Students with the assistance of faculty will use this space to conduct work on their special projects.

RELATIONSHIP: Locate in close proximity to departmental Laboratories with direct access to the Student/Faculty Project Laboratory and general circulation.

NEW EQUIPMENT:

Built-In
(Each Space)

- 1, 3' x 4' Bulletin Board
- 1, 4' x 8' Marker Board, non-glare
- Coat storage, wall mounted

Movable
(Each Space)

- Double –sided island benches for 4 students each with 2 computer workstations along walls
- 10 ergonomic, adjustable chairs with casters
- 2 Printers
- Bookcases

EXISTING EQUIPMENT:

- None

UTILITIES:

- Power and data outlets (110v and 220v) coordinated with workstations and equipment

SPECIAL REQUIREMENTS:

- Accessible, flexible system to supply current and future power, data, voice, and video connections
- Natural fenestration is desired
- Floor surface of durable and easily maintainable material and acoustical ceiling with sound insulation
- Acoustical separation from adjoining spaces to provide privacy

UNIT: Physics, Engineering, & Geosciences Department
GROUP: Preparation/Storage
SPACE: Physics Student/Faculty Project Preparation
CAPACITY: 1
AREA: 360 NASF
NO. REQUIRED: 2
TOTAL AREA: 720 NASF
ROOM USE CODE: 225

FUNCTION: Preparation area associated with Student/Faculty Project Laboratory

RELATIONSHIP: Locate adjacent to, and interconnected with, the Student/Faculty Project Laboratory including direct access to general circulation.

NEW EQUIPMENT:

Built-In
(Each Space)

- Provide built-in perimeter casework with impervious top and lockable base and wall mounted storage cabinets with under cabinet lighting as allowable by room layout.
- 1, Laboratory sink with hot and cold water, aspirator, and sanitary drain

Movable
(Each Space)

- Modular layout tables, a minimum of 30"D with multiple power outlets with stools

EXISTING EQUIPMENT:

- None

UTILITIES:

- Power and data outlets (110v and 220v) coordinated with casework and equipment

REQUIREMENTS:

- Accessible, flexible system to supply current and future power, data, voice, video connections
- Floor surface of resistant, easily maintainable material and acoustical ceiling with sound insulation
- Natural fenestration is not required

UNIT: Physics, Engineering, & Geosciences Department
GROUP: Preparation/Storage
SPACE: Physics Student/Faculty Project Storage
CAPACITY: 1
AREA: 360 NASF
NO. REQUIRED: 1
TOTAL AREA: 360 NASF
ROOM USE CODE: 215

FUNCTION: Storage of material or project-related development associated with student related special projects.

RELATIONSHIP: Suite with direct access to Project Laboratory and Project Preparation Rooms from general circulation.

NEW EQUIPMENT:

Built-In

- None

Movable

- Heavy-duty adjustable steel shelving of varying depths
- Storage Cabinets, 3'W and of varying depths
- Work table(s) and chair

EXISTING EQUIPMENT:

- None

UTILITIES:

- Reference Special Requirements Below

SPECIAL REQUIREMENTS:

- Accessible, flexible system to supply current and future power, data, voice, video connections
- Floor surface of resilient material and acoustical ceiling with sound insulation
- Natural fenestration is not required

UNIT: Physics, Engineering, & Geosciences Department
GROUP: Department Suite
SPACE: Department Chair Office
CAPACITY: 1 + 3
AREA: 150 NASF
NO. REQUIRED: 1
TOTAL AREA: 175 NASF
ROOM USE CODE: 310

FUNCTION: This space will provide an office workstation and conference area for the Chair.

RELATIONSHIP: Direct access from Chair's Administrative Office. Desirable to locate away from primary building entrance and circulation

NEW EQUIPMENT:

Built-In

- 1, 3' x 4' bulletin board
- 1, 3' x 4' marker board
- Coat storage, wall mounted

Movable

- Executive double-pedestal desk with ergonomic, adjustable chair with casters
- Conference table with 4 ergonomic, adjustable chairs with casters
- 3, 3' W x 7' H x 1' D, bookcases
- 1 credenza with lateral file storage

EXISTING EQUIPMENT:

- None

UTILITIES:

- Voice and data communications jacks with two duplex convenience outlets at the desk station as well as one or more duplex outlets on each wall, 12' maximum spacing

SPECIAL REQUIREMENTS:

- Provide layout to include desk zone and a conference zone
- Accessible, flexible system to supply current and future power, data, voice, video connections
- Acoustical separation from adjoining spaces to provide privacy
- Anti-static carpeted floor and acoustical suspended ceiling
- Natural fenestration required

UNIT: Physics, Engineering, & Geosciences Department
GROUP: Department Suite
SPACE: Department Administrative Reception
CAPACITY: 1 + 4
AREA: 180 NASF
NO. REQUIRED: 1
TOTAL AREA: 180 NASF
ROOM USE CODE: 310

FUNCTION: Work station for a full-time secretary and seating for 4 guests

RELATIONSHIP: Central reception area having direct access to offices for the Chair, the Administrative Workroom, and general circulation

NEW EQUIPMENT:

Built-In

- 1, display/bulletin board cabinet
- Coat storage, wall-mounted

Movable

- 1, "U" shaped secretarial workstation with an ergonomic, adjustable secretarial chair with casters
- 2, side chairs
- 4, visitor chairs and magazine stand
- 1, 5-drawer lateral filing cabinet, 30" W
- 1, computer with printer station

EXISTING EQUIPMENT:

- None

UTILITIES:

- Voice and data communications jacks and two duplex convenience outlets at each workstation as well as one or more duplex outlets on each wall, 12' maximum spacing

SPECIAL REQUIREMENTS:

- Accessible, flexible system to supply current and future power, data, voice, and video connections
- Acoustical separation from adjoining spaces to provide privacy
- Anti-static carpeted floor and acoustical ceiling
- Natural fenestration desirable

UNIT: Physics, Engineering, & Geosciences Department
GROUP: Department Suite
SPACE: Administrative Assistant Office
CAPACITY: 1 + 2
AREA: 120 NASF
NO. REQUIRED: 1
TOTAL AREA: 120 NASF
ROOM USE CODE: 310

FUNCTION: Private office for a full-time administrative assistant and seating for 2 guests

RELATIONSHIP: Adjacent to the Department Chair with direct access to Department Administrative Reception

NEW EQUIPMENT:

Built-In

- 1, display/bulletin board cabinet
- Coat storage, wall-mounted

Movable

- 1, "U" shaped workstation with an ergonomic, adjustable chair with casters
- 2, side chairs
- 1, 5-drawer lateral filing cabinet, 30" W
- 1, computer with printer station
- 1, fax machine

EXISTING EQUIPMENT:

- None

UTILITIES:

- Voice and data communications jacks and two duplex convenience outlets at each workstation as well as one or more duplex outlets on each wall, 12' maximum spacing

SPECIAL REQUIREMENTS:

- Accessible, flexible system to supply current and future power, data, voice, and video connections
- Acoustical separation from adjoining spaces to provide privacy
- Anti-static carpeted floor and acoustical ceiling
- Natural fenestration is required

UNIT: Physics, Engineering, & Geosciences Department
GROUP: Department Suite
SPACE: Department Administrative Workroom
CAPACITY: 1
AREA: 130 NASF
NO. REQUIRED: 1
TOTAL AREA: 130 NASF
ROOM USE CODE: 315

FUNCTION: Clerical work space for duplicating equipment, fax, and collating machines

RELATIONSHIP: Direct access from Administrative Office

NEW EQUIPMENT:

Built-In

- Along one wall, install 24" deep counter, with under counter storage cabinets, under counter refrigerator, sink, and wall shelving above counter
- 1, 3' x 4' bulletin board
- 1, 3' x 4' marker board, non glare

Movable

- 1, 2' x 5' mar-resistant work table
- 2, chairs
- Copier
- Mailboxes for 30
- Fax machine

EXISTING EQUIPMENT:

- None

UTILITIES:

- Two or more duplex convenience outlets above counter, copier outlet, duplex and at least one duplex outlet per wall
- Two data jacks for duplicators/printers
- Two voice jacks for phones/fax machine

SPECIAL REQUIREMENTS:

- Accessible, flexible system to supply current and future power, data, voice, video connections
- Acoustical separation from adjoining spaces to provide privacy
- Anti-static carpeted floor and acoustical suspended ceiling
- Natural fenestration is not required

UNIT: Physics, Engineering, & Geosciences Department
GROUP: Department Suite
SPACE: Department Secure/File Storage Room
CAPACITY: n/a
AREA: 120 NASF
NO. REQUIRED: 1
TOTAL AREA: 120 NASF
ROOM USE CODE: 315

FUNCTION: Secure file and storage room for supplies and materials

RELATIONSHIP: Direct access from Administrative Workroom and Administrative Office

NEW EQUIPMENT:

Built-In

- None

Movable

- 5, 5 drawer lateral file cabinets, 30" W
- 2, 3' W x 7' H x 1.5' D securable supply cabinets
- 2, each 3' W x 7' H x 1' D, bookcases

EXISTING EQUIPMENT:

- None

UTILITIES:

- Two or more duplex convenience outlets above counter, copier outlet, duplex and at least one duplex outlet per wall
- Two data jacks for duplicators/printers
- Two voice jacks for phones/fax machine

SPECIAL REQUIREMENTS:

- Accessible, flexible system to supply current and future power, data, voice, and video connections
- Acoustical separation from adjoining spaces to provide privacy
- Floor surface of resilient material and acoustical ceiling
- Natural fenestration is not required

UNIT: Physics, Engineering, & Geosciences Department
GROUP: Department Offices
SPACE: Faculty Office
CAPACITY: 1 + 2
AREA: 120 NASF
NO. REQUIRED: 12
TOTAL AREA: 1,440 NASF
ROOM USE CODE: 310

FUNCTION: Workstation for 1 full-time faculty member and 2 guests

RELATIONSHIP: Locate near Department Suite and convenient to Labs.

NEW EQUIPMENT:

Built-In
(Each Space)

- 1, 3' x 4' bulletin board
- 1, 3' x 4' marker board
- Coat storage, wall mounted

Movable
(Each Space)

- 1, "L" shaped workstation with computer table or "U" shaped workstation with ergonomic, adjustable chair with casters
- 2, side chairs
- 2, 3' W x 7' H x 1' D bookcases
- 1, 5-drawer lateral filing cabinet, 30" W
- 1, computer with printer

EXISTING EQUIPMENT:

- None

UTILITIES:

- Voice and data communication jack and two duplex convenience outlets at each work station as well as one or more duplex outlets on each wall, 12' maximum spacing

SPECIAL REQUIREMENTS:

- Accessible, flexible system to supply current and future power, data, voice, and video connections
- Acoustical separation from adjoining spaces to provide privacy
- Anti-static carpeted floor and acoustical ceiling
- Natural fenestration required

UNIT: Physics, Engineering, & Geosciences Department
GROUP: Department Offices
SPACE: Part-Time Faculty Offices
CAPACITY: 4
AREA: 120 NASF
NO. REQUIRED: 4
TOTAL AREA: 480 NASF
ROOM USE CODE: 310

FUNCTION: Office space shared by 4 Part-Time Faculty

RELATIONSHIP: Direct access from general circulation and Full-Time Faculty.

NEW EQUIPMENT:

Built-In
(Each Space)

- 1, 3' x 4' marker board, non-glare
- 1, 3' x 4' of bulletin board
- Coat storage, wall-mounted

Movable
(Each Space)

- 4, "L" shaped workstations with computer and ergonomic, adjustable chair with casters
- 2, side chairs
- 1, 5 drawer lateral file cabinet, 30" W
- 1, 3' W x 7' H x 1' D bookcase

EXISTING EQUIPMENT:

- None

UTILITIES:

- Provide voice and data service at each desk station connected to local, building, and campus networks
- Provide at least two duplex 115-volt electrical outlets at desk station in addition to the general standard for wall outlets

SPECIAL REQUIREMENTS:

- Accessible, flexible system to supply current and future power, data, voice, and video connections
- Anti-static carpeted floor and acoustical suspended ceiling
- Natural fenestration desirable

UNIT: Physics, Engineering, & Geosciences Department
SPACE: Technician Office
CAPACITY: 2
AREA: 120 NASF
NO. REQUIRED: 2
TOTAL AREA: 240 NASF
ROOM USE CODE: 310

FUNCTION: Office space shared by 2 Technicians

RELATIONSHIP: Adjacent to the Recitation Rooms and Laboratories

NEW EQUIPMENT:

Built-In
(Each Space)

- 1, 3' x 4' marker board, non-glare
- 1, 3' x 4' bulletin board
- Coat storage, wall-mounted

Movable
(Each Space)

- 2, "L" shaped workstations with computers and ergonomic, adjustable chairs with casters
- 2, side chairs
- 1, 5-drawer lateral file cabinet, 30" W
- 2, 3' W x 7' H x 1' D bookcases

EXISTING EQUIPMENT:

- None

UTILITIES:

- Provide voice and data service at each desk station connected to local, building, and campus networks
- Provide at least two duplex 115-volt electrical outlets at desk station in addition to the general standard for wall outlets

SPECIAL REQUIREMENTS:

- Accessible, flexible system to supply current and future power, data, voice, and video connections
- Anti-static carpeted floor and acoustical suspended ceiling
- Natural fenestration required

UNIT: Physics, Engineering, & Geosciences Department
GROUP: Preparation/Storage
SPACE: Physics/Geosciences Student Half-Lockers
CAPACITY: n/a
AREA: AR
NO. REQUIRED: 120
TOTAL AREA: AR
ROOM USE CODE: 215

FUNCTION: Securable student property storage while participating in laboratory experience. To be integrated with, and off-set from, general building circulation.

RELATIONSHIP: Convenient to all the Laboratories

NEW EQUIPMENT:

Built-In

- 120, half lockers, each approximately 1' x 1.5'

Movable

- None

EXISTING EQUIPMENT:

- None

UTILITIES:

- None

SPECIAL REQUIREMENTS:

- Floor surface of resilient material and acoustical ceiling with sound insulation
- Natural fenestration is not required