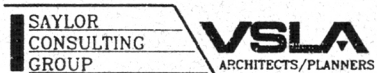


Arizona Board of Regents

Construction Cost Control
And Professional Fee Guidelines

Revised April 29th, 2002



ARIZONA BOARD OF REGENTS

CONSTRUCTION COST CONTROL & PROFESSIONAL FEE GUIDELINES

SCG #00-028

VSLA #0010

REVISED APRIL 29, 2002

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April 29, 2002

The first edition of the, "Arizona Board of Regents Construction Cost Control & Professional Fee Guidelines," was prepared by Lee Saylor, Inc. and Varney, Sexton, Lunsford, Aye Associates - Architects, Inc. in 1989 and updated in 1990 and 1992. The second edition, dated January 1, 1995 was extensively revised and brought up to date in terms of the outline specifications and the cost control matrices. The first revision to the second edition was dated June 30, 1998. This is the second revision of the second edition and consists of:

Chapter 2A, "Net to Gross Ratios"

Chapter 6, "Inflation Adjustment Factors," revised to indicate the current expectations for inflation adjustments.

Four new Series B categories:

- B-240 Research Medical
- B-460A Archive/Artifacts Storage
- B-460B Archive/Artifact Exhibition
- B-590 Clean Room (Class 100)
- B-591 Clean Room (Class 1000)

Updates of Chapter 11 and 12, Phoenix/Tucson cost matrices and Flagstaff cost matrices, to reflect change in the cost indexes which have occurred since June 30, 1998.

The revised sections of the document should be used in conjunction with Chapters 1 thru 5 and 7 thru 10 which are not revised. Holders of Construction Cost Control and Professional Fee Guidelines should up-date their copies by inserting the revised pages as indicated in the attached Table of Contents. A new cover has been provided for easy recognition of the revised document.

Saylor Consulting Group

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1. USE OF COST CONTROL GUIDELINES

COST CONTROL AND BUDGET SETTING

When the Administration determines that new University facilities are required, one of the considerations is the cost of the new facility. Traditionally, throughout the design and construction industry, rules of thumb have been applied in an attempt to answer the question of, "How much is it going to cost?" The more important question is, "How much should it cost?" The traditional approach bases the answer on average unit cost per square foot for several different building types. Too many varying factors have influence on each proposal, and the result has been to consider ranges of acceptable cost in order to account for some of the variables.

THE RECOMMENDED METHOD

A more accurate method to answer, "How much should it cost?", is needed. There are many accepted line item breakdowns used in the industry. The recommended method needs to recognize the major Building Systems in as simple and straightforward a manner as possible. The following breakdown has proven to be useful:

Building Systems

1.0	Site Work	5.4	Interiors
2.0	Substructure	6.0	Specialties
3.0	Structure	7.0	Equipment
4.1	Enclosure, Vertical	8.0	Special Construction
4.2	Enclosure, Horizontal	9.0	Conveying
4.3	Support Items	10.1	Plumbing and Fire Protection
5.1	Internals, Vertical	10.2	Heating, Ventilating and Air Conditioning(HVAC)
5.2	Internals, Horizontal	11.0	Electrical
5.3	Finishes, Special		

Site Work cost is always dependent on the site selected and related to the quantities of specific Site Work items, not on the size of the proposed structure. It is not feasible to establish Site Work cost guidelines based on building size. Site Work cost must not be ignored when considering the total cost of a proposed facility. From a practical standpoint these costs must be estimated on the basis of specifics of distance to service connection points and quantity of development. *Once specifics of project site infrastructure are known, Site Work prices for utilities, storm drainage and sanitary sewer pipe, water, steam & gas distribution piping, electrical distribution, etc., can be determined by using section 2. Site Work of "Current Construction Costs" by Saylor Publications and/or Division No. 2 Site Construction of "Building Construction Cost Data" by R. S. Means.

The Building Systems which make up the shell of the structure are the following:

2.1	Substructure
3.0	Structure
4.1	Enclosure, Vertical
4.2	Enclosure, Horizontal
4.3	Support Items
9.0	Conveying

* Revised April 29, 2002

The cost of these systems is more dependent on building configuration than on interior use. Categories of building configuration appropriate for University use have been identified. Guidelines in terms of unit cost per square foot of gross building area have been established for each Building System within each configuration category.

The cost of the following Building Systems are more dependent on interior use than on configuration:

- 5.1 Internals, Vertical
- 5.2 Internals, Horizontal
- 5.3 Finishes, Special
- 5.4 Interiors
- 6.0 Specialties
- 7.0 Equipment
- 8.0 Special Construction
- 10.1 Plumbing and Fire Protection
- 10.2 Heating, Ventilation and Air Conditioning (HVAC)
- 11.0 Electrical

Categories for interior building use have been identified. Guidelines in terms of cost per square foot of building area have been established for each Building System within each use category.

The Guidelines are presented as a series of matrices which display unit cost for each Building System within each category. The estimate can then be prepared by determining the mix of interior uses desired in a proposed facility, related to the unit cost specifically applicable for the use intended. This cost would be added to the cost obtained by applying the shell cost specifically related to the configuration contemplated. The result will be a budget amount more specifically related to the requirements of the proposed facility than is possible with the lump sum unit cost for building use type previously employed.

2. METHOD FOR PREPARING CONCEPTUAL COST ESTIMATES

In order to prepare concept phase estimates for proposed projects the shell of the building (Building Configuration) is to be considered separately from the interior use. The building systems which make up the shell cost are identified in Chapter One. The systems which make up the interior cost are also identified. There are some systems costs which are properly accounted for in both places since main service risers belong primarily with the shell cost for multi-story buildings. The description for building systems utilized in the Construction Cost Control Guidelines is called the Functional Format (or Systems Format).

FUNCTIONAL FORMAT

This estimate format represents the components of construction as systems or assemblies. We must therefore think of the resultant costs in the same terms. Traditionally estimates have been done in the Trade Breakdown or Construction Specification Institute (CSI) Master Format, which has sixteen major categories. The CSI Master Format differs from the Functional Format in that it shows all similar materials and their costs in the same category, i.e., concrete for substructure, structure, deck fill, etc., are all included in Division 3-Concrete. The Functional Format, however, lends itself to the preparation of Early Stage/Concept Cost Analysis.

Following is a general breakdown indicating what is included within each section of a Functional Format.

Not all of the categories and items included within the descriptions below were used as part of the guidelines. *Section 1.1-Demolition, and Section 1.2-Site Work are not included. It is also presumed that a central plant outside of the building line contains all of the mechanical and electrical energy producing equipment. This plant and distribution to the building are therefore not represented in the costs found in later chapters.*

FUNCTIONAL FORMAT (Description of Functional Inclusions)

1.1 Demolition: Building, Structure, paving and utilities.

1.2 Site Work: Clear and grub site excavation and fill, paving, surface site work, underground utilities, landscaping irrigation and offsite work.

2.1 Substructure: Piles, caissons, foundations, pile caps, grade beams, slabs on grade, wall and waterproofing below surface grade, columns below grade, structural slabs below surface grade.

3.0 Structure: Columns, structural beams and girders, slabs composite, slabs concrete, metal decks, concrete fills, wood floor systems, excluding all walls, whether structural or not.

4.1 Enclosure, Vertical: All exterior wall materials, skins, coating, fenestration, doors, interior surface of exterior walls, thermal insulation.

4.2 Enclosure, Horizontal: All roofing, sheet metal enclosures, insulation, roof penetrations.

4.3 Support Items: All items not capable of categorization, such as miscellaneous iron, sheet metal, rough hardware, caulking, waterproofing above grade.

5.1 Internals, Vertical: All internal wall materials, concrete, steel studs, wood studs, wallboard, plaster, emulsions, doors (interior), bases, borrowed lights, sound isolation.

5.2 Internals, Horizontal: All floor coverings, sound insulation, ceiling suspension systems, integrated systems, acoustical tile, gypsum wallboard, plaster, sound isolation (other than concrete fill).

5.3 Finishes, Special: Hard surfaces for walls and floors, tile, terrazzo, vinyl wall coverings, laminated plastics, tackable vinyl on gypsum board.

5.4 Interiors: Cabinets, including instructors podium, bench, etc., drapes, and window blinds, other items appended to walls, floors or ceilings.

6.0 Specialties: Chalk and tack board, toilet partitions, folding and demountable partitions, toilet accessories, fixed seating, built-in projection screens, signage.

7.0 Equipment: Restaurant, school, bank, hospital, gym, shop, material handling.

8.0 Special Construction: Any and all unusual construction items part of the general construction including: pools, incinerators, radiology shielding, raised (pedestal) floors, sloped or tiered floors.

9.0 Conveying: Elevator, dumb-waiters, escalators, belts, pneumatic tube systems, chutes, stairs.

10.1 Plumbing & Fire Protection: Equipment, fixtures, piping, valves, specialties & insulation, plumbing accessories, testing & permits, alarm & valve tree. FP piping, FP heads, FP specialties & permits, backflow preventers and fire pumps (where applicable). Site utilities are included under site work.

10.2 HVAC: Any and all equipment, boilers, chillers, air handling, terminal distribution items, controls, valves, thermostats, air dampers, actuators, duct work grills, registers, insulation, piping & insulation, valves, specialties, permits & testing.

11.0 Electrical: Any & all electrical equipment. HV switchgear, main switchgear, panelboards, transformers, circuit breakers, emergency generators, UPS systems, fixtures, wiring, voice, data and video cabling including fiber optic, conduit & raceway systems, miscellaneous devices such as assistive listening devices, fees, permits, testing, fire & life safety systems. Conduit etc. for interactive T.V. classrooms but not the equipment such as microphones, television cameras, monitors. Electrical site utilities are included under site work.

Cost Models

The basis of the cost matrices are cost models. The cost models have been developed using several factors.

The outline specifications in Chapter 10 define the items included in each building system for each Building Configuration category and each Interior Use Category. The area indicated for specific use categories is used to factor unit cost and is not intended as a program guideline.

The cost model for each category has been developed based on the outline specification, the model area, the regional construction cost data base and on cost research information. The total cost for each building system, using the functional format, for each category was factored by the model area to produce unit cost. These unit costs are displayed in the cost matrices for use in preparing the estimates.

Cost Matrices

Building Configuration (shell cost) are displayed in the Series A matrices. The following building configurations are included:

- A-1 Institutional, 1 Story, Classrooms/Offices.
- A-1a Institutional, 1 Story, Classrooms/Offices, 16'-0" minimum floor to structure above.
- A-2 Institutional, 1 Story, High Bay/Long Span, Field Houses/Gymnasiums.
- A-2a Institutional, 1 Story, High Bay/Long Span, Open Area Instructional and Laboratory
- A-3 Institutional, 2 Story, Classrooms/Offices.
- A-3a Institutional, 2 Story, Classrooms/Offices, 16'-0" minimum finished floor to finished floor.
- A-4 Institutional, Multi-story, 3 Thru 5 Stories, Classrooms/Offices,
- A-4a Institutional, Multi-story, 3 Thru 5 Stories, Lab.
- A-4b Institutional, Multi-story, 3 Thru 5 Stories, Classrooms/Offices, 16'-0" minimum finished floor to finished floor.
- A-5 Institutional, Multi-story, 6 Thru 10 Stories, Classrooms/Offices.
- A-5a Institutional, Multi-story, 3 Thru 5 Stories, Theater Complex.
- A-5b Institutional, Multi-story, 6 Thru 10 Stories, Lab.
- A-6 Institutional, 1 or 2 Stories, Below Grade, Classrooms/Offices (Bldg. Above).
- A-6a Institutional, 1 or 2 Stories, Below Grade, Lab (Bldg. Above).
- A-6b Institutional, 1 or 2 Stories, Entirely Below Grade, Classrooms/Offices (No Bldg. Above).
- A-7 Residential, 1 or 2 Stories.
- A-7a Residential, 1 or 2 Stories, Wood Frame.
- A-8 Residential, 3 Thru 5 Stories.
- A-9 Residential, 6 Thru 10 Stories.
- A-10 Parking Structures, (to 3 Levels).
- A-11 Parking Structures, (to 4 and 5 Levels).
- A-12 Parking Structures, 1 or 2 Stories, Below Grade.
- A-13 Pre-engineered Building/Greenhouse (550-1132 SF).
- A-14 Pre-engineered Building/Greenhouse (1132-2264 SF).
- A-15 Pre-engineered Building/Warehouse, 1 Story.

The interior costs are displayed in the Series B matrices and include the following categories. Each category is broken down to further account for differences in size and use of each broad category definition.

- Series 100** - Classroom Facilities
- Series 200** - Laboratory Facilities
- Series 300** - Office Facilities
- Series 400** - Study Facilities
- Series 500** - Special Use Facilities (athletic)
- Series 600** - General Use Facilities (non-athletic)
- Series 700** - Support Facilities
- Series 800** - Health Care Facilities
- Series 900** - Residential
- Series WXYZ** - Non-assignable Areas

Defining the Project

At the Program and Conceptual stage of project initiation, information about the requirements for the project is generated by the user and recorded. How many classrooms of what specific size and use are required, how many faculty offices, conference rooms, laboratories, etc. All of these requirements should be recorded using the interior use categories established in the Postsecondary Education Facilities Inventory and Classification Manual as expanded for use in the Construction Cost Control & Professional Fee Guidelines (see chapter 9). The assignable area is determined by the programmer based on the users requirements.

Non assignable areas include corridors, restrooms, mechanical rooms, electrical rooms, janitor closets and the like. These spaces are categories WWW, XXX, YYY & ZZZ in the space types. The size of these spaces is determined by the programmer based on user requirements, the mix of uses contemplated, traffic, location on campus and other factors. Non assignable areas account for 30% to 50% or more of the total area of educational buildings based on these considerations.

The gross area is the sum of the assignable area plus the non assignable area. Occasionally discussion occurs concerning the thickness of walls and partitions. These items should be included in both assignable and non assignable allowances.

The building configuration is determined next based on gross area required for the intended use, the site space available and other factors.

Combinations of Building Configuration Categories

There are cases when one building configuration category is not appropriate for the entire project. An example is a multi-story classroom/office building with a basement and a sub-basement. This building should be considered as a combination of two categories.

A-5 Institutional, Multi-Story 6 thru 10 stories, Classroom/Offices.

A-6 Institutional, 1 or 2 stories below grade, Classroom/Offices (Building Above).

The shell cost displayed in the matrices should be applied to the gross area of each part and the two extensions added to obtain the total shell cost.

A similar situation would exist where one wing of a building may be one category and the other wing some different category.

If the proposed building is an unusual configuration such as round, triangular, u-shaped or if the upper floors are to be significantly larger or smaller than lower floors the cost should be evaluated separately since the models assume normal aspect ratios.

The basis for the sub-structure and the structural systems (2.1 and 3.0) is concrete, including all columns, beams, floor and roof structural systems, unless otherwise noted. This is both the optimum structural system, given the variety of structures which are part of these guidelines, as well as a structural system frequently used in Arizona.

Building Use (Interiors) Cost

Having determined the shell cost for the project the interiors cost should be considered next. Determine the total assignable area required for each interiors category from the program. It is recommended that service facility for educational spaces such as classrooms, (Series B-100) and laboratories (Series B-200) be priced the same as the specific use which it serves. If the program calls for storage, preparation, or service facility in conjunction with a lecture classroom for physics then the service facility would be priced under category B-115 (Lecture Classroom - to 200, Type B).

Apply the unit cost for each specific interior use category to the total assignable area (including service facility) for that category. The unassigned areas for categories WWW, XXX, YYY & ZZZ must be included in the interior use cost. The total interior cost is the sum of all extensions for interior use space.

Total Construction Cost

The total construction cost is the sum of the shell cost and the interior cost.

Contingency and inflation adjustment factors should be applied to the total construction cost as outlined in Chapter 4 and Chapter 6.

If Federal Funding is to be used the adjusted construction cost should be modified as outlined in Chapter 7.

There are two sets of matrices included in the guidelines. One set is applicable to projects located in the Phoenix and Tucson metropolitan areas and the other is applicable to projects located in the Flagstaff area. Projects located outside these areas will have costs different from those displayed in the matrices depending on location. Very remote sites will have higher cost due to transportation considerations.

The costs displayed in the matrices include subcontractor and general contractor overhead and profit, insurance, bonds, and general conditions. No additional allowance for these items is necessary.

Renovation Projects

The cost displayed in the matrices are for new construction projects only. The scope of renovation projects varies with each individual case and must be clearly defined in terms of the work to be accomplished. Demolition costs are almost always applicable to renovation projects and the extent and difficulty of demolition cannot be broadly defined. For these reasons renovation cost control guidelines cannot be formulated.

Small Projects

The cost in the guidelines are applicable to projects expected to cost at least \$1,000,000. The unit cost of smaller projects will be higher than the unit cost for larger projects due to the decreased purchasing discounts and the fixed cost for overhead and general conditions.

Items NOT included in Construction Cost Control Guidelines.

The following items are not covered and if required must be considered separately.

Site Work

Utilities Extensions

Land Acquisition

F/F/E Movable

Move-in Costs

Special fixed equipment

Electronic Equipment such as: telecommunications switches, microphones, television cameras, monitors, television sets, telephone hand sets, computers, servers, routers, hubs.

Parking Reserve

Utility Systems Reserve

Remodeling and Renovation

Demolition

Surveys and Geotechnical Investigations

***2A. NET TO GROSS RATIO**

Purpose: This section is to provide guidelines to apply to conceptual programs in order to arrive at the gross area of a proposed facility. The building "shell" cost portion of the conceptual estimate can then be calculated using the costs displayed Series A Structural/Building Configuration Matrix.

Background: The existing data base of university facilities catalogues the net assignable areas of various uses on the basis of floor area between the faces of the dividing walls and partitions. The gross area is generally catalogued on the basis of the total area measured to the exterior face of the exterior walls. The net to gross ratio is expressed as the percentage of net assignable area to the gross area. Non assignable areas include public spaces, corridors, toilet facilities and utility spaces.

There are a number of variations in definitions between higher education and general industry practice, which can be attributed to how floor areas are measured. Higher education inventory systems focus upon the amount of space that can be assigned to a program as defined in the *Postsecondary Education Facilities Inventory and Classification Manual*. State and Federal auditors also use the definitions provided in this manual. Another measuring system includes the area taken by interior partitions (e.g., American Institute of Architects and Building Owners and Managers Association, BOMA). This illustrates the differences between design practice and maintaining a facilities inventory of existing buildings. These deviations will not create problems with preparing conceptual cost estimates, but must be recognized when comparing net to gross ratios.

The net to gross ratio of any building depends on the configuration of the design. There is a wide variation in ratios for buildings of similar uses based on the configuration. The data in this section presents rough statistical averages for various uses commonly found in higher education facilities. The raw data was obtained from the three universities in Arizona and from universities in Ohio, Nebraska, Indiana and Oklahoma.

Definitions: Net assignable area is the area required for specific uses such as; classrooms, laboratories, offices, conference rooms, auditoriums, dining rooms, storage rooms, shops and other functional spaces. Assignable area is measured to the interior face of enclosing walls.

Non assignable area is the area required to support the functions located in the assignable spaces such as circulation spaces, rest rooms, utility spaces and other service areas.

Gross area is the total area of the building measure to the exterior face of the exterior walls.

* Added April 29, 2002

Net to Gross Ratios:

Building Type:	High	Low	Average	# of buildings Analyzed	# of Universities
Auditorium/Arena/Phys Ed.	88%	21%	63%	27	6
Classroom	76%	54%	60%	47	5
Laboratory	78%	30%	58%	46	4
Library	83%	64%	71%	9	4
Office	87%	46%	62%	17	5
Residential	82%	44%	68%	21	4
Storage / Warehouse	98%	77%	88%	22	3
Student Union	79%	57%	61%	7	3

Added April 29, 2002

3. PROFESSIONAL FEE GUIDELINES

Professional services required for University projects are defined in the following documents:

- Standard Form of Agreement Between Owner and Architect AIA B141, 1977 Edition.
- Supplements and Amendments to Standard Forms of Agreement Between Owner and Architect, AIA B141, 1977 Edition, with Appendices.
- Standard Form of Agreement Between Owner and Architect with Construction Manager AIA B141/CM 1980 Edition.
- Supplements and Amendments to Standard Form of Agreement Between Owner and Architect, with Construction Manager with Appendices.
- Standard Form of Agreement Between Owner and Construction Manager B801, 1980 Edition.
- Supplements and Amendments to the Standard Form of Agreement Between Owner and Construction Manager B801, 1980 Edition.

In addition to the above listed documents defining professional services each institution has their own requirements:

- ASU-Main: University Design Review Board Requirements; April 27, 1993.
Consultant Manual for Architects, Engineers, Construction Managers,
Revised; December 1994.
- ASU-West: Newly Formed, Design Review Board Requirements. (Not published as of January 1,
1995).
- NAU: Appendix A, Guidelines for Professional Consultants; August 8, 1994.
- UofA: Planning and Design Review Advisory Committee (P.A.D.R.A.C.) Requirements; May
18, 1993. Exhibit "C", Scope of Construction Management Services; Not dated. Scope
of Consultant Services; Not dated. Design and Specifications Guidelines for Construction
Projects; Revised November, 1992.

Included herein is a summary of the services required by the above documents. All of the required services are in the guidelines displayed in the matrices which follow,

The cost of reproduction of deliverables which consist generally of the required review materials and reports at each phase of the professional services are included in the professional fee guidelines. The cost of reproduction of the Contract Documents for use by contractors during the Construction Phase and for Bidding Purposes is not included.

The professional fees for normal engineering services as defined by the agreements are included in the guidelines. For the purposes of clarification, the following engineering services are considered "normal":

Structural Engineering

Mechanical (HVAC and Plumbing) and Fire Protection Engineering

Electrical Engineering

Professional fees for special consultants not considered "normal" (if required) are in addition to the fees included in the guidelines. Examples of special consultants include the following:

Food Services Equipment Consultant

Telecommunications Consultant

Acoustical Engineering Consultant

Vibration Consultant

Theater Equipment Consultant

Laboratory Equipment Consultant

Hospital Equipment Consultant

Civil Engineering Consultant

Landscape Architect

Radiation Shielding Consultant

Interior Design

Signage and Graphics

Professional fees for those services which the documents define as the Owner's responsibility are not included in the guidelines. Generally these services consist of the following:

Site Survey

Exploratory Borings and Geotechnical Analysis

Legal Fees

Accounting Fees

Fees for review of documents by regulatory agencies and for construction permits etc. are not included in the professional fee guidelines.

Construction Management services may be utilized for major projects. The services required of Construction Managers are defined in the Agreements and the Supplements to the Agreements. The manning level required on site during construction is not specifically defined in the documents. The consensus of the on site manning requirements displayed below has been used to formulate the guidelines for construction management fees. Adjustments are required when the manning level differs from the consensus or when services are different than those defined when the agreements are negotiated.

FIELD STAFF REQUIRED DURING CONSTRUCTION					
(MAN HOURS/WEEKS)					
PROJECT SIZE - CONSTRUCTION COST (in thousands of Dollars)					
	\$ 1,000	\$ 2,000	\$ 5,000	\$ 10,000	\$ 20,000 +
ARCHITECTURAL ENGINEERING SERVICES (MAN HOURS/WEEK)					
ARCHITECTURAL	8	10	12	16	24
STRUCTURAL	3	4	6	8	12
MECHANICAL/PLUMBING	4	4	6	8	12
ELECTRICAL	1	4	6	8	12

PROJECT SIZE - CONSTRUCTION COST (in thousands of Dollars)												
	\$ 2,000 - \$ 5,000			\$ 5,000 - \$ 10,000			\$ 10,000 - \$ 20,000			\$ 20,000 +		
CONSTRUCTION MANAGER SERVICES (MAN HOURS/WEEK)												
	FULL	AV	LTD	FULL	AV	LTD	FULL	AV	LTD	FULL	AV	LTD
HOME OFFICE	8	2	0	16	8	0	24	12	8	32	12	8
FIELD PROJ MGR	30	26	20	40	30	24	40	38	30	40	40	40
ASST MGR	0	0	0	0	0	0	24	0	0	40	20	0
SECR	8	4	0	20	10	8	32	12	10	40	20	12

SCOPE OF ARCHITECTURAL/ENGINEERING SERVICES REQUIRED WITHOUT A CONSTRUCTION
MANAGER

01. PRE-PROGRAMMING PHASE

- A. Architect must have an informal session with DRB or Facilities Department to ascertain their input on campus-related concerns on the site and building.
- B. The Architect may be required to prepare a site constraints/opportunities analysis and preliminary building size and conceptual alternative configurations ready for submission to DRB or Facilities Department for the informal session.
- C. ASU-Main: Weekly meetings with Building Committee and user.

1. PROGRAM PHASE

- A. The Owner must present the Architect with a facilities program which defines the requirements for spaces to be included in the facility.
- B. Architect must expand and re-define the facility program into a complete architectural program which accounts for required circulation and unassigned space and studies adjacencies and traffic flow.
- C. Architect must prepare a written report containing information in points A and B and the specifics required in Appendices of the Supplements and Amendments contract.
- D. Architect is responsible for a program phase cost estimate.
- E. Meetings:
 - 1. ASU-Main: Weekly meetings with Building Committee and user.
 - 2. UofA: Meetings with F.D.C. Coordinator and user departments.

0.2 PRE-DESIGN PHASE

- A. The Architect shall have an informal session with the DRB or the Facilities Department in order to ascertain their specific design criteria on the site and building within the framework of the architectural program.
- B. The Architect must submit a site analysis to include campus context, relationship to campus systems, campus land use plan and a building program criteria to the DRB or Facilities Department at the session. The UofA requires the AE to:
 - 1. Prepare a minimum of three different concepts.
 - 2. Contact University Personnel to discuss and agree to system appropriate for the project.

C. ASU-Main:

1. Kick-off meeting with Design Project Manager to review University Planning and Construction and Arizona Board of Regents Policies and Procedures.
2. Weekly meetings with Building Committee and user.

2. **SCHEMATIC DESIGN PHASE**

- A. The Architect shall provide a preliminary evaluation of the program and the project budget requirements.
- B. The Architect will prepare Schematic Design Documents based on approved program from Pre-Design Phase and the minimum requirements set in Appendices of the Supplement and Amendments Contract.
- C. The Architect will submit a statement of Probable Construction Cost.
- D. The Architect shall give a formal presentation to the DRB or the Facilities Department on the completed schematic design of the project.
- E. A building code analysis, a building massing study and exterior elevations with material choices noted are required for the presentation along with requirements in Appendices.
- F. The Architect shall assist the Owner in preparation of ABOR Project approval submission.
- G. ASU-Main: Schematic Design submittal to be signed off by Building Committee, City, State or Federal Agencies involved.

NAU: Plan Review to insure that design proceeds according to Land Development and Lighting Codes, special to NAU

3. **DESIGN DEVELOPMENT PHASE**

- A. The Architect shall prepare Design Development Documents according to the minimum requirements set in Appendices of the Supplements and Amendments Contract.
- B. The Architect must submit a further Statement of Probable Construction Cost.
- C. The Architect must have a formal presentation to the DRB or the Facilities Department on the completed design development of the project.
- D. Material and color selections, building code analysis and a model are required for the presentation along with the requirements in Appendices.
- E. ASU-Main: Design Development submittal to be signed off by Building Committee, City, State or Federal Agencies involved.

NAU: Code compliance review of Design Development.

4. CONSTRUCTION DOCUMENTS PHASE

- A. The Architect shall prepare Construction Documents consisting of Drawings and Specifications for the construction of the project.
- B. The Architect is responsible for the adequacy, fitness, completeness, suitability and correctness of the documents.
- C. The Architect shall assist the Owner in preparation of the necessary bidding forms, contracts and forms of agreement.
- D. The Architect shall advise the Owner of any adjustments to Statements of Probable Construction Cost.
- E. The Architect shall prepare and file documents that require approval of government authorities.
- F. The Architect shall assist the Owner in preparation of ABOR pre-bid notification.
- G. ASU-Main: 100% presentation to the Building Committee.
NAU: Code compliance review just prior to release of bid documents.

5. BIDDING OR NEGOTIATION PHASE

- A. The Architect shall assist the Owner in obtaining bids or negotiated proposals.
- B. It is the Architect's responsibility, at no cost to the Owner, to revise all or any part of the drawings and/or specifications of the project to reduce the project cost to within the budget.

6. CONSTRUCTION PHASE

- A. The Architect and his consultants are required to make weekly field observations, and from those observations, the Architect is to submit weekly progress reports to the Owner.
- B. The Architect shall render interpretations necessary for the proper execution of progress of work.
- C. The Architect must administer Contracts for Construction.
- D. The Architect shall issue Project Certificates for Payment.
- E. The Architect shall be the initial interpreter of the requirements of the Contract Documents.
- F. The Architect shall receive and review Contractor's submittals such as Shop Drawings, Product Data and Samples and take appropriate action upon them.
- G. The Architect shall prepare Change Orders for Owner's approval.
- H. The Architect shall prepare a Punch List.
- I. The Architect shall have follow-up inspections when punch list items have been accomplished.
- J. The Architect shall conduct an inspection to determine the Dates of Substantial Completion and Final Completion and shall issue appropriate Project Certificates for Payment.

- K. Final as-built drawings to be on computer, CAD disk.
- L. ASU-Main: Monthly meetings with the Building Committee. Facilities Management Team to make periodic site visits on their own schedule and report to the AE, who must respond in writing with action taken.

7. POST CONSTRUCTION SERVICES

- A. The Architect shall conduct a post construction evaluation and inspection prior to expiration of the warranty and guarantee period and issue a written report to the Facilities Department.
- B. ASU-Main: AE shall assist in the preparation of the following:
 - 1. Reconciliation of the project account.
 - 2. Completion of ABOR forms 7-7 and 7-8.
 - 3. Vice President for Administrative Services project summary report.

SCOPE OF ARCHITECTURAL/ENGINEERING SERVICES REQUIRED WITH A CONSTRUCTION MANAGER

01. PRE-PROGRAMMING PHASE

- A. Architect must have an informal session with DRB or Facilities Department to ascertain their input on campus-related concerns on the site and building.
- B. The Architect may be required to prepare a site constraints/opportunities analysis and preliminary building size and conceptual alternative configurations ready for submission to DRB or Facilities Department for the informal session.
- C. ASU-Main: Weekly meetings with Building Committee and user.

1. PROGRAM PHASE

- A. The Owner must present the Architect with a facilities program which defines the requirements for spaces to be included in the facility.
- B. Architect must expand and re-define the facility program into a complete architectural program which accounts for required circulation and unassigned space and studies adjacencies and traffic flow.
- C. Architect must prepare a written report containing information in points A and B and the specifics required in Appendices of the Supplements and Amendments contract.
- D. Architect is responsible for a program phase cost estimate, if estimate is not within 5% of the estimate prepared by the CM, AE and CM must reinvestigate and correct.
- E. Meetings:
 - 1. ASU-Main: Weekly meetings with Building Committee and user.
 - 2. UofA: Meetings with F.D.C. Coordinator and user departments.

0.2 PRE-DESIGN PHASE

- A. The Architect shall have an informal session with the DRB or the Facilities Department in order to ascertain their specific design criteria on the site and building within the framework of the architectural program.
- B. The Architect must submit a site analysis to include campus context, relationship to campus systems, campus land use plan and a building program criteria to the DRB or Facilities Department at the session. The UofA requires the AE to:
 - 1. Prepare a minimum of three different concepts, which are within the budget.
 - 2. Contact University Personnel to discuss and agree to system appropriate for the project.

C. ASU-Main:

1. Kick-off meeting with Design Project Manager to review University Planning and Construction and Arizona Board of Regents Policies and Procedures.
2. Weekly meetings with Building Committee and user.

2. **SCHEMATIC DESIGN PHASE**

- A. Based on approved program, the Architect shall, with the Construction Manager, review site use and improvements, selection of materials, building systems and equipment, construction methods and methods of project delivery.
- B. The Architect shall provide a preliminary evaluation of the program and the project budget requirements.
- C. The Architect will prepare Schematic Design Documents based on approved program and Concept Design from Pre-Design Phase and the minimum requirements set in Appendices of the Supplement and Amendments Contract.
- D. The Architect will provide Schematic Design studies for the Construction Manager's review and upon completion of the phase, the Architect shall provide approved documentation for the Construction Manager's use.
- E. The Architect will submit a statement of Probable Construction Cost, if not within 5% of the estimate by the CM, AE & CM must reinvestigate and correct.
- F. The Architect shall give a formal presentation to the DRB or the Facilities Department on the completed schematic design of the project.
- G. A building code analysis, a building massing study and exterior elevations with material choices noted are required for the presentation along with requirements in Appendices.
- H. The Architect shall assist the Owner in preparation of ABOR Project approval submission.
- I. ASU-Main: Schematic Design submittal to be signed off by Building Committee, City, State or Federal Agencies involved.

NAU: Plan Review to insure that design proceeds according to Land Development and Lighting Codes, special to NAU

3. **DESIGN DEVELOPMENT PHASE**

- A. The Architect shall prepare Design Development Documents according to the minimum requirements set in Appendices of the Supplements and Amendments Contract.
- B. The Architect shall provide Design Development Documents for the Construction Manager's review and upon completion of the phase, the Architect shall provide approved documentation for the Construction Manager's use.

- C. The Architect shall submit a further Statement of Probable Construction Cost, which will correlate with the CM Estimate within 5% as in the schematic phase.
- D. The Architect must have a formal presentation to the DRB or the Facilities Department on the completed design development of the project.
- E. Material and color selections, building code analysis and a model are required for the presentation along with the requirements in Appendices.
- F. ASU-Main: Design Development submittal to be signed off by Building Committee, City, State or Federal Agencies involved.

NAU: Code compliance review of Design Development.

4. CONSTRUCTION DOCUMENTS PHASE

- A. The Architect shall prepare Construction Documents consisting of Drawings and Specifications for the construction of the project.
- B. The Architect is responsible for the adequacy, fitness, completeness, suitability and correctness of the documents.
- C. The Architect shall assist the Owner and Construction Manager in preparation of the necessary bidding forms, contracts and forms of agreement.
- D. The Architect shall prepare and file documents that require approval of government authorities.
- E. The Architect shall assist the Owner in preparation of ABOR pre-bid.
- F. ASU-Main: 100% presentation to the Building Committee.
NAU: Code compliance review just prior to release of bid documents.
- G. The Architect shall submit a further Statement of Probable Construction Cost, which will correlate with the CM Estimate within 5%.
- H. The Architect shall participate with the Construction Manager in constructability review of Contract Documents.

5. BIDDING OR NEGOTIATION PHASE

- A. The Architect shall assist the Construction Manager in obtaining bids or negotiated proposals.
- B. It is the Architect's responsibility, at no cost to the Owner, to revise all or any part of the drawings and/or specifications of the project to reduce the project cost to within the budget.

6. CONSTRUCTION PHASE

- A. The Architect and his consultants are required to make weekly field observations, and from those observations, the Architect is to submit weekly progress reports to the Owner.
- B. The Architect shall render interpretations necessary for the proper execution of progress of work.

- C. The Architect in cooperation with the Construction Manager shall provide administration of the contracts for construction.
- D. The Architect shall issue Project Certificates for Payment.
- E. The Architect shall be the initial interpreter of the requirements of the Contract Documents.
- F. The Architect shall receive and review Contractor's submittals such as Shop Drawings, Product Data and Samples and take appropriate action upon them.
- G. The Architect shall take appropriate action on Change Orders prepared by the Construction Manager for the Owner's authorization.
- H. The Architect shall prepare a Punch List.
- I. The Architect shall have follow-up inspections when punch list items have been accomplished.
- J. The Architect, assisted by the Construction Manager shall conduct inspections to determine the Dates of Substantial Completion and Final Completion and shall issue appropriate Project Certificates for Payment.
- K. Final as-built drawings to be on computer, CAD disk.
- L. ASU-Main: Monthly meetings with the Building Committee. Facilities Management Team to make periodic site visits on their own schedule and report to the AE, who must respond in writing with action taken.

7. POST CONSTRUCTION SERVICES

- A. The Architect shall conduct a post construction evaluation and inspection prior to expiration of the warranty and guarantee period and issue a written report to the Facilities Department.
- B. ASU-Main: AE shall assist in the preparation of the following:
 - 1. Reconciliation of the project account.
 - 2. Completion of ABOR forms 7-7 and 7-8.
 - 3. Vice President for Administrative Services project summary report.

SCOPE OF CONSTRUCTION MANAGEMENT SERVICES

It was during interviews for the update of the cost control guidelines that it was found that the services required from the Construction Manager were not standard for each University and consequently the fee in the guidelines was not appropriate. The result is the following three levels of Construction Management Services and the corresponding fee schedule.

I. CONSTRUCTION MANAGEMENT - FULL SERVICE

1. Preconstruction Phase

- A. Assist the owner in hiring the architect and reviewing architectural proposals.
- B. Preliminary evaluation of the Program and Project budget requirements. Before the project gets into full action the CM is to define milestones, identify items on the critical path and prepare to monitor progress.
 - (1) With the AE's assistance prepare preliminary estimates for early conceptual and schematic designs based on area, volume or other standards.
 - (2) Assist the owner and AE in achieving a mutually agreed upon Program, Project budget requirements, schedule and other design parameters.
 - (3) Provide cost evaluation of alternative materials and systems.
 - (4) Provide analysis of market conditions, inflation and constructability of various systems.
- C. Review designs during their development.
 - (1) Advise on construction staging, site use and improvements, materials, building systems and equipment.
 - (2) Provide recommendations on construction methods, availability of materials and labor, time requirements for procurement, installation and construction and factors relating to cost.
 - (a) alternative designs or materials
 - (b) preliminary budgets
 - (c) possible economies
 - (d) constructability issues
 - (3) Coordinate review of design phase submittals from the AE. Organize and convene round table discussion of comments with reviewers and AE and distribute these back to the reviewers. Assist in resolving conflicting comments. Follow up on unresolved issues and note status of these at weekly meetings.
 - (4) Review for completeness and constructability and recommend owner's approval of design phase submittals.
 - (5) Review of Design Phase Submittals: The CM shall provide written review comments to each Design Phase Submittal on the owner's standard form or a reasonable facsimile thereof.
- D. Provide a Project Schedule that coordinates and integrates Construction Manager's services, AE Services and Owners responsibilities. Indicate progress and critical path analysis for the project.

- E. Prepare detailed estimate of Construction Cost based on Schematic Design Documents and update and refine the estimate as Design Development and Construction Documents are prepared. Advise the owner and the AE if it appears the Construction Cost may exceed the budget and make recommendations for corrective action. The estimates independently prepared by the CM and the AE are to be within 5% of each other. When they are not, the CM and AE are to coordinate and resolve.
- F. The CM shall coordinate Contract Documents regarding Drawings and Specifications as they are being prepared and recommend alternative solutions whenever design details affect construction feasibility, cost or schedule.
- G. Advise on responsibility for assignment of safety precautions and programs; temporary project facilities; and equipment, materials and services for common use of Contractors.
- H. Advise on the separation of the Project into Contracts for various categories of Work. Advise on method to be used for selecting Contractor and awarding Contracts. If separate contracts, review drawings and specifications to ensure that:
 - (1) Work of separate contracts is coordinated.
 - (2) All requirements have been assigned to the appropriate separate contract.
 - (3) Likelihood of jurisdictional disputes has been minimized.
 - (4) Proper coordination has been provided for phased construction.
- I. The CM will develop a Project Construction Schedule providing for all major elements. A Schedule needs to be provided for each set of Contract Bidding Documents, if the project is separated into various work category contracts.
- J. The CM shall provide an analysis of the types and quantities of labor required for the Project. Identify requirements for equal employment opportunity programs.
- K. The CM will conduct pre-bid conferences and develop bidder's interest in the project.
- L. The CM will assist the Architect in receiving bids, prepare bid analysis and make recommendations to the Owner.
- M. Convene weekly meetings of the Project Team and issue minutes prior to the following weekly meeting.
 - (1) Follow up on and track resolution of issues that arise at weekly meetings.
- N. Schedule and document special meetings as required to resolve issues that arise.
- O. Communications:
 - (1) Review existing procedures for communications, establishing new procedures as required.
 - (2) Meet at least once a week or as needed to review project status with owner's Project Manager.
 - (3) Convene weekly progress meetings and issue minutes.
 - (4) Work closely with User Group Representatives and AE to resolve issues through prescribed communication channels.

- (5) Coordinate and resolve issues with various University entities through prescribed communication channels.
- P. Coordinate with AE and owner on connections to owner and public utility services and obtain fee information for these connections. Coordinate with local utilities and authorities, as required.
- Q. Resolve majority of daily project management issues. Work closely with Project Manager, particularly in matters of University policy, Project Budget breakdown, Project Schedule, Arizona Board of Regents (ABOR) approvals, Optional Bid Items, etc. Make recommendations as appropriate.
- R. Provide Project Manager with regular monthly breakdown on status of project budget based on approved budget, committed and uncommitted funds (3 or 4 column format). Obtain information on funds committed/expended from Coordinator on a monthly basis and verify accuracy.

Verification of Accuracy of Funds Committed/Expended: This portion of the work relates to the Land Acquisition, Construction, Consultant Fees, Contingencies, Telecommunications, Surveys/Tests/Inspections and Printing/Advertising lines in the project budget. This work shall track expenditures from these lines and shall project future needs (refer also to the Cash Flow work, below). The FDC and Facilities Management lines are not included in this work.

Cash Flow Analysis. The CM prepare a baseline Cash Flow forecast at the outset of the Project, shall report actual versus forecast during of the Project, shall report actual versus forecast amounts and offer explanations for differences. The Cash Flow shall cover all phases of the project, be organized per the owner's Project Cost Summary line items and shall be updated monthly.

- S. Prepare monthly billing for construction management services with proper documentation and review it with Coordinator prior to formal submittal. Maintain a detailed computer based project accounting system of all construction management cost.
- T. Review of AE and Contractor Payment Applications. The CM shall review the invoices and backup information submitted by the Design Consultant (AE) related to the design work actually accomplished and advise the Coordinator, accordingly. The CM shall review AE proposals for additional services and advise the Coordinator. During the construction phase, the CM shall similarly review contractor Pay Applications and Change Order requests and advise the Construction Project Manager.
- U. Advise Project Manager on construction staging areas, haul routes, public utility, City and County service and construction permitting and coordination with other work. Ensure construction contract documents include clear direction to bidders on these items.
- V. Review owner's Design and Specification Guidelines with Project Manager and assure they are implemented.
- W. Act in the best interests of the University at all times.

2. Construction Phase

- A. The CM, in cooperation with the Architect, shall provide administration of the Contracts for Construction.
- B. Coordinate the work of separate Contractor's with each other and with the activities and responsibilities of CM, Owner and Architect.
- C. The CM shall review the Contractor's proposed cost-loaded construction schedule to verify that it meets the requirements of the Contract Documents. The CM shall advise the owner regarding acceptance of the schedule.
- D. The CM schedule and conduct pre-construction, construction and progress meetings. Prepare and promptly distribute minutes.
- E. The CM shall update the Project Construction Schedule to show current conditions and revisions required.
- F. It is the responsibility of the CM to revise and refine the approved estimate of Construction Cost, provide regular monitoring, showing actual cost of activity in progress and estimates for uncompleted tasks.
- G. Recommend necessary or desirable changes to the AE and Owner, review requests for changes, assist in negotiating Contractor's proposals, recommend desirable changes, prepare and sign Change Orders for Architect's signature and Owner's authorization.
- H. Determine in general that the Work of each Contractor is being performed in accordance with the requirements of the Contract Documents. Endeavor to guard the Owner against defects and deficiencies in the Work. As appropriate, require special inspection or testing, or make recommendations to the Architect regarding special inspection or testing, of Work not in accordance with the provisions of the Contract Documents whether or not such Work be then fabricated, installed or completed. Subject to review by the Architect, reject Work which does not conform to the requirements of the Contract Documents.
- I. Assist in obtaining Building Permits and special permits, verify that Owner has paid applicable fees, assist in obtaining approvals from authorities.
- J. Assist the owner in selecting testing laboratories.
- K. The CM shall transmit to the Architect, Shop Drawings, Product Data, Samples and Submittals which have been recommended for approval.
- L. The CM shall keep a daily log containing a record of weather, Contractor's work on site, number of workers, work accomplished, problems encountered and similar relevant data.
- M. The CM shall document the construction effort photographically, paying particular attention to essential building functions and work that will become enclosed as the work progresses. It is expected that this effort will require at least weekly attention. A professional photographer is not required nor expected.

- N. The CM shall prepare a detailed monthly report giving construction status, photos, current state of the budget, list of change orders etc. and a statement that the project can still be completed within the budget.
- O. The CM shall prepare for the Architect a list of incomplete or unsatisfactory items and a schedule for their completion. Assist Architect in conducting inspections and coordinate the correction and completion of the work.
- P. Make recommendations when work is finally complete, assist the Architect in conducting final inspection, secure and transmit to Owner all required guarantees, affidavits, releases, bonds and waivers, keys, manuals, record drawings and maintenance stocks.

II. CONSTRUCTION MANAGEMENT - AVERAGE SERVICE

1. Preconstruction Phase

- A. Preliminary evaluation of the Program and Project budget requirements.
 - (1) With the AE's assistance prepare preliminary estimates for early schematic designs based on area, volume or other standards.
 - (2) Assist the owner and AE in achieving a mutually agreed upon Program, Project budget requirements and other design parameters.
 - (3) Provide cost evaluation of alternative materials and systems.
- B. Review designs during their development.
 - (1) Advise on site use and improvements, materials, building systems and equipment.
 - (2) Provide recommendations on construction methods, availability of materials and labor, time requirements for procurement, installation and construction and factors relating to cost.
 - (a) alternative designs or materials
 - (b) preliminary budgets
 - (c) possible economics
 - (d) constructability issues
- C. Provide a Project Schedule that coordinates and integrates Construction Manager's services, AE Services and Owners responsibilities. Indicate progress and critical path analysis for the project.
- D. Prepare detailed estimate of Construction Cost based on Schematic Design Documents and update and refine the estimate as Design Development and Construction Documents are prepared. Advise the owner and the AE if it appears the Construction Cost may exceed the budget and make recommendations for corrective action.
- E. The CM shall coordinate Contract Documents regarding Drawings and Specifications as they are being prepared and recommend alternative solutions whenever design detail affect construction feasibility, cost or schedule.
- F. Advise on responsibility for assignment of safety precautions and programs; temporary project facilities; and equipment, materials and services for common use of Contractors.

- G. Advise on the separation of the Project into Contracts for various categories of Work. Advise on method to be used for selecting Contractor and awarding Contracts. If separate contracts review drawings and specifications to ensure that:
 - (1) Work of separate contracts is coordinated.
 - (2) All requirements have been assigned to the appropriate separate contract.
 - (3) Likelihood of jurisdictional disputes has been minimized.
 - (4) Proper coordination has been provided for phased construction.
- H. The CM will develop a Project Construction Schedule providing for all major elements. A Schedule needs to be provided for each set of Contract Bidding Documents.
- I. The CM shall provide an analysis of the types and quantities of labor required for the Project. Identify requirements for equal employment opportunity programs.
- J. The CM will conduct pre-bid conferences and develop bidder's interest in the project.
- K. The CM will assist the Architect in receiving bids, prepare bid analysis and make recommendations to the Owner.

2. Construction Phase

- A. The CM, in cooperation with the Architect, shall provide administration of the Contracts for Construction.
- B. Coordinate the work of separate Contractor's with each other and with the activities and responsibilities of CM, Owner and Architect.
- C. The CM schedule and conduct pre-construction, construction and progress meetings. Prepare and promptly distribute minutes.
- D. The CM shall update the Project Construction Schedule to show current conditions and revisions required.
- E. It is the responsibility of the CM to revise and refine the approved estimate of Construction Cost, provide regular monitoring, showing actual cost of activity in progress and estimates for uncompleted tasks.
- F. Recommend necessary or desirable changes to the AE and Owner, review requests for changes, assist in negotiating Contractor's proposals, prepare and sign Change Orders for Architect's signature and Owner's authorization.
- G. Determine in general that the Work of each Contractor is being performed in accordance with the requirements of the Contract Documents. Endeavor to guard the Owner against defects and deficiencies in the Work. As appropriate, require special inspection or testing, or make recommendations to the Architect regarding special inspection or testing, of Work not in accordance with the provisions of the Contract Documents whether or not such Work be then fabricated, installed or completed. Subject to review by the Architect, reject Work which does not conform to the requirements of the Contract Documents.

- H. Assist in obtaining Building Permits and special permits, verify that Owner has paid applicable fees, assist in obtaining approvals from authorities.
- I. Assist the owner in selecting testing laboratories.
- J. The CM shall transmit to the Architect, Shop Drawings, Product Data, Samples and Submittals which have been recommended for approval.
- K. The CM shall keep a daily log containing a record of weather, Contractor's work on site, number of workers, work accomplished, problems encountered and similar relevant data.
- L. The CM shall prepare for the Architect a list of incomplete or unsatisfactory items and a schedule for their completion. Assist Architect in conducting inspections and coordinate the correction and completion of the work.
- M. The CM shall prepare a detailed monthly report giving construction status, photos, current state of the budget, list of change orders etc. and a statement that the project can still be completed within the budget.
- N. Make recommendations when work is finally complete, assist the Architect in conducting final inspection, secure and transmit to Owner all required guarantees, affidavits, releases, bonds and waivers, keys, manuals, record drawings and maintenance stocks.

III. CONSTRUCTION MANAGEMENT - LIMITED SERVICE

I. Preconstruction Phase

- A. Preliminary evaluation of the Program and Project budget requirements.
 - (1) With the AE's assistance prepare preliminary estimates for early schematic designs based on area, volume or other standards.
 - (2) Assist the owner and AE in achieving a mutually agreed upon Program, Project budget requirements and other design parameters.
 - (3) Provide cost evaluation of alternative materials and systems.
- B. Review designs during their development.
 - (1) Provide recommendations on factors relating to cost:
 - (a) alternative designs or materials
 - (b) preliminary budgets
 - (c) possible economics
 - (d) constructability issues
- C. Prepare detailed estimate of Construction Cost based on Schematic Design Documents and update and refine the estimate as Design Development and Construction Documents are prepared. Advise the owner and the AE if it appears the Construction Cost may exceed the budget and make recommendations for corrective action.
- D. The CM will develop a Project Construction Schedule providing for all major elements.

2. Construction Phase

- A. The CM shall schedule and conduct pre-construction, construction and progress meetings. Prepare and promptly distribute minutes.
- B. The CM shall update the Project Construction Schedule to show current conditions and revisions required.
- C. Determine in general that the Work of each Contractor is being performed in accordance with the requirements of the Contract Documents. Endeavor to guard the Owner against defects and deficiencies in the Work. As appropriate, require special inspection or testing, or make recommendations to the Architect regarding special inspection or testing. of Work not in accordance with the provisions of the Contract Documents whether or not such Work be then fabricated, installed or completed. Subject to review by the Architect, reject Work which does not conform to the requirements of the Contract Documents.
- D. The CM shall transmit to the Architect, Shop Drawings, Product Data, Samples and Submittals which have been recommended for approval.
- E. Assist Architect in conducting inspections and coordinate the correction and completion of the work.
- F. Make recommendations when work is finally complete, assist the Architect in conducting final inspection, secure and transmit to Owner all required guarantees, affidavits, releases, bonds and waivers, keys, manuals, record drawings and maintenance stocks.

METHOD

Fees for Professional Services vary depending on the complexity of the Project, its size (expressed in terms of construction cost) and the duration of the design and construction phases. It has been traditional to set fees as a percentage of construction cost partially because the scope of the project is difficult to define precisely at the point in time when professional consultants are selected and retained. The fees for construction period services depend on the above factors but especially on the duration of the construction period. The Agreements and Supplements to the Agreements require a fixed manning level for the duration of the construction period.

Projects involving rehabilitation of existing structures require greater effort to assess existing conditions and to research existing documents to determine the configuration and make up of the existing structure and its systems.

Reimbursable expenses are in addition to the compensation for Basic Services and include actual expenditures incurred by the Architect and/or CM for travel, long distance communications, reproductions (excluding reproductions for the office use of the Architect), postage and handling of drawings and specifications.

The following table displays categories of use which are considered to be of approximately equal complexity.

GROUP I

Classroom Series	100	B-110 through B-126
Office Series	300	B-310 through B-360
Study Facilities Series	400	B-410 through B-450
Special Use (Athletic) Series	500	B-520 through B-529
General Use Series	600	B-610 through B-612, B-631, B-650, B-660, B-680
Support Facilities	700	B-720 (Maintenance Shops)

GROUP II

Residential Series	900	B-910 through B-950
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GROUP III

Laboratory Series	200	B-200 through B-240*
Special Use (Non-Athletic Series)	500	B-530, B-540, B-570, B-571, B-580, B-581
General Use Series	600	B-620, B-630, B-632
Support Facilities	700	B-710 (Data Processing, Computer Room)
Health Care Series	800	B-810 through B-890

* Added April 29, 2002

GROUP IV

Support Facilities	B-730, B-740
Parking Structures	A-10, A-11 & A-12

The recommendations have been calculated for the following different conditions:

Arch/Eng Services New Construction

Arch/Eng Services Renovation

Construction Manager New Construction

Construction Manager Renovation

Percentage fees for design phase services were established based on historic data and analysis. The numbers were adjusted to account for service required by the Agreement. Traditional breakdown for construction period services were considered and modified to account for the required manning levels and estimated duration of the construction period.

A comparison was done of the Architectural/Engineering services required when a CM is retained and when a CM is not retained. The major difference lies in the cost estimate (Statements of Probable Construction Cost) required of the Architect. The Architect is responsible in both cases to revise the documents at no additional cost to the Owner in case the bids for the work exceed the budget. It is prudent, therefore, for the Architect to accomplish an independent detailed review of all estimates of probable construction cost. The documentation required of the Architect in order that the CM can carry out his functions is in addition to the documentation required when there is not a CM retained. The Construction Manager performs many functions which the Agreements do not require of the Architect in either case.

The services required of the Architect when there is a Construction Manager employed are not any less than those required when there is not a Construction Manager. When the University determines that the Architect should provide some of the services which would otherwise be provided by the Construction Manager the fees for such services will be in addition to the amounts listed in the guidelines.

ARCHITECTURAL/ENGINEERING FEES AS A % OF CONSTRUCTION COST NEW CONSTRUCTION					
PROJECT SIZE - CONSTRUCTION COST (in thousands of Dollars)					
GROUP	1,000 - 2,000	2,000 - 5,000	5,000 - 10,000	10,000 - 20,000	20,000 +
GROUP I	9.4%	8.0%	7.3%	6.5%	6.3%
GROUP II	8.6%	7.5%	7.0%	6.1%	5.8%
GROUP III	12.8%	10.5%	9.3%	8.6%	8.5%
GROUP IV	7.7%	6.3%	5.6%	4.8%	4.7%

ARCHITECTURAL/ENGINEERING FEES AS A % OF CONSTRUCTION COST RENOVATION WORK					
PROJECT SIZE - CONSTRUCTION COST (in thousands of Dollars)					
GROUP	1,000 - 2,000	2,000 - 5,000	5,000 - 10,000	10,000 - 20,000	20,000 +
GROUP I	11.7%	9.1%	8.4%	7.5%	7.4%
GROUP II	10.9%	8.5%	7.9%	7.2%	6.7%
GROUP III	15.7%	11.9%	10.6%	9.9%	9.8%
GROUP IV	9.8%	7.3%	6.4%	5.7%	5.6%

CONSTRUCTION MANAGER FEES AS A % OF CONSTRUCTION COST NEW CONSTRUCTION												
PROJECT SIZE - CONSTRUCTION COST (in thousands of Dollars)												
GROUP	2,000 - 5,000			5,000 - 10,000			10,000 - 20,000			20,000 - 30,000		
	SERVICE			SERVICE			SERVICE			SERVICE		
	FULL	AV	LTD	FULL	AV	LTD	FULL	AV	LTD	FULL	AV	LTD
GROUP I	4.8%	3.5%	2.7%	4.6%	3.3%	2.3%	4.0%	2.6%	2.0%	3.4%	2.4%	1.8%
GROUP II	4.8%	3.5%	2.7%	4.6%	3.3%	2.3%	3.9%	2.5%	2.0%	3.3%	2.3%	1.7%
GROUP III	5.4%	4.0%	3.0%	5.0%	3.6%	2.5%	4.4%	2.7%	2.2%	3.9%	2.8%	2.1%
GROUP IV	4.4%	3.2%	2.5%	3.9%	2.8%	2.0%	3.4%	2.2%	1.7%	2.9%	2.0%	1.5%

CONSTRUCTION MANAGER FEES AS A % OF CONSTRUCTION COST RENOVATION WORK												
PROJECT SIZE - CONSTRUCTION COST (in thousands of Dollars)												
GROUP	2,000 - 5,000			5,000 - 10,000			10,000 - 20,000			20,000 - 30,000		
	SERVICE			SERVICE			SERVICE			SERVICE		
	FULL	AV	LTD	FULL	AV	LTD	FULL	AV	LTD	FULL	AV	LTD
GROUP I	5.1%	3.7%	2.8%	4.8%	3.4%	2.4%	4.3%	2.8%	2.2%	3.6%	2.6%	1.9%
GROUP II	5.1%	3.7%	2.8%	4.8%	3.4%	2.4%	4.3%	2.7%	2.2%	3.6%	2.5%	1.8%
GROUP III	5.8%	4.2%	3.2%	5.3%	3.8%	2.7%	4.7%	3.0%	2.4%	4.2%	2.9%	2.2%
GROUP IV	4.7%	3.5%	2.6%	4.2%	3.0%	2.1%	3.8%	2.4%	1.9%	3.2%	2.2%	1.6%

4. PROJECT CONTINGENCY GUIDELINES

The following definitions are intended for the various contingencies addressed in this chapter:

DESIGN CONTINGENCY - a percentage of the concept budget allowed for programmatic and design changes which occur over the course of the design process. This percentage should diminish as the design goes from concept stage to contract document stage.

CONSTRUCTION CONTINGENCY - a percentage of the concept budget allowed for unforeseeable conditions encountered during the construction phase, i.e., change orders, updated soils reports, etc.

PROJECT CONTINGENCY - the total of Design and Construction contingencies.

Project contingency depends upon the size and type of project. For conceptual and project approval, the contingencies shown in the table are appropriate:

CONTINGENCY AS A PERCENTAGE OF CONSTRUCTION COST					
	NEW CONSTRUCTION			REMODELING/RENOVATION	
	Design Contingency	Construction Contingency	Maximum Total Contingency	Design Contingency	Construction Contingency
Conceptual & Design Phase					
Projects \$ 5 million & Greater	5% - 7%	3% - 5%	10%	10%	3% to 7%
Projects less than \$ 5 million	8% - 10%	5% - 7%	15%	10%	5% to 10%

As each project progresses through the Design phase, contingency should be reduced. At the end of the Design phase, design contingency is zero and the Construction phase contingencies apply:

CONTINGENCY AS A PERCENTAGE OF CONSTRUCTION COST				
	NEW CONSTRUCTION		REMODELING/RENOVATION	
	Design Contingency	Construction Contingency	Design Contingency	Construction Contingency
Construction Phase				
Projects \$ 5 million & Greater	0%	3% - 5%	0%	3% to 7%
Projects less than \$ 5 million	0%	5% - 7%	0%	5% to 10%

5. PERIODIC UPDATE OF THE GUIDELINES

Since construction costs are not stagnant, we strongly recommend an annual update. Should the SCG (Saylor Cost Guidelines) Material/Labor Index indicate a 6% or greater change per year, we suggest a semi-annual update. The SCG Material/Labor Index will be used as a barometer of the Arizona construction market to assess the fluctuations which occur.

The following will form the basis for the periodic update.

A. Confirmation of Arizona construction costs in the Phoenix/Tucson and Flagstaff markets by analyzing:

- (1) The SCG Materials Costs Index (23 selected materials).
- (2) The SCG Cost Index (9 selected trades).

These will be expressed as a Material/Labor Index which will provide percentages of change for update requirements.

- B. Re-examine and update the inflation adjustment factors for the current five-year period.
- C. Update the Construction Cost Control Guidelines Matrices to reflect the changes in the SCG Indexes.

6. INFLATION ADJUSTMENT FACTORS

Using inflation adjustment factors is a simplified method to account for future increases or decreases in construction cost for material and labor increases only. Inflation adjustment factors can, if properly used, be a reliable tool to predict future fluctuations in construction costs. There are many indicators used today for making economic predictions. Some weigh information using criteria not related to the construction market and, therefore, are not appropriate for construction costing. The Consumer Price Index (CPI) is not a good indicator for construction proposed because construction cycles swing more widely than the more general cycles measured by the CPI.

The inflation adjustment factors are for material and labor only and **do not** include **code** escalation or **technological** escalation. Both have a major influence on the cost of construction. Inflation alone from 1989 to 2000 cumulative, accounts for approximately 42% increase. The reader should consider the effect of codes and technology which may account for more than the total material and labor inflation in the past eleven years. The code changes for structural issues have affected wood, concrete and steel structures for a more conservative view of wind and earthquake loading. Not surprisingly, the same codes affect mechanical, plumbing, electrical, ceiling/grid and machinery attachment.

Technology has led to smarter buildings and together with energy codes and ADA compliance has led to increased cost for mechanical systems, insulation, sash and glass, increased size of bathrooms, ramps, lifts, elevators and signage. Many public and private structures now have LANS, WANS, audio, security and fire control. Monitoring systems have given way to addressable systems and remote controls.

Code and technology issues are not normally thought of as inflation elements but as increased weight or systems in the structure. When extrapolating costs for a new structure the user must recognize that code and technology issues exist and they should be given due consideration. Since there are so many different types and uses of structures, it is not possible to render a code or technology escalation percentage without knowing for what purpose the structure will be used. Even the most simple structures, such as parking structures are materially affected.

The accuracy of construction cost inflation adjustment factors is more dependable when growth is consistent. New conservation issues are now being espoused by many institutions. The so called green building technologies, if used, adds a small percentage to the cost of a structure by using recyclable materials. So far the cost adds between 2 and 4% to a typical structure. When the economy is influenced by radical fluctuations (oil embargoes, changes in government policies, droughts, recessions or depressions, etc.) The adjustment factors can become obsolete and must be re-evaluated. Nonetheless, inflation adjustment factors are necessary. They are recommended here for use with these Construction Cost Control Guidelines.

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The following are the Historical Inflation Factors for Calendar years 1997-2001 and Projections to 2008:

Historical	1967 = 100
1997 - 3.3 %	522.0
1998 - 2.1 %	533.0
1999 - 3.6 %	552.1
2000 - 4.2 %	575.5
2001 - 2.0 %	587.1
Projections	
2002 - 3.0 %	604.7
2003 - 3.1 %	623.5
2004 - 3.2 %	664.1
2005 - 3.0 %	684.0
2006 - 3.1 %	705.2
2007 - 3.2 %	727.8
2008 - 3.2 %	751.1

The following examples illustrate how to apply these rates to an actual project.

The midpoint of construction is the date to which inflation is figured, starting with the date of the most recent revision of the Construction Cost Control Guidelines.

Please note that these rates are compounded.

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EXAMPLE A

Project Construction Cost:	\$1,000,000
Project Construction Duration:	12 Months
Project Start Date:	September, 2002
Project Completion Date:	September, 2003
Mid-Point is therefore:	February, 2003

Escalation:

2002 - 6 months (July thru December)	
Escalation per month:	3.0% / 12 = 0.250% per month
Escalation for 2002:	0.250% x 6 = 1.500%
2003 - 2 months (January thru February)	
Escalation per month:	3.1% / 12 = 0.26% per month
Escalation for 2003:	0.26% x 2 = 0.52%

Adjustment:

Base Cost	\$1,000,000
Inflation for 2002	
1.50% of 1,000,000	<u>15,000</u>
Subtotal	\$1,015,000
Inflation for 2003	
0.52% of 1,015,000	<u>5,278</u>
TOTAL ADJUSTED COST	\$1,020,278

The adjustment can also be calculated as follows:

Using a base of 100:

2002: 100 x 1.500%	1.500
Adjustment 100 + 1.500%	101.500
2003: 101.500 x 0.52%	0.5278
Adjustment 101.500 + 0.5278	
The total % increase 102.508 - 100	2.20578%

Adjustment:

Base Cost	\$1,000,000
Adjustment 1,000,000 x 2.20578%	<u>22,058</u>
TOTAL ADJUSTED COST	\$1,022,058

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EXAMPLE B

Project Construction Cost	\$8,524,300
Project Construction Duration:	24 Months
Project Start Date:	April, 2002
Project Completion Date:	April, 2004
Mid-Point is therefore:	April, 2003

Escalation:

2002 - 6 months (July thru December)	
Escalation per month:	$3.0\% / 12 = 0.252\%$ per month
Escalation for 2002:	$0.250\% \times 6 = 1.500\%$

2003 - 12 months (All Year)	
Escalation for 2003:	3.1%

2004 - 4 months (January thru April)	
Escalation per month:	$3.2\% / 12 = 0.267\%$ per month
Escalation for 2004:	$0.267\% \times 4 = 1.068\%$

Adjustment:

Base Cost	\$8,524,300
Inflation for 2002 @ 1.500%	<u>127,865</u>
Subtotal	\$8,652,065

Inflation for 2003	
3.1% of \$8,652,065	<u>268,214</u>
Subtotal	\$8,920,279

Inflation for 2004	
1.060% of \$8,920,279	<u>106,000</u>
TOTAL ADJUSTED COST	\$9,026,279

This adjustment can be calculated as follows:

Using a base of 100:

2002: $100 \times 1.500\%$	1.500	
Adjustment $100 + 1.500\%$	101.500	
2003 : $101.500 \times 3.1\%$	3.1619	
Adjustment $101.500 + 3.162$	104.662	
2004 $104.662 \times 1.060\%$	1.109	
Adjustment $105.200 + 1.060$	106.120	Revised April 29, 2002

EXAMPLE B
(Continued)

The total % increase 106.260 - 100 6.120%

Adjustment

Base Cost	\$8,524,300
Adjustment $\$8,524,300 \times 6.001\%$	<u>521,687</u>
* TOTAL ADJUSTED COST	\$9,045,134

Note that the results using the two methods are not identical but are sufficiently accurate for estimating purposes. It can be shown that identical results are obtained if carried to a sufficient number of significant figures.

* Error due to round off

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7. INFLUENCE OF FEDERAL FUNDING ON PROJECT COST

Federal Funding results in additional Administrative Overhead by the Grantee or Owner and additional Construction Cost by the Davis Bacon (Labor Wages) Act. In the terms and conditions of the grant to the grantee the Administrative Reports, etc. are defined. For the Construction Cost, it must be clear in the Contract Documents that Federal Funds are involved and the Davis Bacon Act will prevail. The Davis Bacon Act defines for the Contractor the required reporting, record keeping, wage rates and labor burden, holidays, etc. to be paid.

Davis Bacon rates are most often called "Prevailing Rates". In most major cities of the United States the prevailing rate is derived from the "union" base wage rate, however the Davis Bacon rate is not the union rate in its entirety. The Davis Bacon rate includes all of the payroll taxes, but all or a portion of the union benefit package is not mandatory. The determination is made by the U.S. Secretary of Labor and is issued by state and by directive. The decision is listed as follows:

AR-94-4, The Letters for the State, Year and Quarter.

When the decision is reached a statement is made that the new decision supersedes an older decision and the new decision is listed.

If there is no union the prevailing wage rate will be based on the current rate prevailing in the survey area. Certified payroll records must be kept by the Contractor for inspection by the Labor Department.

In most right to work states the Davis Bacon rates will increase the cost of construction significantly. In a recent survey Saylor Cost Guidelines found the Davis Bacon rates to be 77% more costly than merit shop rates in the same jurisdiction. Formulas for adjusting the price of construction can be complicated but for purposes of this study the following has been found to be effective:

Material is "M"

Labor is "L"

Direct Cost is "DC"

M = 44% of the Direct Cost of Construction.

L = 56% of the Direct Cost of Construction.

Inexperience Factor = 1.5

MERIT SHOP

Total Direct Cost	\$1,000,000
General Conditions, O.H., Profit & Bonds, 16%	<u>160,000</u>
Construction Cost	\$1,160,000
M = 440,000	
L = <u>560,000</u>	
DC = 1,000,000	

DAVIS BACON RATES may be adjusted as follows:

M =	440,000
L = $\frac{560,000 \times 1.77}{1.5}$	660,800
Direct cost =	<u>1,100,800</u>
Genl. Contr., O.H., Profit, Bonds, 16%	<u>176,128</u>
Construction Cost =	1,276,928

Increase due to Davis Bacon:

<u>Davis Bacon Project 1,276,928</u>	
Merit Shop Project 1,160,000	= 1.101

Metric Sizing

Federal regulations mandate the phased adoption of metric dimensioning and sizing of buildings and building components (Metric Conversion Act 15 US Code 205 and metric implementation executive order 12770). The construction industry has not converted to metric standards and there is little indication that the conversion will take place anytime soon. Some Federal agencies are beginning to require their projects to be done using metric standards. Currently this is accomplished by converting english units to metric and in some cases using both systems on construction documents. There appears to be no uniformity among federal agencies on this issue. The potential exists that projects using Federal Funds will be required to be done in metric measure and sizing.

Higher design and construction cost can be expected for such projects until metric units are widely implemented in the construction industry. The magnitude of the increased cost is difficult to determine. The largest component being labor and inefficiency due to lack of familiarity with the metric system. Domestic manufacturers have not sized their components using metric units and some degree of development and perhaps retooling is required for them to do so.

When federal funding is anticipated a determination should be obtained concerning metric requirements and the extent to which the project is required to comply. The increased cost will affect both professional fees for design and construction cost. The amount will vary between 1% and 10% depending on timing and degree of compliance.

8. COST INDEXING FOR CONSTRUCTION AT NORTHERN ARIZONA UNIVERSITY

The following construction considerations for building at Flagstaff have been reviewed and cost allowances have been made directly to the Flagstaff database matrices:

A. Climatic Conditions:

1. The building season is limited to mid-April to mid-October for earthwork. Enclosure by mid-October due to winter conditions.
2. There are special construction requirements, heavier pavement sections, 40 PSF snow loading, pitched roofs due to severe weather conditions.

B. Soil Conditions:

Generally include expansive clays and rock, resulting in a need for driven piles or drilled caisson, over excavation and fill and excessive rock excavation.

C. Subcontract Bonding:

1. Subcontractors are required to be 100% bonded if work exceeds \$100,000.
2. Since local contractors have difficulty obtaining bonding for major projects, participation by general contractors from outside the Flagstaff area is necessary.

D. Distance from Major Supply Sources:

Phoenix is approximately 2-1/2 hours away.

9. BUILDING CONFIGURATION AND SPACE TYPES

In order to identify the space and configuration types appropriate for University use, a series of interviews with members of the Universities were conducted. The existing space types were reviewed and the Postsecondary Education Facilities Inventory and Classification Manual (P.E.F.I. & CM) space codes were reviewed.

Series 'A' and Series 'B' categories were identified. Series 'A' categories are intended for use with the building shell systems matrix and are configuration specific. There is no equivalent space type in the P.E.F.I. & CM codes. Series 'B' categories are intended for use with the interiors matrix and are based on the P.E.F.I. & CM space codes, expanded to account for space use types not included in those codes. A comparison of P.E.F.I. & CM and the C.C.C. and P.F.E. codes is included at the end of this chapter.

Preliminary recommendations for categories included in the Guidelines were considered by the Steering Committee. Throughout the process the theme has been to develop a list of categories which will address the majority of structures contemplated by all of the institutions. There are facilities which are so highly specialized that cost guidelines would not be useful. A one-of-a-kind facility such as a state-of-the-art astronomical telescope enclosure is an example.

The categories in the following list were adopted and are included in the Construction Cost Guidelines:

STRUCTURAL CATEGORIES - BUILDING CONFIGURATION SPECIFIC

The basis for each structural category is a structure of concrete including all columns, beams, floor and roof systems. The basic shape or "foot print" of the structure is rectangular with an approximate ratio of one width to two length. Special or separate consideration should be given to any structure that is known not to be within these parameters.

- A-1 - Institutional, 1 Story, Classrooms/Offices.
- A-1a - Institutional, 1 Story, Classrooms/Offices, 16'-0" minimum floor to structure above.
- A-2 - Institutional, 1 Story, High Bay/Long Span, Field Houses/Gymnasiums.
- A-2a - Institutional, 1 Story, High Bay/Long Span, Open Area Instructional and Laboratory
- A-3 - Institutional, 2 Story, Classrooms/Offices.
- A-3a - Institutional, 2 Story, Classrooms/Offices, 16'-0" minimum finished floor to finished floor.
- A-4 - Institutional, Multi-story, 3 Thru 5 Stories, Classrooms/Offices.
- A-4a - Institutional, Multi-story, 3 Thru 5 Stories, Lab.
- A-4b - Institutional, Multi-story, 3 Thru 5 Stories, Classrooms/Offices, 16'-0" minimum finished floor to finished floor.
- A-5 - Institutional, Multi-story, 6 Thru 10 Stories, Classrooms/Offices.
- A-5a - Institutional, Multi-story, 3 Thru 5 Stories, Theater Complex.
- A-5b - Institutional, Multi-story, 6 Thru 10 Stories, Lab.
- A-6 - Institutional, 1 or 2 Stories, Below Grade, Classrooms/Offices (Bldg. Above).
- A-6a - Institutional, 1 or 2 Stories, Below Grade, Lab (Bldg. Above).
- A-6b - Institutional, 1 or 2 Stories, Entirely Below Grade, Classrooms/Offices (No Bldg. Above).
- A-7 - Residential, 1 or 2 Stories.
- A-7a - Residential, 1 or 2 Stories, Wood Frame.
- A-8 - Residential, 3 Thru 5 Stories.
- A-9 - Residential, 6 Thru 10 Stories.
- A-10 - Parking Structures, (to 3 Levels).
- A-11 - Parking Structures, (to 4 and 5 Levels).
- A-12 - Parking Structures, 1 or 2 Stories, Below Grade.

- A-13 - Pre-engineered Building/Greenhouse (550-1132 SF).
- A-14 - Pre-engineered Building/Greenhouse (1132-2264 SF).
- A-15 - Pre-engineered Building/Warehouse, 1 Story.

CATEGORIES - SERIES "B"

INTERIORS MATRIX - BUILDING USE SPECIFIC

SERIES 100 - CLASSROOM FACILITIES

- B-110 Classroom, Seminar (to 25)
- B-111 Classroom, Seminar (to 40)
- B-112 Lecture Classroom (to 75)
- B-113 Lecture Classroom with ITFS (to 75)
- B-114 Lecture Classroom (200) Type A
- B-115 Lecture Classroom (200) Type B
- B-116 Studio Classroom
- B-117 Exhibit Space
- B-118 Music Room, Large Group
- B-119 Music Room, Practice, Small Group
- B-120 Highly Mediated, Lecture Classroom (to 400)
- B-121 Highly Mediated, Classroom (to 45)
- B-122 Highly Mediated, Classroom (to 250)
- B-123 Multi-Media, Classroom (to 250)
- B-124 Interactive TV, Lecture Classroom (to 90)
- B-125 Interactive TV, Classroom, Flexible Arrangement (to 40)
- B-126 Interactive TV, Classroom, Fixed Arrangement (to 40)

SERIES 200 - LABORATORY FACILITIES

- B-210 Class Lab (to 30), Type A
- B-220 Class Lab (to 30), Type B
- B-221 Class Lab (to 30), Type C
- B-225 Hazardous Material Storage
- B-230 Indiv. Study Lab (to 30), Type A
- B-235 Indiv. Study Lab (to 30), Type B
- B-236 Indiv. Study/Research Lab, Small, Type A
- B-237 Indiv. Study/Research Lab, Small, Type B
- B-238 Research, Large Area, Type A
- B-239 Research, Large Area, Type B
- * B-240 Research, Medical (924 sf per 6 personnel lab.)

SERIES 300 - OFFICE FACILITIES

- B-310 Office (100-150 s.f.)
- B-311 Office (150+ s.f.)
- B-350 Conference Room (to 25)
- B-351 Conference Room (Advanced T.V.)
- B-360 Open Office Area w/Modular Work Stations (100 s.f. per station)

* Added April 29, 2002

SERIES 400 - STUDY FACILITIES

B-410	Reading/Study Room
B-410a	Computer Commons
B-420	Stacks
B-430	Open Stack Reading Room
B-440	Library Work room
B-450	Individual Study Room
* B-460A	Archive/Artifacts Storage, 4000 s.f.
* B-460B	Archive/Artifacts Exhibition, 2000 s.f.

SERIES 500 - SPECIAL USE (ATHLETIC)

B-520	Athletic/Physical Education/Recreation (Locker, Shower)
B-521	Athletic/Physical Education/Recreation (Large Gym)
B-522	Athletic/Physical Education/Recreation (Small Gym)
B-523	Athletic/Physical Education/Recreation (Special Courts)
B-524	Athletic/Physical Education/Recreation (Spectator Seating)

SERIES 500 - SPECIAL USE (NON-ATHLETIC)

B-530	Studio-Audio/Visual T.V.
B-540	Clinic Exam Room, Non-Health
B-570	Animal Quarters (Research Medical and Biological)
B-571	Animal Quarters (Research Agricultural)
B-580	Greenhouse (Propagation)
B-581	Greenhouse (Testing)
* B-590	Clean Room (Class 100), 2700 s.f.
* B-591	Clean Room (Class 1000), 2700 s.f.

SERIES 600 - GENERAL USE FACILITIES

B-610	Theater (House Side)
B-611	Theater (Stage and Back, Performing)
B-612	Theater (Stage and Back, Music Concert)
B-620	Specialized Museum Space
B-630	Food Facility - Prep/Serving
B-631	Food Facility - Dining
B-632	Concessionaire - Fast Food
B-650	Lounge, Lobby, Waiting
B-660	Book Store, Shops
B-680	Large Meeting, Conference, Ball Room

SERIES 700 - SUPPORT FACILITIES

B-710	Data Processing (Computer Room)
B-720	Shop, maintenance (Facilities and Vehicles)
B-730	Warehouse
B-740	Vehicle Storage (Enclosed) NAU Only

* Added April 29, 2002

SERIES 800 - HEALTH CARE (INFIRMARY)

B-810 Patient Room and Bath
B-830 Nurse Station
B-840 Emergency Room
B-850 Treatment
B-860 Medical Laboratory
B-880 Waiting
B-890 X-Ray Radiology

SERIES 900 - RESIDENTIAL

B-910 Residence Hall Rooms (with Common Bath)
B-919 Residence Hall Rooms (with Private Bath)
B-920 Residence Hall Rooms (2 Rooms with Common Bath)
B-950 Apt. With Cooking Facilities

NON-ASSIGNABLE AREAS

B-WWW Circulation
B-XXX Custodial
B-YYY Mechanical/Electrical
B-ZZZ Public Toilet Room

COMPARISON OF CODES

P.E.F.I. & C.M.	C.C.C. & P.F.G.
100 Classroom Facilities	100 Classroom Facilities
115 Classroom Service	Adjacent service facility priced the same as the areas being served.
110 Classroom	B-110 Classroom, Seminar (to 25)
	B-111 Classroom, Seminar (to 40)
	B-112 Lecture Classroom (to 75)
	B-113 Lecture Classroom with ITFS (to 75)
	B-114 Lecture Classroom (200) Type A
	B-115 Lecture Classroom (200) Type B
	B-116 Studio Classroom
	B-117 Exhibit Space
	B-118 Music Room, Large Group
	B-119 Music Room, Practice, Small Group
	B-120 Highly Mediated, Lecture Classroom (to 400)
	B-121 Highly Mediated, Classroom (to 45)
	B-122 Highly Mediated, Classroom (to 70)
	B-123 Multi-Media, Classroom (to 250)
	B-124 Interactive TV, Lecture Classroom (to 90)
	B-125 Interactive TV, Classroom, Flexible Arrangement (to 40)
	B-126 Interactive TV, Classroom, Fixed Arrangement (to 40)
200 Laboratory Facilities	200 Laboratory Facilities
215 Class Laboratory Service	Adjacent service facility priced the same as the laboratory.
255 Research/Nonclass Laboratory Service	
210 Class Laboratory	B-210 Class Laboratory (to 30) Type A
	B-220 Class Laboratory (to 30) Type B
	B-221 Class Laboratory (to 30) Type C
225 Open Laboratory Service	B-225 Hazardous Material Storage
220 Open Laboratory	B-230 Individual Study Laboratory (to 30) Type A
	B-235 Individual Study Laboratory (to 30) Type B

P.E.F.I. & C.M.	C.C.C. & P.F.G.
250 Research/Nonclass Laboratory	B-236 Individual Study/Research Laboratory Small, Type A
	B-237 Individual Study/Research Laboratory Small, Type B
	B-238 Research, Large Area, Type A
	B-239 Research, Large Area, Type B
300 Office Facilities	300 Office Facilities
310 Office	B-310 Office (100-150 SF)
	B-311 Office (150 + SF)
315 Office Service	
350 Conference Room	B-350 Conference Room (to 25)
	B-351 Conference Room (Advanced TV)
355 Conference Room Service	
	B-360 Open Office Area w/modular work stations (100 SF per station)
400 Study Facilities	400 Study Facilities
410 Study Room	B-410 Reading/Study Room
	B-410a Computer Commons
420 Stack	B-420 Stacks
430 Open-Stack Study Room	B-430 Open-Stack Reading Room
440 Processing Room	B-440 Library Work Room
	B-450 Individual Study Room
455 Study Service	
500 Special Use Facilities	500 Special Use Facilities (Athletic)
510 Armory	
515 Armory Service	
520 Athletic or Physical Education	B-521 Athletic/Physical Education/Recreation (Large Gym)
	B-522 Athletic/Physical Education/Recreation (Small Gym)
	B-523 Athletic/Physical Education/Recreation (Special Courts)
523 Athletic Facilities Spectator Seating	B-524 Athletic/Physical Education/Recreation (Spectator Seating)
525 Athletic or Physical Education Service	B-520 Athletic/Physical Education/Recreation (Locker, Shower)

P.E.F.I. & C.M.	C.C.C. & P.F.G.
	500 Special Use (non-Athletic)
530 Media Production	B-530 Studio-Audio/Visual TV
535 Media Production Service	
540 Clinic	B-540 Clinic, Exam Room, Non-Health
545 Clinic Service	
550 Demonstration	
560 Field Building	
570 Animal Quarters	B-570 Animal Quarters (research Medical or Biological)
	B-571 Animal Quarters (research Agriculture)
575 Animal Quarters Service	
580 Greenhouse	B-580 Greenhouse (Propagation)
	B-581 Greenhouse (Testing)
585 Greenhouse Service	
600 General Use Facilities	600 General Use Facilities
610 Assembly	B-610 Theater (House Side)
615 Assembly Service	B-611 Theater (Stage & Back, Performing)
	B-612 Theater (Stage & Back, Music Concert)
620 Exhibition	B-620 Specialized Museum Space
625 Exhibition Service	
630 Food Facility	B-631 Food Facility-Dining
	B-632 Concessionaire - Fast Food
635 Food Facility Service	B-630 Food Facility-Prep/Serving
640 Day Care	
645 Day Care Service	
650 Lounge	B-650 Lounge, Lobby, Waiting
655 Lounge Service	
660 Merchandising	B-660 Book Store, Shops
665 Merchandising Service	
670 Recreation	B-680 Large Meeting, Conference, Ball Room

P.E.F.I. & C.M.	C.C.C. & P.F.G.
675 Recreation service	
680 Meeting Room	B-680 Large Meeting, Conference, Ball Room
685 Meeting Room Service	
700 Support Facilities	700 Support Facilities
710 Central Computer or Telecommunications	B-710 Data Processing (Computer Room)
715 Central Computer or Telecommunications Service	
720 Shop	B-720 Shop, Maintenance (Facilities and Vehicles)
725 Shop Service	
730 Central Storage	B-730 Warehouse
735 Central Storage Service	
740 Vehicle Storage	B-740 Vehicle Storage (Enclosed) NAU ONLY
750 Central Service	
755 Central Service Support	
760 Hazardous Materials	
765 Hazardous Materials Service	
800 Health Care Facilities	800 Health Care Facilities
810 Patient Bedroom	B-810 Patient Room and Bath
815 Patient Bedroom Service	
820 Patient Bath	B-810 Patient Room and Bath
830 Nurse Station	B-830 Nurse Station
835 Nurse Station Service	
	B-840 Emergency Room
840 Surgery	
845 Surgery Service	

P.E.F.I. & C.M.	C.C.C. & P.F.G.
850 Treatment/Examination	B-850 Treatment
	B-890 X-Ray Radiology
855 Treatment/Examination Service	
860 Diagnostic Service Laboratory	B-860 Medical Laboratory
865 Diagnostic Service Laboratory Support	
870 Central Supplies	
880 Public Waiting	B-880 Waiting
890 Staff On Call Facility	
895 Staff On Call Facility Service	
900 Residential Facilities	900 Residential Facilities
910 Sleep/Study Without Toilet or Bath	B-910 Residence Hall Room (with Common Bath)
919 Toilet or Bath	
920 Sleep/Study With Toilet or Bath	B-919 Residence Hall Room (with Private Bath)
	B-920 Residence Rooms (2 Rooms with Common Bath)
935 Sleep/Study Service	
950 Apartment	B-950 Apartment with Cooking Facility
955 Apartment Service	
970 House	
Non Assignable Area	Non Assignable Areas
WWW Circulation Area	B-WWW Circulation Area
XXX Building Service Area	B-XXX Custodial
YYY Mechanical Area	B-YYY Mechanical/Electrical
	B-ZZZ Public Toilet Room

10. OUTLINE SPECIFICATIONS

This Chapter contains the outline specifications for each Building Configuration Category and each interior use category. The specifications are divided into Series A and B.

Series "A" Building Configuration Categories:

Series "B" Interior Use Categories.

CATEGORIES SERIES "A"
STRUCTURE MATRIX-BUILDING CONFIGURATION SPECIFIC

The building systems generally included in the Structure Matrix are:

- 2.1 Substructure
- 3.0 Structure
- 4.1 Enclosure Vertical
- 4.2 Enclosure Horizontal
- 4.3 Support Items
- 9.0 Conveying

For multi-story buildings and buildings below grade there are costs for vertical distribution (risers) which are appropriately included with the shell cost. Distribution from risers to point of use is included in the interiors cost. For this reason the following building systems are included in both Series A and Series B for multi-story and below grade buildings.

- 10.1 Plumbing and Fire Protection
- 10.2 HVAC
- 11.0 Electrical

Note that Parking Structures are all inclusive in the Series A Structure Matrix, the costs include structure and interior use.

VOICE AND DATA COMMUNICATIONS

The provisions for voice and data communications throughout the specifications include the following items. The risers (back bone) elements are included in the structure matrix. The outlets and cable connection to the risers are included in the Interiors Matrix. The installation to be in accordance with EIA, TIA Standards.

Structure Matrix (Series A):

- Entrance to building 4-4" conduits from main entrance terminal room to 5' line outside.
- Utility closets stacked above main entrance terminal room with 2-4" empty sleeves (fire stopped).
- Copper cable riser sized for # of outlets on each floor. Separate jacket for voice riser and for data riser (Spare capacity for risers needs to be considered).
- Fiber riser 12 multi mode fibers to each floor, 6 single mode fibers to each floor.
- Coax broad band riser to each floor (where coax outlets are specified).

Interior Matrix (Series B):

- Dual jack with 1" conduit to accessible ceiling space.
- Category 5 cable from jack to utility closet-terminal block 4 pair voice, 4 pair data for each dual jack (2 cables separate jackets).
- Cable above accessible ceiling to run in cable tray or an approved hanger.
- Coax broad band from outlet to riser in utility closet.

Fiber is not distributed to outlets in interior matrix. In special uses where fiber is required for research or graphics intensive applications it must be considered separately.

A-1 INSTITUTIONAL, ONE STORY, CLASSROOMS/OFFICES

2.1 SUBSTRUCTURE:

- Generally slab on grade floor system. Foundation, depending on location and soil conditions usually shallow spread footings.

3.0 STRUCTURE:

- Non-combustible material or heavy timber may be bearing wall or structural columns nominal bay spacing chosen for economy. Beams and purlins spaced to support deck. Metal or concrete deck (may be composite deck), heavy timber deck.

4.1 ENCLOSURE, VERTICAL:

- Exterior walls (may be bearing walls) masonry or concrete materials, including interior finish on exterior walls.
- Exterior doors, hollow metal or glass/aluminum.
- Fenestration aluminum or steel with plate or float glass. (Double pane insulating glass, reflective glass at added cost).
- Wall R Value = 19.

4.2 ENCLOSURE, HORIZONTAL:

- Roofing Built-up, single ply membrane or shingle type (use added cost for decorative tile or standing seam metal).
- Roof Insulation R Value = 30.

4.3 SUPPORT ITEMS:

- This line includes allowance for miscellaneous support items not categorized above. Use added cost for special support requirements in isolated cases.

9.0 CONVEYING:

- None.

A-1a INSTITUTIONAL, ONE STORY, CLASSROOMS/OFFICES, 16'-0" MIN. FLOOR TO STRUCTURE ABOVE

2.1 SUBSTRUCTURE:

- Generally slab on grade floor system. Foundation, depending on location and soil conditions usually shallow spread footings.

3.0 STRUCTURE:

- Non-combustible material or heavy timber may be bearing wall or structural columns nominal bay spacing chosen for economy. Beams and purlins spaced to support deck. Metal or concrete deck (may be composite deck), heavy timber deck. Minimum floor to underside of structure height 16'-0".

4.1 ENCLOSURE, VERTICAL:

- Exterior walls (may be bearing walls) masonry or concrete materials, including interior finish on exterior walls.
- Exterior doors, hollow metal or glass/aluminum.
- Fenestration aluminum or steel with plate or float glass. (Double pane insulating glass, reflective glass at added cost).
- Wall R Value = 19.

4.2 ENCLOSURE, HORIZONTAL:

- Roofing Built-up, single ply membrane or shingle type (use added cost for decorative tile or standing seam metal).
- Roof Insulation R Value = 30.

4.3 SUPPORT ITEMS:

- This line includes allowance for miscellaneous support items not categorized above. Use added cost for special support requirements in isolated cases.

9.0 CONVEYING:

- None.

A-2 INSTITUTIONAL, ONE STORY, HIGH BAY/LONG SPAN, FIELD HOUSES, GYMNASIUMS

2.1 SUBSTRUCTURE:

- Generally slab on grade floor system. Foundation, depending on location and soil conditions, usually piers or caissons.
- Foundations at NAU, Flagstaff, are usually spread or pad footings on rock or combination of spread and caissons depending on combination of rock and soil.

3.0 STRUCTURE:

- Non-combustible material or heavy timber, may be bearing wall or structural columns, nominal bay spacing chosen for economy. Beams and purlins spaced to support deck. Metal or concrete deck (may be composite deck), heavy timber deck.

4.1 ENCLOSURE, VERTICAL:

- Exterior walls (may be bearing walls) masonry or concrete materials, including interior finish on exterior walls.
- Exterior doors, hollow metal or glass/aluminum.
- Fenestration aluminum or steel with plate or float glass. (Double pane insulating glass, reflective glass at added cost).
- Wall R Value = 19.

4.2 ENCLOSURE, HORIZONTAL:

- Roofing Built-up, single ply membrane or shingle type (use added cost for decorative tile or standing seam metal).
- Roof Insulation R Value = 30.

4.3 SUPPORT ITEMS:

- This line includes allowance for miscellaneous support items not categorized above. Use added cost for special support requirements in isolated cases.

9.0 CONVEYING:

- None.

A-2a INSTITUTIONAL, ONE STORY, HIGH BAY/LONG SPAN, OPEN AREA INSTRUCTIONAL AND LABORATORY

2.1 SUBSTRUCTURE:

- Generally slab on grade floor system. Foundation, depending on location and soil conditions, usually piers or caissons.
- Foundations at NAU, Flagstaff, are usually spread or pad footings on rock or combination of spread and caissons depending on combination of rock and soil.
- Floor slab designed for vibration control.

3.0 STRUCTURE:

- Non-combustible material or heavy timber, may be bearing wall or structural columns, nominal bay spacing chosen for economy. Beams and purlins spaced to support deck. Metal or concrete deck (may be composite deck), heavy timber deck. Designed for vibration control.

4.1 ENCLOSURE, VERTICAL:

- Exterior walls (may be bearing walls) masonry or concrete materials, including interior finish on exterior walls.
- Exterior doors, hollow metal or glass/aluminum.
- Fenestration aluminum or steel with plate or float glass. (Double pane insulating glass, reflective glass at added cost).
- Wall R Value = 19.

4.2 ENCLOSURE, HORIZONTAL:

- Roofing Built-up, single ply membrane or shingle type (use added cost for decorative tile or standing seam metal).
- Roof Insulation R Value = 30.

4.3 SUPPORT ITEMS:

- This line includes allowance for miscellaneous support items not categorized above. Use added cost for special support requirements in isolated cases.

9.0 CONVEYING:

- None.

A-3 INSTITUTIONAL, TWO STORY, CLASSROOMS/OFFICES

2.1 SUBSTRUCTURE:

- Generally slab on grade floor system. Foundation, depending on location and soil conditions, usually spread footings.

3.0 STRUCTURE:

- Non-combustible material or heavy timber, may be bearing wall or structural columns, nominal bay spacing chosen for economy. Beams and purlins spaced to support deck. Metal or concrete deck (may be composite deck), heavy timber deck.
- Second floor: Metal deck and concrete fill, fire treated wood.

4.1 ENCLOSURE, VERTICAL:

- Exterior walls (may be bearing walls) masonry or concrete materials, including interior finish on exterior walls.
- Exterior doors, hollow metal or glass/aluminum.
- Fenestration aluminum or steel with plate or float glass. (Double pane insulating glass, reflective glass at added cost).
- Wall R Value = 19.

4.2 ENCLOSURE, HORIZONTAL:

- Roofing Built-up, single ply membrane or shingle type (use added cost for decorative tile or standing seam metal).
- Roof Insulation R Value = 30.

4.3 SUPPORT ITEMS:

- This line includes allowance for miscellaneous support items not categorized above. Use added cost for special support requirements in isolated cases.

9.0 CONVEYING:

- Elevator (hydraulic).
- Stairs: Steel pan and concrete fill, steel rails.

A-3a INSTITUTIONAL, TWO STORY, CLASSROOMS/OFFICES, 16'-0" MIN. FINISHED FLOOR TO FINISHED FLOOR

2.1 SUBSTRUCTURE:

- Generally slab on grade floor system. Foundation, depending on location and soil conditions, usually spread footings.

3.0 STRUCTURE:

- Non-combustible material or heavy timber, may be bearing wall or structural columns, nominal bay spacing chosen for economy. Beams and purlins spaced to support deck. Metal or concrete deck (may be composite deck), heavy timber deck. 16'-0" minimum height from finished floor to finished floor.
- Second floor: Metal deck and concrete fill, fire treated wood.

4.1 ENCLOSURE, VERTICAL:

- Exterior walls (may be bearing walls) masonry or concrete materials, including interior finish on exterior walls.
- Exterior doors, hollow metal or glass/aluminum.
- Fenestration aluminum or steel with plate or float glass. (Double pane insulating glass, reflective glass at added cost).
- Wall R Value = 19.

4.2 ENCLOSURE, HORIZONTAL:

- Roofing Built-up, single ply membrane or shingle type (use added cost for decorative tile or standing seam metal).
- Roof Insulation R Value = 30.

4.3 SUPPORT ITEMS:

- This line includes allowance for miscellaneous support items not categorized above. Use added cost for special support requirements in isolated cases.

9.0 CONVEYING:

- Elevator (hydraulic).
- Stairs: Steel pan and concrete fill, steel rails.

A-4 INSTITUTIONAL, MULTI-STORY, 3 THRU 5 STORIES CLASSROOMS/OFFICES

2.1 SUBSTRUCTURE:

- Generally slab on grade floor system. Foundation, depending on location and soil conditions, usually spread footings, piers or caissons.
- Foundations at NAU, Flagstaff, are usually spread or pad footings on rock or combination of spread and caissons depending on combination of rock and soil.

3.0 STRUCTURE:

- Non-combustible materials concrete or fire protected steel, structural columns, nominal bay spacing chosen for economy. Beams and purlins spaced to support deck. Metal or concrete deck (may be composite deck).
- Floor Construction: Metal deck and concrete fill, concrete.

4.1 ENCLOSURE, VERTICAL:

- Exterior walls masonry or concrete materials, including interior finish on exterior walls.
- Exterior doors, hollow metal or glass/aluminum.
- Fenestration aluminum or steel with plate or float glass. (Double pane insulating glass, reflective glass at added cost).
- Wall R Value = 19.

4.2 ENCLOSURE, HORIZONTAL:

- Roofing Built-up, single ply membrane (use added cost for decorative tile or standing seam metal).
- Roof Insulation R Value = 30.

4.3 SUPPORT ITEMS:

- This line includes allowance for miscellaneous support items not categorized above. Use added cost for special support requirements in isolated cases.

9.0 CONVEYING:

- Elevator (hydraulic).
- Stairs: Steel pan and concrete fill, steel rails.

10.1 PLUMBING & FIRE PROTECTION:

- Fire protection riser.
- Water supply and sewer trunks.

10.2 HVAC:

- Chilled water riser.
- Hot water riser.
- Exhaust & fresh air riser.

11.0 ELECTRICAL:

- Communication back bone.
- Vertical power feeder distribution.

A-4a INSTITUTIONAL, MULTI-STORY, 3 THRU 5 STORIES, LAB

2.1 SUBSTRUCTURE:

- Generally slab on grade floor system. Foundation, depending on location and soil conditions, usually spread footings, piers or caissons.
- Foundations at NAU, Flagstaff, are usually spread or pad footings on rock or combination of spread and caissons depending on combination of rock and soil.
- Floor slab designed for vibration control.

3.0 STRUCTURE:

- Non-combustible materials, concrete or fire protected steel
- Structural columns: Beams and slabs designed for vibration control.
- Floor construction: Metal deck and concrete fill, concrete.
- Designed for vibration control. Minimum floor to floor height 16'-0".

4.1 ENCLOSURE, VERTICAL:

- Exterior walls masonry or concrete materials, including interior finish on exterior walls.
- Exterior doors, hollow metal or glass/aluminum.
- Fenestration aluminum or steel with plate or float glass. (Double pane insulating glass, reflective glass at added cost).
- Wall R Value = 19.

4.2 ENCLOSURE, HORIZONTAL:

- Roofing Built-up, single ply membrane, (use added cost for decorative tile or standing seam metal).
- Roof Insulation R Value = 30.

4.3 SUPPORT ITEMS:

- This line includes allowance for miscellaneous support items not categorized above. Use added cost for special support requirements in isolated cases.

9.0 CONVEYING:

- Elevator (hydraulic).
- Stairs: Steel pan and concrete fill, steel rails.

10.1 PLUMBING & FIRE PROTECTION:

- Fire protection riser.
- Water supply and sewer trunks.

10.2 HVAC:

- Chilled water riser.
- Hot water riser.
- Exhaust & fresh air riser.

11.0 ELECTRICAL

- Communication back bone.
- Vertical power feeder distribution.

A-4b INSTITUTIONAL, MULTI-STORY, 3 THRU 5 STORIES, CLASSROOMS/OFFICES, 16'-0" MIN. FINISHED FLOOR TO FINISHED FLOOR

2.1 SUBSTRUCTURE:

- Generally slab on grade floor system. Foundation, depending on location and soil conditions, usually spread footings, piers or caissons.
- Foundations at NAU, Flagstaff, are usually spread or pad footings on rock or combination of spread and caissons depending on combination of rock and soil.

3.0 STRUCTURE:

- Non-combustible materials, concrete or fire protected steel, structural columns, nominal bay spacing chosen for economy. Beams and purlins spaced to support deck. Metal or concrete deck (may be composite deck).
- Floor construction: Metal deck and concrete fill, concrete.

4.1 ENCLOSURE, VERTICAL:

- Exterior walls masonry or concrete materials, including interior finish on exterior walls.
- Exterior doors, hollow metal or glass/aluminum.
- Fenestration aluminum or steel with plate or float glass. (Double pane insulating glass, reflective glass at added cost).
- Wall R Value = 19.

4.2 ENCLOSURE, HORIZONTAL:

- Roofing Built-up, single ply membrane, (use added cost for decorative tile or standing seam metal).
- Roof Insulation R Value = 30.

4.3 SUPPORT ITEMS:

- This line includes allowance for miscellaneous support items not categorized above. Use added cost for special support requirements in isolated cases.

9.0 CONVEYING:

- Elevator (hydraulic).
- Stairs: Steel pan and concrete fill, steel rails.

10.1 PLUMBING & FIRE PROTECTION:

- Fire protection riser.
- Water supply and sewer trunks.

10.2 HVAC:

- Chilled water riser.
- Hot water riser.
- Exhaust & fresh air riser.

11.0 ELECTRICAL

- Communication back bone.
- Vertical power feeder distribution.

A-5 INSTITUTIONAL, MULTI-STORY, 6 THRU 10 STORIES, CLASSROOMS/OFFICES

2.1 SUBSTRUCTURE:

- Generally slab on grade floor system. Foundation, depending on location and soil conditions, usually piers or caissons.
- Foundations at NAU, Flagstaff, are usually spread or pad footings on rock or combination of spread and caissons depending on combination of rock and soil.

3.0 STRUCTURE:

- Non-combustible materials, concrete or fire protected steel, structural columns, nominal bay spacing chosen for economy. Beams and purlins spaced to support deck. Metal or concrete deck (may be composite deck).
- Floor construction: Metal deck and concrete.

4.1 ENCLOSURE, VERTICAL:

- Exterior walls masonry or concrete materials, including interior finish on exterior walls.
- Exterior doors, hollow metal or glass/aluminum.
- Fenestration aluminum or steel with plate or float glass. (Double pane insulating glass, reflective glass at added cost).
- Wall R Value = 19.

4.2 ENCLOSURE, HORIZONTAL:

- Roofing Built-up, single ply membrane.
- Roof Insulation R Value = 30.

4.3 SUPPORT ITEMS:

- This line includes allowance for miscellaneous support items not categorized above. Use added cost for special support requirements in isolated cases.

9.0 CONVEYING:

- Elevator (cable).
- Stairs: Steel pan and concrete fill, steel rails.

10.1 PLUMBING & FIRE PROTECTION:

- Fire pump and fire protection risers.
- Water supply and sewer trunks.

10.2 HVAC:

- Chilled water riser.
- Hot water riser.
- Exhaust & fresh air riser.

11.0 ELECTRICAL

- Communication back bone.
- Vertical power feeder distribution.

A-5a INSTITUTIONAL, MULTI-STORY, 3 THRU 5 STORIES, THEATER COMPLEX

2.1 SUBSTRUCTURE:

- Generally slab on grade floor system. Foundation, depending on location and soil conditions, usually piers or caissons.
- Foundations at NAU, Flagstaff, are usually spread or pad footings on rock or combination of spread and caissons depending on combination of rock and soil.

3.0 STRUCTURE:

- Non-combustible materials, concrete or fire protected steel, structural columns, nominal bay spacing chosen for economy. Beams and purlins spaced to support deck. Metal or concrete deck (may be composite deck).
- Structural columns, beams & deck spaced for integration of large span areas (auditoriums), 5 story or more high back stage areas, class room type and office type areas.
- Floor construction: Metal deck and concrete, sloped concrete in auditorium areas.

4.1 ENCLOSURE, VERTICAL:

- Exterior walls masonry or concrete materials, including interior finish on exterior walls.
- Exterior doors, hollow metal or glass/aluminum.
- Fenestration aluminum or steel with plate or float glass. (Double pane insulating glass, reflective glass at added cost).
- Wall R Value = 19.

4.2 ENCLOSURE, HORIZONTAL:

- Roofing Built-up, single ply membrane.
- Roof Insulation R Value = 30.

4.3 SUPPORT ITEMS:

- This line includes allowance for miscellaneous support items not categorized above. Use added cost for special support requirements in isolated cases.

9.0 CONVEYING:

- Elevator (hydraulic).
- Stairs: Steel pan and concrete fill, steel rails.

A-5b INSTITUTIONAL, MULTI-STORY, 6 THRU 10 STORIES, LABORATORY

2.1 SUBSTRUCTURE:

- Generally slab on grade floor system. Foundation, depending on location and soil conditions, usually piers or caissons.
- Foundations at NAU, Flagstaff, are usually spread or pad footings on rock or combination of spread and caissons depending on combination of rock and soil.
- Floor slab design for vibration control.

3.0 STRUCTURE:

- Non-combustible materials, concrete or fire protected steel, steel columns, nominal bay spacing chosen for economy. Beams and purlins spaced to support deck. Metal or concrete deck (may be composite deck). Structure designed for vibration control.
- Floor construction: Metal deck and concrete fill, or structural concrete system. Floor designed for vibration control.
- Minimum floor to floor height 16'-0".

4.1 ENCLOSURE, VERTICAL:

- Exterior walls masonry or concrete materials, including interior finish on exterior walls.
- Exterior doors, hollow metal or glass/aluminum.
- Fenestration aluminum or steel with plate or float glass. (Double pane insulating glass, reflective glass at added cost).
- Wall R Value = 19.

4.2 ENCLOSURE, HORIZONTAL:

- Roofing Built-up, single ply membrane.
- Roof Insulation R Value = 30.

4.3 SUPPORT ITEMS:

- This line includes allowance for miscellaneous support items not categorized above. Use added cost for special support requirements in isolated cases.

9.0 CONVEYING:

- Elevator (cable).
- Stairs: Steel pan and concrete fill, steel rails.

10.1 PLUMBING & FIRE PROTECTION:

- Fire pump and fire protection risers.
- Water supply and sewer trunks.

10.2 HVAC:

- Chilled water riser.
- Hot water riser.
- Exhaust & fresh air riser.

11.0 ELECTRICAL

- Communication back bone.
- Vertical power feeder distribution.

A-6 INSTITUTIONAL, ONE OR TWO STORIES, BELOW GRADE, CLASSROOMS/OFFICES (WITH BLDG. ABOVE)

2.1 SUBSTRUCTURE:

- Generally slab on grade floor system. Foundation, depending on location and soil conditions, usually spread footings.
- Retaining walls concrete or concrete masonry units with waterproofing.
- Additional cost for rock excavation at NAU Flagstaff.

3.0 STRUCTURE:

- Non-combustible materials, may be bearing wall and or structural columns, nominal bay spacing chosen for economy. Beams and purlins spaced to support deck. Metal or concrete deck (may be composite deck).

4.1 ENCLOSURE, VERTICAL:

- Perimeter walls (may be bearing walls) masonry or concrete materials, with waterproofing, including interior finish on exterior walls.
- Exterior doors, hollow metal or glass/aluminum.
- Fenestration aluminum or steel with plate or float glass. (Double pane insulating glass, reflective glass at added cost), possibly located in light wells.

4.2 ENCLOSURE, HORIZONTAL:

- Roofing Built-up, single ply membrane, possibly earth covered.
- Roof Insulation R Value = 30.

4.3 SUPPORT ITEMS:

- This line includes allowance for miscellaneous support items not categorized above. Use added cost for special support requirements in isolated cases.

9.0 CONVEYING:

- Elevator (hydraulic).
- Stairs: Steel pan and concrete fill, steel rails.

A-6a INSTITUTIONAL, ONE OR TWO STORIES, BELOW GRADE, LABORATORY (WITH BLDG. ABOVE)

2.1 SUBSTRUCTURE:

- Generally slab on grade floor system. Foundation, depending on location and soil conditions, usually spread footings.
- Retaining walls, concrete or concrete masonry units with waterproofing.
- Additional cost for rock excavation at NAU Flagstaff.
- Floor slab designed for vibration control.

3.0 STRUCTURE:

- Non-combustible materials, may be bearing wall and or structural columns, nominal bay spacing chosen for economy. Beams and purlins spaced to support deck.
- Metal or concrete deck (may be composite deck).
- Floor slab and structure designed for vibration control. Minimum floor height 16'-0".

4.1 ENCLOSURE, VERTICAL:

- Perimeter walls (may be bearing walls) masonry or concrete materials, with waterproofing. Interior finish on exterior walls is included in this line item.
- Exterior doors, hollow metal or glass/aluminum.
- Fenestration aluminum or steel with plate or float glass. (Double pane insulating glass, reflective glass at added cost), possibly located in light wells.

4.2 ENCLOSURE, HORIZONTAL:

- Roofing Built-up, single ply membrane, possibly earth covered.
- Roof Insulation R Value = 30.

4.3 SUPPORT ITEMS:

- This line includes allowance for miscellaneous support items not categorized above. Use added cost for special support requirements in isolated cases.

9.0 CONVEYING:

- Elevator (hydraulic).
- Stairs: Steel pan and concrete fill, steel rails.

**A-6b INSTITUTIONAL, ONE OR TWO STORIES, ENTIRELY BELOW GRADE, CLASSROOM/OFFICE
(NO BUILDING ABOVE)**

2.1 SUBSTRUCTURE:

- Generally slab on grade floor system. Foundation, depending on location and soil conditions, usually spread footings.
- Retaining walls, concrete or concrete masonry units with waterproofing.
- Additional cost for rock excavation at NAU Flagstaff.

3.0 STRUCTURE:

- Non-combustible materials, may be bearing wall and or structural columns, nominal bay spacing chosen for economy. Beams and purlins spaced to support deck.
- Concrete deck to support earth cover.

4.1 ENCLOSURE, VERTICAL:

- Perimeter walls (may be bearing walls) masonry or concrete materials, with waterproofing. Interior finish on exterior walls is included in this line item.
- Exterior doors, hollow metal or glass/aluminum, located in entrance/exit wells.
- Fenestration aluminum or steel with plate or float glass. (Double pane insulating glass, reflective glass at added cost), located in light wells.

4.2 ENCLOSURE, HORIZONTAL:

- Special waterproof membrane with earth cover (landscaped above).
- Roof Insulation R Value = 30.

4.3 SUPPORT ITEMS:

- This line includes allowance for miscellaneous support items not categorized above. Use added cost for special support requirements in isolated cases.

9.0 CONVEYING:

- Elevator (hydraulic).
- Stairs: Steel pan and concrete fill, steel rails.

Notes:

Landscaping is not included in cost matrix.

If pedestrian or vehicle paving is required above, extra cost is involved in both structure and material cost for horizontal enclosure which must be evaluated in each specific case.

A-7 RESIDENTIAL, ONE OR TWO STORIES

2.1 SUBSTRUCTURE:

- Generally slab on grade floor system. Foundation, depending on location and soil conditions, usually shallow spread footings.

3.0 STRUCTURE:

- Non-combustible material, or heavy timber, may be bearing wall or structural columns, nominal bay spacing chosen for economy. Beams and purlins spaced to support deck. Metal or concrete deck (may be composite deck), heavy timber deck.

4.1 ENCLOSURE, VERTICAL:

- Exterior walls (may be bearing walls) masonry or concrete materials, including interior finish on exterior walls.
- Exterior doors, hollow metal or glass/aluminum.
- Fenestration aluminum or steel with plate or float glass. (Double pane insulating glass, reflective glass at added cost).
- Wall R Value = 19.

4.2 ENCLOSURE, HORIZONTAL:

- Roofing Built-up, single ply membrane, or shingle type (use added cost for decorative tile or standing seam metal).
- Roof Insulation R Value = 30.

4.3 SUPPORT ITEMS:

- This line includes allowance for miscellaneous support items not categorized above. Use added cost for special support requirements in isolated cases.

9.0 CONVEYING:

- Elevator (hydraulic).
- Stairs: Steel pan and concrete fill, steel rails.

A-7a RESIDENTIAL, ONE OR TWO STORIES, WOOD FRAME

2.1 SUBSTRUCTURE:

- Generally slab on grade floor system. Foundation, depending on location and soil conditions, usually shallow spread footings.

3.0 STRUCTURE:

- Fire treated wood frame or masonry, may be bearing wall or structural columns, nominal bay spacing chosen for economy. Beams and purlins spaced to support fire treated wood deck.

4.1 ENCLOSURE, VERTICAL:

- Exterior walls (may be bearing walls) masonry with stucco or fire treated wood, including interior finish on exterior walls.
- Exterior doors, hollow metal or glass/aluminum.
- Fenestration aluminum or steel with plate or float glass. (Double pane insulating glass, reflective glass at added cost).
- Wall R Value = 19.

4.2 ENCLOSURE, HORIZONTAL:

- Roofing Built-up, single ply membrane, or shingle type (use added cost for decorative tile or standing seam metal).

4.3 SUPPORT ITEMS:

- This line includes allowance for miscellaneous support items not categorized above. Use added cost for special support requirements in isolated cases.

9.0 CONVEYING:

- Elevator (hydraulic).
- Stairs: Steel pan and concrete fill, steel rails.

A-8 RESIDENTIAL, 3 THRU 5 STORIES

2.1 SUBSTRUCTURE:

- Generally slab on grade floor system. Foundation, depending on location and soil conditions, usually shallow spread footings.

3.0 STRUCTURE:

- Non-combustible materials, concrete or fire protected steel, structural columns, nominal bay spacing chosen for economy. Beams and purlins spaced to support deck. Metal or concrete deck (may be composite deck) heavy timber deck.
- Floor construction: Metal deck and concrete fill, concrete.

4.1 ENCLOSURE, VERTICAL:

- Exterior walls masonry or concrete materials, including interior finish on exterior walls.
- Exterior doors, hollow metal or glass/aluminum.
- Fenestration aluminum or steel with plate or float glass. (Double pane insulating glass, reflective glass at added cost).
- Wall R Value = 19.

4.2 ENCLOSURE, HORIZONTAL:

- Roofing Built-up, single ply membrane, (use added cost for decorative tile or standing seam metal).
- Roof Insulation R Value = 30.

4.3 SUPPORT ITEMS:

- This line includes allowance for miscellaneous support items not categorized above. Use added cost for special support requirements in isolated cases.

9.0 CONVEYING:

- Elevator (hydraulic).
- Stairs: Steel pan and concrete fill, steel rails.

10.1 PLUMBING & FIRE PROTECTION:

- Fire protection riser.
- Water supply and sewer trunks.

10.2 HVAC:

- Chilled water riser.
- Hot water riser.
- Exhaust & fresh air riser.

11.0 ELECTRICAL

- Communication back bone.
- Vertical power feeder distribution.

A-9 RESIDENTIAL, 6 THRU 10 STORIES

2.1 SUBSTRUCTURE:

- Generally slab on grade floor system. Foundation, depending on location and soil conditions, usually piers or caissons.
- Foundations at NAU, Flagstaff, are usually spread or pad footings on rock or combination of spread and caissons depending on combination of rock and soil.

3.0 STRUCTURE:

- Non-combustible materials, concrete or fire protected steel, structural columns, nominal bay spacing chosen for economy. Beams and purlins spaced to support deck. Metal or concrete deck (may be composite deck) heavy timber deck.
- Floor construction: Metal deck and concrete fill, concrete.

4.1 ENCLOSURE, VERTICAL:

- Exterior walls masonry or concrete materials, including interior finish on exterior walls.
- Exterior doors, hollow metal or glass/aluminum.
- Fenestration aluminum or steel with plate or float glass. (Double pane insulating glass, reflective glass at added cost).
- Wall R Value = 19.

4.2 ENCLOSURE, HORIZONTAL:

- Roofing Built-up, single ply membrane.
- Roof Insulation R Value = 30.

4.3 SUPPORT ITEMS:

- This line includes allowance for miscellaneous support items not categorized above. Use added cost for special support requirements in isolated cases.

9.0 CONVEYING:

- Elevator (cable).
- Stairs: Steel pan and concrete fill, steel rails.

10.1 PLUMBING & FIRE PROTECTION:

- Fire pump and fire protection risers.
- Water supply and sewer trunks.

10.2 HVAC:

- Chilled water riser.
- Hot water riser.
- Exhaust & fresh air riser.

11.0 ELECTRICAL

- Communication back bone.
- Vertical power feeder distribution.

A-10 PARKING STRUCTURE (TO 3 LEVELS)

2.1 SUBSTRUCTURE:

- Generally slab on grade floor system. Foundation, depending on location and soil conditions, usually piers or caissons.
- Foundations at NAU, Flagstaff, are usually spread or pad footings on rock or combination of spread and caissons depending on combination of rock and soil.

3.0 STRUCTURE:

- Non-combustible materials, structural columns, nominal bay spacing chosen for economy. Beams and purlins spaced to support deck. Metal with concrete deck or concrete deck.
- Sloping floor concept.

4.1 ENCLOSURE, VERTICAL:

- Exterior walls masonry or concrete materials, partial height, not including interior finish on exterior walls.
- Exterior doors, hollow metal or glass/aluminum, if office area.
- Fenestration aluminum or steel with plate or float glass. (Double pane insulating glass, reflective glass at added cost) if office area.
- Wall R Value = 19.

4.2 ENCLOSURE, HORIZONTAL:

- Concrete parking deck.

4.3 SUPPORT ITEMS:

- Entrance and Exist gates, with telephone.
- Allowance for miscellaneous support items not categorized above. Use added cost for special support requirements in isolated cases.

5.1 INTERNALS VERTICAL:

- Interior walls, if office area.

5.2 INTERNALS HORIZONTAL:

- Floor covering, if office area.

6.0 SPECIALTIES:

- Signage.

7.0 EQUIPMENT:

- Entrance and exit gates.

9.0 CONVEYING:

- Elevator (hydraulic).
- Stairs: Steel pan and concrete fill, steel rails.

10.1 PLUMBING & FIRE PROTECTION:

- Parking deck/roof drainage.

11.0 ELECTRICAL

- Lighting.
- Power at gates.
- Telephone outlets.

A-11 PARKING STRUCTURE (4 TO 5 LEVELS)

2.1 SUBSTRUCTURE:

- Generally slab on grade floor system. Foundation, depending on location and soil conditions, usually piers or caissons.
- Foundations at NAU, Flagstaff, are usually spread or pad footings on rock or combination of spread and caissons depending on combination of rock and soil.

3.0 STRUCTURE:

- Non-combustible materials, or structural columns, nominal bay spacing chosen for economy. Beams and purlins spaced to support deck. Metal with concrete deck or concrete deck.
- Sloping floor concept.

4.1 ENCLOSURE, VERTICAL:

- Exterior walls masonry or concrete materials, partial height, not including interior finish on exterior walls.
- Exterior doors, hollow metal or glass/aluminum, if office area.
- Fenestration aluminum or steel with plate or float glass. (Double pane insulating glass, reflective glass at added cost) if office area.
- Wall R Value = 19.

4.2 ENCLOSURE, HORIZONTAL:

- Concrete parking deck.

4.3 SUPPORT ITEMS:

- Entrance and Exit gates, with telephone.
- Allowance for miscellaneous support items not categorized above. Use added cost for special support requirements in isolated cases.

5.1 INTERNALS VERTICAL:

- Interior walls, if office area.

5.2 INTERNALS HORIZONTAL:

- Floor covering, if office area.

6.0 SPECIALTIES:

- Signage.

7.0 EQUIPMENT:

- Entrance and exit gates.

9.0 CONVEYING:

- Elevator (cable).
- Stairs: Steel pan and concrete fill, steel rails.

10.1 PLUMBING & FIRE PROTECTION:

- Parking deck/roof drainage.

11.0 ELECTRICAL

- Lighting.
- Power at gates.
- Telephone outlets.

A-12 PARKING STRUCTURE, ONE OR TWO STORIES, BELOW GRADE

2.1 SUBSTRUCTURE:

- Generally slab on grade floor system. Foundation, depending on location and soil conditions, usually piers or caissons.
- Retaining walls, concrete or concrete masonry units with waterproofing.
- Additional cost for rock excavation at NAU Flagstaff.

3.0 STRUCTURE:

- Non-combustible materials, may be bearing wall and or structural columns, nominal bay spacing chosen for economy. Beams and purlins spaced to support deck. Metal with concrete deck or concrete deck.
- Sloping floor concept.

4.1 ENCLOSURE, VERTICAL:

- Perimeter walls (may be bearing walls) masonry or concrete materials with waterproofing. (Not including interior finish on exterior walls).
- Doors, hollow metal or glass/aluminum, if office area.
- Fenestration aluminum or steel with plate or float glass. (Double pane insulating glass, reflective glass at added cost), possibly located in light wells.

4.2 ENCLOSURE, HORIZONTAL:

- Roofing built-up, single ply membrane, possibly earth covered.
- Roof Insulation R Value = 30.

4.3 SUPPORT ITEMS:

- Entrance and Exit gates, with telephone.
- Allowance for miscellaneous support items not categorized above. Use added cost for special support requirements in isolated cases.

5.1 INTERNALS VERTICAL:

- Interior walls, if office area.

5.2 INTERNALS HORIZONTAL:

- Floor covering, if office area.

6.0 SPECIALTIES:

- Signage.

7.0 EQUIPMENT:

- Entrance and exit gates.

9.0 CONVEYING:

- Elevator (hydraulic).
- Stairs: Steel pan and concrete fill, steel rails.

10.1 PLUMBING & FIRE PROTECTION:

- Parking deck drainage.

10.2 HVAC:

- Exhaust.

11.0 ELECTRICAL

- Lighting.
- Power at gates.
- Telephone outlets.

A-13 PRE-ENGINEERED BUILDING/GREENHOUSE (550-1132 SF)

2.1 SUBSTRUCTURE:

- Slab on grade floor system. Foundation, depending on location and soil conditions, usually shallow spread footings.

3.0 STRUCTURE - STEEL, RIGID FRAME:

4.1 ENCLOSURE, VERTICAL:

- Exterior walls sill height approximately 3'-0", masonry or concrete materials. (Not including interior finish on exterior walls).
- Exterior doors, hollow metal or glass/aluminum.
- Glazing: 1/4" tempered glass.

4.2 ENCLOSURE, HORIZONTAL:

- Glazing: 1/4" tempered glass.

4.3 SUPPORT ITEMS:

- This line includes allowance for miscellaneous support items not categorized above. Use added cost for special support requirements in isolated cases.

9.0 CONVEYING:

- None.

A-14 PRE-ENGINEERED BUILDING/GREENHOUSE (1133-2264 + SF)

2.1 SUBSTRUCTURE:

- Slab on grade floor system. Foundation, depending on location and soil conditions, usually shallow spread footings.

3.0 STRUCTURE - STEEL, RIGID FRAME:

4.1 ENCLOSURE, VERTICAL:

- Exterior walls sill height approximately 3'-0", masonry or concrete materials. (Not including interior finish on exterior walls).
- Exterior doors, hollow metal or glass/aluminum.
- Glazing: 1/4" tempered glass.

4.2 ENCLOSURE, HORIZONTAL:

- Glazing: 1/4" tempered glass.

4.3 SUPPORT ITEMS:

- This line includes allowance for miscellaneous support items not categorized above. Use added cost for special support requirements in isolated cases.

9.0 CONVEYING:

- None.

A-15 PRE-ENGINEERED METAL BUILDING/WAREHOUSE

2.1 SUBSTRUCTURE:

- Slab on grade floor system. Foundation, depending on location and soil conditions, usually shallow spread footings.

3.0 STRUCTURE - STEEL, RIGID FRAME:

4.1 ENCLOSURE, VERTICAL:

- Exterior walls, metal siding furred out (including interior finish on exterior walls).
- Exterior doors, hollow metal.
- Fenestration aluminum or steel with plate or float glass. (Double pane insulating glass, reflective glass at added cost).
- Wall R Value = 19.

4.2 ENCLOSURE, HORIZONTAL:

- Roofing, metal with insulation.
- Roof Insulation R Value = 30.

4.3 SUPPORT ITEMS:

- This line includes allowance for miscellaneous support items not categorized above. Use added cost for special support requirements in isolated cases.

9.0 CONVEYING:

- None.

CATEGORIES - SERIES "B"

INTERIOR MATRIX - BUILDING USE SPECIFIC

The building system generally included in the Interior Matrix are:

- 5.1 Internals Vertical
- 5.2 Internals Horizontal
- 5.3 Special Finishes
- 5.4 Interiors
- 6.0 Building Specialties
- 7.0 Equipment
- 8.0 Special Construction
- 10.1 Plumbing & Fire Protection
- 10.2 HVAC
- 11.0 Electrical

The last three building systems require risers when the configuration is multi-story and for that reason they appear in both the Series A and B categories.

VOICE AND DATA COMMUNICATIONS

The provisions for voice and data communications throughout the specifications include the following items. The risers (back bone) elements are included in the structure matrix. The outlets and cable connection to the risers are included in the Interiors Matrix. The installation to be in accordance with EIA, TIA Standards.

Structure Matrix (Series A):

- Entrance to building 4-4" conduits from main entrance terminal room to 5' line outside.
- Utility closets stacked above main entrance terminal room with 2-4" empty sleeves (fire stopped).
- Copper cable riser sized for # of outlets on each floor. Separate jacket for voice riser and for data riser (Spare capacity for risers needs to be considered).
- Fiber riser 12 multi mode fibers to each floor, 6 single mode fibers to each floor.
- Coax broad band riser to each floor (where coax outlets are specified).

Interior Matrix (Series B):

- Dual jack with 1" conduit to accessible ceiling space.
- Category 5 cable from jack to utility closet terminal block 4 pair voice, 4 pair data for each dual jack (2 cables separate jackets).
- Cable above accessible ceiling to run in cable tray or an approved hanger.
- Coax broad band from outlet to riser in utility closet.

Fiber is not distributed to outlets in interior matrix. In special uses where fiber is required for research or graphics intensive applications it must be considered separately.

Service Facilities

Service facilities such as preparation space, storage, and the like are often required for all educational spaces. The specifications for such spaces should be the same as the space served by the facility. As an example the specification for service facility for a physics laboratory should be considered the same as the laboratory itself. Likewise the specification service facility for a classroom space or a multi media classroom should be the same as the classroom or multi media classroom which it serves.

Laboratories and Demonstration Classrooms

Utilities for laboratories fall generally into two types which have been designated type A and type B. The terms wet and dry have previously been applied to these two types.

Type A laboratories and Demonstration Classrooms are those used for Chemistry, Life Science, Biology, Zoology, Earth Sciences and all of their subdivisions. The unique features which are more specifically mentioned in the specifications include distribution of various gasses, compressed air, special treated or ultra pure water, and other fluids as well as provision for acid waste and fume exhaust. The emphasis in Type A laboratories is on chemicals but not to the exclusion of electrical utilities.

Type B laboratories are those used for Physics, Mechanics, Electrical and Electronic Sciences and all of their subdivisions. The unique features include distribution of special power, conditioned power, various voltages and signals and may include DC power. Special electromagnetic or radio frequency shielding falls into this type of facility. Normal water and waste would also be included.

Type C Laboratories are those concerned with the technical aspects of computers, electronics etc., areas for computer experimentation.

SERIES 100 CLASSROOM FACILITIES

B-110 CLASSROOM, SEMINAR (to 25), 200 - 375 S.F.

Wheelchair accessible but designated wheelchair areas not required because seating is non-fixed.

- 5.1 INTERNALS, VERTICAL:
 - Perimeter walls, floor to structure, of metal studs and gypsum board painted
 - Doors and frames hollow metal.

- 5.2 INTERNALS, HORIZONTAL:
 - Floor: Carpet. Max pile thickness 1/2". Edges fastened to floor surface and edge trim beveled with slope no greater than 1:2.
 - Ceiling: Suspended, exposed grid, lay-in acoustical style.

- 5.3 FINISHES, SPECIAL:
 - None

- 5.4 INTERIORS:
 - No case work or built-ins.

- 6.0 SPECIALTIES
 - Chalk/marker board.
 - Tack board.
 - projection screen.

- 7.0 EQUIPMENT:
 - None.

- 8.0 SPECIAL CONSTRUCTION:
 - None.

- 10.1 PLUMBING & FIRE PROTECTION:
 - No plumbing.
 - Sprinkler System.

- 10.2 HVAC:
 - Heating and air conditioning.
 - Heating and ventilating (No A/C) at NAU Flagstaff
 - * Direct digital control.

- 11.0 ELECTRICAL:
 - Lighting-Flourescent fixtures, ceiling, recessed. (Two zone switching, lighting foot candles can be reduced for note taking and video viewing).
 - Power - A.C. outlets each wall.
 - Special Systems - Audio, video, computer jacks: 2 dual jacks (data and voice) and 2 jacks coaxial broadband.
 - Provisions for control of lights and media from one location.
 - Class A Fire Alarm System, audible and visible.

* Revised April 29, 2002

SERIES 100 CLASSROOM FACILITIES

B-111 CLASSROOM (to 40), 600 - 800 S.F.

Wheel chair accessible but designated wheelchair areas not required because seating is non-fixed.

- 5.1 INTERNALS, VERTICAL:
- Perimeter walls to structure of metal studs with gypsum board painted.
 - Doors and Frames, hollow metal.
- 5.2 INTERNALS, HORIZONTAL:
- Floor: Carpet. Max pile thickness 1/2". Edges fastened to floor surface and edge trim beveled with slope not greater than 1:2.
 - Ceiling: Suspended, exposed grid, lay-in acoustical tile.
- 5.3 FINISHES, SPECIAL:
- None.
- 5.4 INTERIORS:
- No case work or built-ins.
- 6.0 SPECIALTIES:
- Chalk/marker board.
 - Tack board.
 - Projection screen.
- 7.0 EQUIPMENT:
- None.
- 8.0 SPECIAL CONSTRUCTION:
- None.
- 10.1 PLUMBING & FIRE PROTECTION:
- No Plumbing.
 - Sprinkler system.
- 10.2 HVAC:
- Heating and air conditioning.
 - Heating and ventilating (No A/C) at NAU Flagstaff.
 - * Direct digital control.
- 11.0 ELECTRICAL:
- Lighting-Flourescent fixtures, ceiling, recessed. (Two zone switching, lighting foot candles can be reduced for note taking and video viewing).
 - Power - A.C. outlets each wall.
 - Special Systems - Audio, video, computer jacks: 2 dual jacks (data and voice) and 2 jacks coaxial broadband.
 - Provisions for control of lights and media from one location.
 - Class A Fire Alarm System, audible and visible.

B-112 LECTURE CLASSROOM (to 75), 1000 - 1200 S.F.

Wheelchair accessible and specific wheelchair areas must be indicated.

1. Minimum size for two wheelchairs side by side = 48" x 66" forward or rear access, 60" x 66" side access.
 2. Number of required wheelchair locations = 4.
- 5.1 INTERNALS, VERTICAL:
- Perimeter walls to structure of metal studs with gypsum board painted.
 - Doors and frames hollow metal.
- 5.2 INTERNALS, HORIZONTAL:
- Floor: Carpet. Max pile thickness 1/2". Edges fastened to floor surface and edge trim beveled with slope no greater than 1:2.
 - Ceiling: Suspended, exposed grid, lay-in acoustical tile.
- 5.3 FINISHES, SPECIAL:
- None
- 5.4 INTERIORS:
- Instructors Bench, adjustable height (podium) on raised platform with ramp.
- 6.0 SPECIALTIES:
- Chalk/marker board, movable vertically.
 - Tack board.
 - Projection screen.
 - Fixed seating.
 - Signage to notify patrons of assistive listening available.
- 7.0 EQUIPMENT:
- None.
- 8.0 SPECIAL CONSTRUCTION:
- None
- 10.1 PLUMBING & FIRE PROTECTION:
- No plumbing.
 - Sprinkler system.
- 10.2 HVAC:
- Heating and air conditioning.
 - Heating and ventilating (No A/C) at NAU Flagstaff.

SERIES 100 CLASSROOM FACILITIES
B-112 LECTURE CLASSROOM (TO 75)

11.0 ELECTRICAL:

- Lighting-Fluorescent fixtures, ceiling, recessed. (Two zone switching, lighting foot candles can be reduced for note taking and video viewing).
- Power - A.C. outlets each wall.
- Special Systems - Audio, video, computer jacks: 2 dual jacks (data and voice) and 3 jacks coaxial broadband (one in ceiling, one in front and one in rear of room).
- Provisions for control of lights and media from one location.
- Class A Fire Alarm System, audible and visible.
- Assistive listening device, minimum 3 receivers.

B-113 LECTURE CLASSROOM WITH ITFS (to 75), 1,200 S.F.

Lecture classroom equipped with the capabilities of utilizing the microwave system of broadcasting, "Instructional Television Fixed System (ITFS). Three broadcast quality remote control TV cameras. Console for instructor contains tape deck, CD player, computer, pad camera, and monitor. Sound system with high fidelity speakers to receive audio from remote site and to enhance sound locally. An adjacent control room manages the signals out and operates cameras. Instructor and technician operate as a team. Wheelchair accessible and specific wheelchair areas must be indicated.

1. Minimum size for two wheelchairs side by side = 48" x 66" forward or rear access, 60" x 66" side access.
 2. Number of required wheelchair locations = 4.
- 5.1 INTERNALS, VERTICAL:
- Perimeter walls floor to structure, STC 50 minimum.
 - Doors sound control type gasketed, STC 50 minimum.
 - Adjacent control room, sound control type, STC 50 minimum.
- 5.2 INTERNALS, HORIZONTAL:
- Floor: Carpet. Max pile thickness 1/2". Edges fastened to floor surface and edge trim beveled with slope no greater than 1:2.
 - Ceiling: Suspended, exposed grid, lay-in acoustical tile.
- 5.3 FINISHES, SPECIAL:
- Acoustical wall treatment.
- 5.4 INTERIORS:
- Instructors Bench, adjustable height (podium) on raised platform with ramp.
- 6.0 SPECIALTIES:
- Projection screen.
 - Fixed seating.
 - Signage to notify patrons of assistive listening available.
- 7.0 EQUIPMENT:
- None.
- 8.0 SPECIAL CONSTRUCTION:
- None
- 10.1 PLUMBING & FIRE PROTECTION:
- No plumbing.
 - Sprinkler system.
- 10.2 HVAC:
- Sound controlled heating and air conditioning max. 24 db noise.
 - Sound controlled heating and ventilation (no A/C) at NAU Flagstaff.

SERIES 100 CLASSROOM FACILITIES
B-113 LECTURE CLASSROOM WITH ITFS (TO 75)

11.0 ELECTRICAL:

- Lighting-100 FC Fluorescent lighting, ceiling recessed well diffused and uniformly distributed.
- Power - Normal A.C. outlets each wall.
- Isolated clean power at front for instructors monitor, computer, and consoles six duplex outlets.
- Isolated duplex outlets at each camera location (3).
- Control room requires six normal and six isolated duplex outlets.
- Class A Fire Alarm System, audible and visible.
- Assistive listening device required, minimum number of receivers = 4.
- Special Systems:
 - Lecture room two dual voice/data jacks.
 - Control room four dual voice/data jacks.
 - Lecture room - fiber optics cable one circuit (jack in ceiling, front and rear of room).
 - Control room - fiber optics cable four circuits.
 - Conduit for camera control each camera.
 - Conduit and raceway for microphone at each student desk to control room.
 - Conduit for three consoles in lecture room to control room.
 - Coax broad band for monitor to control room.

B-114 LECTURE CLASSROOM (to 200) TYPE A, 2,400 S.F.

Chemistry, Biology, etc. (Demonstration). Wheelchair accessible and specific wheelchair areas must be indicated.

1. Minimum size for two wheelchairs side by side = 48" x 66" forward or rear access, 60" x 66" side access.
 2. Number of required wheelchair locations = 4.
- 5.1 INTERNALS, VERTICAL:
- Perimeter walls floor to structure, STC 50 minimum.
 - Doors sound control type gasketed, STC 50 minimum.
- 5.2 INTERNALS, HORIZONTAL:
- Floor: Carpet. Max pile thickness 1/2". Edges fastened to floor surface and edge trim beveled with slope no greater than 1:2.
 - Ceiling: Suspended, exposed grid, lay-in acoustical tile.
- 5.3 FINISHES, SPECIAL:
- Acoustical wall treatment.
- 5.4 INTERIORS:
- Base cabinets on raised platform with ramp.
 - Base cabinets to have portion of counter height at 28" to 34" with knee space at least 27" high, 30" wide and 19" deep.
- 6.0 SPECIALTIES:
- Chalk/marker board, movable vertically.
 - Tack board.
 - Projection screen.
 - Fixed seating.
 - Signage to notify patrons of assistive listening available.
- 7.0 EQUIPMENT:
- None.
- 8.0 SPECIAL CONSTRUCTION:
- Sloped floor, to be accessible by wheelchair.
- 10.1 PLUMBING & FIRE PROTECTION:
- Water and Type A requirements (see laboratories for Type A).
 - Sprinkler system.
- 10.2 HVAC:
- Heating and air conditioning.
 - Heating and ventilating (No A/C) at NAU Flagstaff.
 - Special exhaust at demonstration area.

SERIES 100 CLASSROOM FACILITIES
B-114 LECTURE CLASSROOM (TO 200) TYPE A

11.0 ELECTRICAL:

- Lighting-Fluorescent fixtures, ceiling, recessed. (Two zone switching, lighting foot candles can be reduced for note taking and video viewing).
- Power - A.C. outlets each wall.
- Special Systems - Audio, video, computer jacks: 2 dual jacks (data and voice) and 3 jacks coaxial broadband (one in ceiling, one in front and one in rear of room).
- Provisions for control of lights and media from one location, at base cabinet on raised platform.
- Provisions for video projection in ceiling.
- Class A Fire Alarm System, audible and visible.
- Assistive listening device, minimum 3 receivers.

B-115 LECTURE CLASSROOM (to 200) TYPE B, 2,400 S.F.

Physics, demonstration, etc. Wheelchair accessible and specific wheelchair areas must be indicated.

1. Minimum size for two wheelchairs side by side = 48" x 66" forward or rear access, 60" x 66" side access.
2. Number of required wheelchair locations = 4.
- 5.1 INTERNALS, VERTICAL:
 - Perimeter walls floor to structure, STC 50 minimum.
 - Doors sound control type gasketed, STC 50 minimum.
- 5.2 INTERNALS, HORIZONTAL:
 - Floor: Carpet. Max pile thickness 1/2". Edges fastened to floor surface and edge trim beveled with slope no greater than 1:2.
 - Ceiling: Suspended, exposed grid, lay-in acoustical tile.
- 5.3 FINISHES, SPECIAL:
 - Acoustical wall treatment.
- 5.4 INTERIORS:
 - Base cabinets on raised platform with ramp.
 - Base cabinets to have portion of counter height at 28" to 34" with knee space at least 27" high, 30" wide and 19" deep.
- 6.0 SPECIALTIES:
 - Chalk/marker board, movable vertically.
 - Tack board.
 - Projection screen.
 - Fixed seating.
 - Signage to notify patrons of assistive listening available.
- 7.0 EQUIPMENT:
 - None.
- 8.0 SPECIAL CONSTRUCTION:
 - Sloped floor, to be accessible by wheelchair.
- 10.1 PLUMBING & FIRE PROTECTION:
 - Water and Type B requirements (see laboratories for Type B).
 - Sprinkler system.
- 10.2 HVAC:
 - Heating and air conditioning.
 - Heating and ventilating (No A/C) at NAU Flagstaff.

SERIES 100 CLASSROOM FACILITIES
B-115 LECTURE CLASSROOM (TO 200) TYPE B

11.0 ELECTRICAL:

- Lighting-Fluorescent fixtures, ceiling, recessed. (Two zone switching, lighting foot candles can be reduced for note taking and video viewing).
- Control of natural lighting.
- Power - A.C. outlets each wall.
- Special Systems - Audio, video, computer jacks: 2 dual jacks (data and voice) and 3 jacks coaxial broadband (one in ceiling, one in front and one in rear of room).
- Provisions for control of lights and media from one location, at base cabinets on raised platform.
- Provisions for video projection in ceiling.
- Provisions for overhead projection.
- Class A Fire Alarm System, audible and visible.
- Assistive listening device, minimum 3 receivers.

SERIES 100 CLASSROOM FACILITIES

B-116 STUDIO CLASSROOM, 1,500 S.F.

Painting, Sculpture, Architecture, Graphics etc. Wheelchair accessible.

5.1 INTERNALS, VERTICAL:

- Perimeter walls, floor to structure, of metal stud and gypsum board, epoxy paint.
- Doors and frames hollow metal.

5.2 INTERNALS, HORIZONTAL:

- Floor: Hard surface, sealed concrete vinyl composition tile.
- Ceiling: Suspended, exposed grid, lay-in acoustical tile.

5.3 FINISHES, SPECIAL:

- None.

5.4 INTERIORS:

- Minimal Length of base and wall cabinets.
 - Clear floor space 30" x 48" for forward or parallel approach.
 - Forward approach maximum high reach = 48", minimum low = 15"
 - Parallel approach maximum high = 54", minimum low = 9"

6.0 SPECIALTIES:

- Chalk/marker board.
- Tack board.
- Projection screen.

7.0 EQUIPMENT:

- None.

8.0 SPECIAL CONSTRUCTION:

- Natural lighting.
- Raised platform for models, still life etc.

10.1 PLUMBING & FIRE PROTECTION:

- Water and drains.
- Sprinkler system.

10.2 HVAC:

- Heating and air conditioning.
- Heating and ventilating (No A/C) at NAU Flagstaff.

*

- Direct digital control.

11.0 ELECTRICAL:

- Lighting - Fluorescent fixtures, ceiling, recessed. (Two zone switching, lighting foot candles can be reduced for not taking and video viewing).
- Power - A.C. outlets each wall.
- Special Systems - Audio, video, computer jacks: 2 dual jacks (data and voice) and 2 jacks coaxial broadband.
- Provisions for control of lights and media from one location.
- Class A Fire Alarm System, audible and visible.

*Revised April 29, 2002

10B-13

SERIES 100 CLASSROOM FACILITIES

B-117 EXHIBIT SPACE, 2,000 S.F.

Relates to and/or adjoins studio classroom areas. Wheelchair accessible but designate wheelchair areas not required because seating is non-fixed.

- 5.1 INTERNALS, VERTICAL:
 - Perimeter walls metal studs with gypsum board.
 - Doors and frames hollow metal.

- 5.2 INTERNALS, HORIZONTAL:
 - Floor: Carpet. Max pile thickness 1/2". Edges fastened to floor surface and edge trim beveled with slope no greater than 1:2.
 - Ceiling: Suspended, exposed grid, lay-in acoustical tile.

- 5.3 FINISHES, SPECIAL:
 - Tackable vinyl, etc., on gypsum board.

- 5.4 INTERIORS:
 - None.

- 6.0 SPECIALTIES:
 - None.

- 7.0 EQUIPMENT:
 - None.

- 8.0 SPECIAL CONSTRUCTION:
 - None.

- 10.1 PLUMBING & FIRE PROTECTION:
 - No plumbing.
 - Sprinkler System.

- 10.2 HVAC:
 - Heating and air conditioning.
 - Heating and ventilating (No A/C) at NAU Flagstaff.

- *
 - Direct digital control

- 11.0 ELECTRICAL:
 - Lighting - Fluorescent light fixtures, ceiling, recessed.
 - Directional lighting.
 - Power - A.C. outlets each wall.
 - Special Systems - Audio video, computer jacks: 2 dual jacks (data and voice) and 2 jacks coaxial broadband.
 - Class A Fire Alarm System, audible and visible.

B-118 MUSIC ROOM LARGE GROUP, 2,000 S.F.

Wheelchair accessible, no fixed seating. Choral, Band, Orchestra (50 to 100 occupants).

5.1 INTERNALS, VERTICAL:

- Perimeter walls floor to structure, STC 55 minimum.
- Doors, sound control type gasketed, STC 55 minimum.

5.2 INTERNALS, HORIZONTAL:

- Floor: Carpet. Max pile thickness ½". Edges fastened to floor surface and edge trim beveled with slope no greater than 1:2.
- Ceiling: Special acoustical treatment, may be shape for reverberation control.

4.3 FINISHES, SPECIAL:

- Acoustical wall treatment.

5.4 INTERIORS:

- Minimal length of base and wall cabinets.
 - Clear floor space 30" x 48" for forward or parallel approach.
 - Forward approach maximum high reach = 48", minimum low = 15".
 - Parallel approach maximum high = 54", minimum low = 9".

6.0 SPECIALTIES:

- Chalk/marker board.
- Tack board.
- Projection screen

7.0 EQUIPMENT:

- None.

8.0 SPECIAL CONSTRUCTION:

- Tiered (raised floor), with ramp or tiered level accessible to wheelchair.

10.1 PLUMBING & FIRE PROTECTION:

- No plumbing.
- Sprinkler system.

10.2 HVAC:

- Heating and air conditioning.
- Heating and ventilating (No A/C) at NAU Flagstaff.
- Sound baffling in supply and return air ducts.

*

- Direct Digital Control.

11.0 ELECTRICAL:

- Lighting – Fluorescent light fixtures, ceiling, recessed.
- Power – A.C. outlets each wall.
- Special Systems – Audio, video, computer jacks: 2 dual jacks (data and voice) and 2 jacks coaxial broadband.
- Provisions for audio recording and playback.
- Class A Fire Alarm System, audible and visible.

*Revised April 29, 2002

B-119 MUSIC ROOM, PRACTICE, SMALL GROUP, 200 S.F.

Wheelchair accessible

- 5.1 **INTERNALS, VERTICAL:**
- Perimeter walls floor to structure, STC 55 minimum.
 - Doors, sound control type gasketed, STC 55 minimum.
 - Sound proof H.M frame and glazing, STC 55 minimum.
- 5.2 **INTERNALS, HORIZONTAL:**
- Floor: Carpet. Max pile thickness ½". Edges fastened to floor surface and edge trim beveled with slope no greater than 1:2.
 - Ceiling: Special acoustical treatment.
- 5.3 **FINISHES, SPECIAL:**
- Acoustical wall treatment.
- 5.4 **INTERIORS:**
- None.
- 6.0 **SPECIALTIES:**
- None.
- 7.0 **EQUIPMENT:**
- None.
- 8.0 **SPECIAL CONSTRUCTION:**
- None.
- 10.1 **PLUMBING & FIRE PROTECTION:**
- No plumbing.
 - Sprinkler system.
- 10.2 **HVAC:**
- Heating and air conditioning.
 - Heating and ventilating (No A/C) at NAU Flagstaff.
 - Special baffling in supply and return air ducts.
- * • Direct Digital Control.
- 11.0 **ELECTRICAL:**
- Lighting – Fluorescent light fixtures, ceiling, recessed.
 - Power – A.C. outlets each wall.
 - Special Systems – Audio, video, computer jacks: 1 dual jack (data and voice) and 1 jack coaxial broadband.
 - Class A Fire Alarm System, audible and visible.

B-120 HIGHLY MEDIATED, LECTURE CLASSROOM (300 TO 400), 4,800 – 5,000 S.F.

Large lecture type classroom, theater, for 300 to 400 students with multi media capabilities such as multi-media projector that can project computers and videos from central lecture podium. Lecture podium contains tape deck, CD player, computer monitor and pad camera. No separate control room is required. Wheelchair accessible, specific wheelchair areas must be indicated.

1. Minimum size two wheelchairs side by side = 48" x 66" forward or rear access 60"x 66" side access.
 2. Number of required wheelchair locations = 6.
- 5.1 INTERNALS, VERTICAL:
 - Perimeter walls floor to structure, STC 50 minimum.
 - Doors, sound control type gasketed, STC 50 minimum.
 - 5.2 INTERNALS, HORIZONTAL:
 - Floor: Carpet with carpet risers and safety nosing tiered (6" risers). Maximum carpet pile thickness ½".
 - Ceiling: Suspended exposed grid acoustical lay-in.
 - 5.3 FINISHES, SPECIAL:
 - Acoustical wall treatment.
 - 5.4 INTERIORS:
 - Instructors station (podium).
 - 6.0 SPECIALTIES:
 - Fixed seating with writing table.
 - Projection screen.
 - Signage to notify patrons of assistive listening availability.
 - 7.0 EQUIPMENT
 - None.
 - 8.0 SPECIAL CONSTRUCTION:
 - Tiered seating risers.
 - Tiered risers accessible to wheelchairs.
 - 9.0 CONVEYING:
 - N/A
 - 10.1 PLUMBING & FIRE PROTECTION:
 - No plumbing.
 - Sprinkler System.
 - 10.2 HVAC:
 - Sound controlled heating and air conditioning max 24 db noise.
 - Sound controlled heating and ventilation (No A/C) at NAU Flagstaff.
- * Direct Digital Control

SERIES 100 CLASSROOM FACILITIES
B-120 HIGHLY MEDIATED, LECTURE CLASSROOM (300 TO 400)

10.0 ELECTRICAL:

- Lighting – 100 FC fluorescent lighting, ceiling recessed well diffused and uniformly distributed. Two zone switching so lighting foot candles can be reduced.
- Power – A.C. outlets each wall.
- Isolated clean power at front for monitors and computer. Six duplex outlets.
- Assistive listening devised: minimum quantity = 16.
- Special Systems:
 - Lecture podium two dual voice/data jacks.
 - Lecture podium – one jack coaxial broadband.
- * • Class A Fire Alarm System, audible and visible.

Note: If each student station is to have a data jack and conditioned power, the cost must be considered separately.

SERIES 100 CLASSROOM FACILITIES

B-121 HIGHLY MEDIATED, CLASSROOM (FLEXIBLE ARRANGEMENT) 20 to 45 STUDENTS, 800-1,000 S.F.

Classroom for 20 to 45 students with movable furnishings, eg, tables and chairs, equipped for multi media presentations. Emphasis is on a large number of computers connected to a local network with server and output devices locally. Interactive groups of students use the technology. The room is wheelchair accessible.

5.1 INTERNALS, VERTICAL:

- Perimeter walls to structure of metal studs with gypsum board painted.
- Door and frames hollow metal.

5.2 INTERNALS, HORIZONTAL:

- Floor: Raised access floor (6") with carpet surface. Maximum carpet thickness is ½".
- Ceiling: Suspended, exposed grid, lay-in acoustical tile.

5.3 FINISHES, SPECIAL:

- None.

5.4 INTERIORS:

- No case work or built-ins.

6.0 SPECIALTIES:

- Raised access floor.
- Chalk/marker board.
- Tack board.
- Projection screen.

7.0 EQUIPMENT:

- None.

8.0 SPECIAL CONSTRUCTION:

- Recess structural floor to allow for raised access floor.

10.1 PLUMBING & FIRE PROTECTION:

- No plumbing.
- Sprinkler system.

10.2 HVAC:

- Heating and air conditioning
- Heating and ventilation (no A/C at NAU Flagstaff).

- * Direct Digital Control.

10.3 ELECTRICAL:

- Lighting – Fluorescent light fixtures, ceiling recessed. (Two zone switching – lighting foot candles can be reduced for taking notes).
- Power – A.C. outlets each wall.
- Special Systems – Power boxes flush mounted in floor. One ever 30 s.f.. Front of room for instructor provide for data, voice, and video with dual jack (data and voice) and 1 jack of coaxial broadband and isolated power for computer. At boxes in floor for students provide for isolated power for computer. At boxes in floor for students provide for isolated power for computer and data, 1 dual jack (data).

- * Class A Fire Alarm System, Audible & Visible

* Revised April 29,2002

B-122 HIGHLY MEDIATED, CLASSROOM (FLEXIBLE ARRANGEMENT) to 75 STUDENTS, 1,200 - 1,400 S.F.

Classroom for 75 students with movable furnishings, eg. Tables and chairs, equipped for multi media presentations. Emphasis is on a large number for computers connected to a local network with server and output devices locally. Interactive groups of students use the technology. The room is wheelchair accessible.

5.1 INTERNALS, VERTICAL:

- Perimeter walls to structure of metal studs with gypsum board painted.
- Doors and frames hollow metal.

5.2 INTERNALS, HORIZONTAL:

- Floor: Raised access floor (6") with carpet surface. Maximum carpet pile thickness is 1/2".
- Ceiling: Suspended, exposed grid, lay-in acoustical tile.

5.3 FINISHES, SPECIAL:

- None.

5.4 INTERIORS:

- No case work or build-ins.

6.0 SPECIALTIES:

- Raised access floor.
- Chalk/marker board.
- Tack board.
- Projection screen.

7.0 EQUIPMENT:

- None.

8.0 SPECIAL CONSTRUCTION:

- Recess structural floor to allow for raised access roof.

10.1 PLUMBING & FIRE PROTECTION.

- No plumbing.
- Sprinkler system.

10.2 HVAC:

- Heating and air conditioning.
- Heating and ventilation (no A/C at NAU Flagstaff).
- * Direct Digital Control

11.0 ELECTRICAL:

- Lighting - fluorescent light fixtures, ceiling recessed. (Two zone switching - lighting foot candles can be reduced for taking notes.
- Power - A.C. outlets each wall.
- Special Systems - Power boxes flush mounted in floor. One box ever 30 s.f.. Front for room for instructor provide for data, voice and video with dual jack (data and voice) and 1 jack of coaxial broadband and isolated power for computer. At boxes in floor for students provide for isolated power for computer and data, 1 dual jack (data).
- Class A Fire Alarm System, audible and visible.

*Revised April 29, 2002

SERIES 100 CLASSROOM FACILITIES

B-123 MULTI MEDIA CLASSROOM to 250 STUDENTS, 2,600 - 3,00 S.F.

Flexible room for 150 to 250 students, equipped for multimedia presentations with a raised floor and flush mounted power boxes throughout, (approximately one power box per each 30 s.f.). Location of the instructor and students is totally flexible. The instructor's podium has control of computers, video and pad camera projection. Sound is by wireless microphone on the instructor and speakers mounted in the ceiling throughout the room. The room is wheelchair accessible.

5.1 INTERNALS, VERTICAL:

- Perimeter walls to structure of metal studs with gypsum board painted.
- Doors and frames hollow metal.

5.2 INTERNALS, HORIZONTAL:

- Floor: Raised access floor (6") with carpet surface. Maximum carpet pile thickness is 1/2".
- Ceiling: Suspended, exposed grid, lay-in acoustical tile.

5.3 FINISHES, SPECIAL:

- None.

5.4 INTERIORS:

- No case work or build-ins.

6.0 SPECIALTIES:

- Raised access floor.
- Chalk/marker board.
- Tack board.
- Projection screen (not built-in).
- Signage to notify patrons of assistive listening availability.

7.0 EQUIPMENT:

- None.

8.0 SPECIAL CONSTRUCTION:

- Recess structural floor to allow for raised access roof.

10.1 PLUMBING & FIRE PROTECTION.

- No plumbing.
- Sprinkler system.

10.2 HVAC:

- Heating and air conditioning.
- Heating and ventilation (no A/C at NAU Flagstaff).

*

- Direct Digital Control

**SERIES 100 CLASSROOM FACILITIES
B-123 MULTI MEDIA CLASSROOM TO 250 STUDENTS**

11.0 ELECTRICAL:

- Lighting - fluorescent light fixtures, ceiling recessed. (Two zone switching - lighting foot candles can be reduced for taking notes).
- Power - A.C. outlets each wall.
- Special Systems - Power boxes flush mounted in floor. One box ever 30 s.f.. Box contains data, voice and video with dual jack (data and voice) and 1 jack of coaxial broadband. Isolated power to each box.
- Class A Fire Alarm System, audible and visible.
- Assistive listening device required. Minimum number of receivers = 10.

B-124 INTERACTIVE TV, LECTURE CLASSROOM (TO 90)

1200 to 2000 S.F.

Control Room 150 S.F.

Lecture classroom with tiered fixed seating and equipped for interactive TV instruction linked to one or more similarly equipped remote sites. Four broadcast quality remote control TV cameras and two 60" minimum TV monitors. Consoles for instructor contain tape deck, CD player, computer, pad camera, and monitors. Sound system with high fidelity speakers to receive audio from remote site and to enhance sound locally. An adjacent control room manages the signals in and out and operates cameras. Instructor and technician operate as a team. Note that equipment costs (TV cameras, monitors, tape deck, CD player, computers, pad camera) are not included. The room infrastructure, conduit etc. is included in the cost. Wheelchair accessible and specific wheelchair areas must be indicated.

1. Minimum size for two wheelchairs side by side = 48" x 66" forward or rear access, 60" x 66" side access.
 2. Number of required wheelchair locations = 4
- 5.1 INTERNALS, VERTICAL:
 - Perimeter walls floor to structure STC 50 min.
 - Doors, sound control type gasketed STC 50 min.
 - 5.2 INTERNALS, HORIZONTAL:
 - Floor: Carpet with carpet risers and safety nosing tiered (6" risers).
 - Ceiling: Suspended, exposed grid, lay-in acoustical tile.
 - 5.3 FINISHES, SPECIAL:
 - Acoustical wall treatment
 - 5.4 INTERIORS:
 - Base for TV monitors.
 - Instructors station.
 - 6.0 SPECIALTIES:
 - Fixed seating with continuous writing table.
 - Signage to notify patrons of assistive listening availability.
 - 7.0 EQUIPMENT:
 - None.
 - 8.0 SPECIAL CONSTRUCTION:
 - Tiered seating risers, accessible to wheelchairs.
 - 9.0 CONVEYING:
 - None.
 - 10.1 PLUMBING:
 - No plumbing.
 - Sprinkler system.

SERIES 100 CLASSROOM FACILITIES
B-124 INTERACTIVE TV, LECTURE CLASSROOM (TO 90)

10.2 HVAC:

- Sound controlled heating and air conditioning max. 24 db noise.
- Sound controlled heating and ventilation (no A/C at NAU Flagstaff).
- * • Direct Digital Control

11.0 ELECTRICAL:

- Lighting - 100 FC fluorescent lighting, ceiling recessed well diffused and uniformly distributed..
- Power - A.C. outlets each wall.
- Isolated clean power at front for monitors, computers, and consoles six duplex outlets.
- Isolated duplex outlets at each camera location (4).
- Control room requires six normal and six isolated duplex outlets.
- Class A Fire Alarm System, audible and visible.
- Assistive listening device required. Minimum number of receivers = 10.
- Special Systems:
 - Lecture room two dual voice/data jacks.
 - Control room four dual voice/data jacks.
 - Lecture room - fiber optics cable one circuit.
 - Control room - fiber optics cable four circuits.
 - Conduit for camera control each camera.
 - Conduit and raceway for microphone at each student desk to control room.
 - Conduit for three consoles in lecture room to control room.
 - Coax broadband for monitors to control room.

B-125 INTERACTIVE TV, CLASSROOM, FLEXIBLE ARRANGEMENT (TO 40)

900 to 1000 S.F.

Control Room 150 S.F.

Classroom for 30 to 40 students equipped for interactive TV instruction linked to one or more similarly equipped remote sites. No fixed seating, level floor, designed for flexible arrangement of furniture with microphones for each student and instructor. Three broadcast quality remote control TV cameras and one 60" TV monitor. Consoles for instructor contain tape deck, CD player, computer, pad camera, and monitors. Sound system to receive remote audio signals. An adjacent control room manages the signals in and out and operates cameras. Instructor and technician operate as a team. Flexibility requires raised floor (6") to allow easy relocation of microphone, data, and power outlets to suit changing room configuration. Note that equipment costs (TV cameras, monitors, tape deck, CD player, computers, pad camera) are not included. The room infrastructure, conduit etc. is included in the cost. Wheelchair accessible and specific wheelchair areas must be indicated.

5.1 INTERNALS, VERTICAL:

- Perimeter walls floor to structure STC 50 min.
- Doors, sound control type gasketed STC 50 min.

5.2 INTERNALS, HORIZONTAL:

- Floor: Carpet with carpet risers and safety nosing tiered (6" risers).
- Ceiling: Suspended, exposed grid, lay-in acoustical tile.

5.3 FINISHES, SPECIAL:

- None.

5.4 INTERIORS:

- Base for TV monitors.
- Instructors station (podium).

6.0 SPECIALTIES:

- Raised access floor.

7.0 EQUIPMENT:

- None.

8.0 SPECIAL CONSTRUCTION:

- Recess structural floor to allow for raised access floor.

9.0 CONVEYING:

- None.

10.1 PLUMBING:

- No plumbing.
- Sprinkler system.

10.2 HVAC:

- Sound controlled heating and air conditioning max. 24 db noise.
- Sound controlled heating and ventilation (no A/C at NAU Flagstaff).

- * Direct Digital Control

SERIES 100 CLASSROOM FACILITIES
B-125 INTERACTIVE TV, CLASSROOM, FLEXIBLE ARRANGEMENT (TO 40)

11.0 ELECTRICAL:

- Lighting - 100 FC fluorescent lighting, ceiling recessed well diffused and uniformly distributed..
- Power - A.C. outlets each wall and to under raised floor (four duplex outlets in floor).
- Isolated clean power, four duplex outlets in floor and three at camera locations.
- Control room requires six normal and six isolated duplex outlets.
- Special Systems:
 - One dual voice/data jack.
 - Control room four dual voice/data jacks.
 - Control room - fiber optics cable four circuits.
 - Conduit for camera control three locations.
 - Coax broadband for monitors to control room.

B-126 INTERACTIVE TV, CLASSROOM, FIXED ARRANGEMENT (TO 40)

900 to 1000 S.F.

Control Room 150 S.F.

Classroom for 30 to 40 students equipped for interactive TV instruction linked to one or more similarly equipped remote sites. Fixed seating, level floor, with microphones for each student and instructor. Three broadcast quality remote control TV cameras and one 60" TV monitor. Consoles for instructor contain tape deck, CD player, computer, pad camera, and monitors. Sound system to receive audio from remote site. An adjacent control room manages the signals in and out and operates cameras. Instructor and technician operate as a team. Note that equipment costs (TV cameras, monitors, tape deck, CD player, computers, pad camera) are not included. The room infrastructure, conduit etc. is included in the cost. Wheelchair accessible and specific wheelchair areas must be indicated.

1. Minimum size for two wheelchairs side by side = 48" x 66" forward or rear access, 60" x 66" side access.
 2. Number of required wheelchair locations = 2
- 5.1 INTERNALS, VERTICAL: WALLS
 - Perimeter walls floor to structure STC 50 min.
 - Doors, sound control type gasketed STC 50 min.
 - 5.2 INTERNALS, HORIZONTAL:
 - Carpet surface, maximum pile height of 1/2"
 - Ceiling: Suspended, exposed grid, lay-in acoustical tile.
 - 5.3 FINISHES, SPECIAL:
 - None.
 - 5.4 INTERIORS:
 - Base for TV monitors.
 - Instructors station (podium).
 - 6.0 SPECIALTIES:
 - Fixed seating
 - Signage to notify patrons of assistive listening availability.
 - 7.0 EQUIPMENT:
 - None.
 - 8.0 SPECIAL CONSTRUCTION:
 - None
 - 9.0 CONVEYING:
 - None.
 - 10.1 PLUMBING:
 - No plumbing.
 - Sprinkler system.

SERIES 100 CLASSROOM FACILITIES
B-126 INTERACTIVE TV, CLASSROOM, FIXED ARRANGEMENT (TO 40)

10.2 HVAC:

- Sound controlled heating and air conditioning max. 24 db noise.
- Sound controlled heating and ventilation (no A/C at NAU Flagstaff).
- * • Direct Digital Control

11.0 ELECTRICAL:

- Lighting - 100 FC fluorescent lighting, ceiling recessed well diffused and uniformly distributed..
- Power - Normal A.C. outlets each wall and flush mounted in floor.
- Isolated clean power, four duplex outlets in floor and three at cameras.
- Control room requires six normal and six isolated duplex outlets.
- Class A Fire Alarm System, audible and visible.
- Assistive listening device required. Minimum number of receivers = 10.
- Special Systems:
 - One dual voice/data jack.
 - Control room four dual voice/data jacks.
 - Control room - fiber optics cable four circuits.
 - Conduit for camera control three locations.
 - Coax broadband for monitors to control room.

B-210 CLASS LABORATORY (TO 30), TYPE A, 1,400 S.F.

Chemistry, Biology, Zoology. Wheelchair accessible, fixed student stations.

5.1 INTERNALS, VERTICAL:

- Perimeter walls, floor to structure, of metal studs with gypsum board, epoxy paint.
- Doors and frames, hollow metal.
- Walls and doors, STC 48 minimum.

5.2 INTERNALS, HORIZONTAL:

- Floor: Hard Surface: Vinyl composition tile.
- Ceiling: Suspended, exposed grid, lay-in acoustical tile.

5.3 FINISHES, SPECIAL:

- None.

5.4 INTERIORS:

- Work counter for each station. Provide two wheelchair accessible stations.
 - Clear floor space shall be 30" x 48".
 - Knee clearances 27" high, 30" wide and 19" deep.
 - Height of counters 28" to 34" above the finished floor.
 - Base & Wall Cabinets.
 - Clear floor space 30" x 48" for forward of parallel approach.
 - Forward approach maximum high reach = 48", minimum low = 15".
 - Parallel approach maximum high = 54", minimum low = 9".

6.0 SPECIALTIES:

- Chalk/marker board
- Tack board.
- Projection screen.

7.0 EQUIPMENT:

- None.

8.0 SPECIAL CONSTRUCTION:

- None.

10.1 PLUMBING AND FIRE PROTECTION:

- Water, drains, gas, air (all Type A requirements).
- Sprinkler system.

10.2 HVAC:

- Heating and air conditioning.
- Heating and ventilation (no A/C) at NAU Flagstaff.
- Special exhaust hoods.

SERIES 200 LABORATORY FACILITIES
B-210 CLASS LABORATORY (TO 30), TYPE A

11.0 ELECTRICAL:

- Lighting-Fluorescent light fixtures, ceiling, recessed (two zone switching - lighting foot candles can be reduced for note taking and video viewing).
- Power - A.C. power outlets each wall.
- Special Systems - Audio, video, computer jack: 2 dual jacks (data and voice), 2 jacks coaxial broadband. 1 wall telephone jack at exit door.
- Provisions for control of lights and media from one location.
- Class A Fire Alarm System, audible and visible.

B-220 CLASS LABORATORY (TO 30), TYPE B, 1,200 S.F.

Physics, Electronics, Geology etc. Wheelchair accessible, fixed student stations.

5.1 INTERNALS, VERTICAL:

- Perimeter walls, floor to structure, of metal studs with gypsum board, epoxy paint.
- Doors and frames, hollow metal.
- Walls and doors, STC 48 minimum.

5.2 INTERNALS, HORIZONTAL:

- Floor: Hard Surface: Vinyl composition tile.
- Ceiling: Suspended, exposed grid, lay-in acoustical tile.

5.3 FINISHES, SPECIAL:

- None.

5.4 INTERIORS:

- Work counter for each station. Provide two wheelchair accessible stations.
 - Clear floor space shall be 30" x 48".
 - Knee clearances 27" high, 30 " wide and 19 " deep.
 - Height of counters 28" to 34" above the finished floor.
- Base & Wall Cabinets.
 - Clear floor space 30" x 48" for forward of parallel approach.
 - Forward approach maximum high reach = 48", minimum low = 15".
 - Parallel approach maximum high = 54", minimum low = 9".

6.0 SPECIALTIES:

- Chalk/marker board
- Tack board.
- Projection screen.

7.0 EQUIPMENT:

- None.

8.0 SPECIAL CONSTRUCTION:

- None.

10.1 PLUMBING AND FIRE PROTECTION:

- Water, drains, air (all Type B requirements).
- Sprinkler system.

10.2 HVAC:

- Heating and air conditioning.
- Heating and ventilation (no A/C) at NAU Flagstaff.

SERIES 200 LABORATORY FACILITIES
B-220 CLASS LABORATORY (TO 30), TYPE B

11.0 ELECTRICAL:

- Lighting-Fluorescent light fixtures, ceiling, recessed (two zone switching - lighting foot candles can be reduced for note taking and video viewing).
- Power - A.C. & D.C. power outlets each wall. (Variable voltage required).
- Special Systems - Audio, video, computer jack: 2 dual jacks (data and voice), 2 jacks coaxial broadband. 1 wall telephone jack at exit door.
- Provisions for control of lights and media from one location.
- Class A Fire Alarm System, audible and visible.

B-221 CLASS LABORATORY (TO 30), TYPE C, 1,000 S.F.

Computer facilities at each station. Wheelchair accessible, fixed student stations.

5.1 INTERNALS, VERTICAL:

- Perimeter walls, floor to structure, of metal studs with gypsum board painted.
- Doors and frames, hollow metal.

5.2 INTERNALS, HORIZONTAL:

- Floor: Carpet. Maximum pile thickness 1/2". Edges fastened to floor surface and edge trim beveled with slope no greater than 1:2.
- Ceiling: Suspended, exposed grid, lay-in acoustical tile.

5.3 FINISHES, SPECIAL:

- None.

5.4 INTERIORS:

- Work counter for each station. Provide two wheelchair accessible stations.
 - Clear floor space shall be 30" x 48".
 - Knee clearances 27" high, 30" wide and 19" deep.
 - Height of counters 28" to 34" above the finished floor.
 - Base & Wall Cabinets.
 - Clear floor space 30" x 48" for forward of parallel approach.
 - Forward approach maximum high reach = 48", minimum low = 15".
 - Parallel approach maximum high = 54", minimum low = 9".

6.0 SPECIALTIES:

- Chalk/marker board
- Tack board.
- Projection screen.

7.0 EQUIPMENT:

- None.

8.0 SPECIAL CONSTRUCTION:

- None.

10.1 PLUMBING AND FIRE PROTECTION:

- Sprinkler system.

10.2 HVAC:

- Heating and air conditioning.
- Heating and ventilation (no A/C) at NAU Flagstaff.

SERIES 200 LABORATORY FACILITIES
B-221 CLASS LABORATORY (TO 30) TYPE C

11.0 ELECTRICAL:

- Lighting - Fluorescent light fixtures, ceiling, recessed (two zone switching - lights can be lowered for note taking and video viewing).
- Power - A.C. power outlets each wall.
- Special Systems - Audio, video, computer jack: 2 dual jacks (data and voice) and 1 dual jack (data and voice) at each station, 1 jack coaxial broadband at each station. 1 wall telephone jack at exit door.
- Computer jacks at each station with isolated power.
- Provisions for control of lights and media from one location.
- Class A Fire Alarm System, audible and visible.

B-225 HAZARDOUS MATERIAL STORAGE (TYPE A MATERIALS), 150 S.F.

- 5.1 INTERNALS, VERTICAL:
 - Perimeter walls, floor to structure, of metal studs with gypsum board, epoxy paint.
 - Doors and frames, hollow metal. Heavy duty fire rated door and frame.
 - Walls and doors, STC 48 minimum.

- 5.2 INTERNALS, HORIZONTAL:
 - Floor: Hard Surface: Vinyl composition tile.
 - Ceiling: Suspended, exposed grid, lay-in acoustical tile.

- 5.3 FINISHES, SPECIAL:
 - None.

- 5.4 INTERIORS:
 - None.

- 6.0 SPECIALTIES:
 - None.

- 7.0 EQUIPMENT:
 - None.

- 8.0 SPECIAL CONSTRUCTION:
 - None.

- 10.1 PLUMBING AND FIRE PROTECTION:
 - Water, drains, gas, air (all Type A requirements).
 - Sprinkler system.

- 10.2 HVAC:
 - Heating and air conditioning.
 - Heating and ventilation (no A/C) at NAU Flagstaff.

- 11.0 ELECTRICAL: ALL SYSTEMS TO MEET CODE REQUIREMENTS FOR HAZARDOUS AREA
 - Lighting - Fluorescent light fixtures, ceiling, recessed.
 - Power - A.C. power outlets each wall.
 - Class A Fire Alarm System, audible and visible.

B-230 INDIVIDUAL STUDY LAB (TO 30), TYPE A, 1,000 S.F.

Chemistry, Biology, Zoology, etc., with individual work counters and lockable base cabinet storage at each station. Wheelchair accessible, fixed student stations.

- 5.1 INTERNALS, VERTICAL:
 - Perimeter walls, floor to structure, of metal studs with gypsum board, epoxy paint.
 - Doors and frames, hollow metal.
 - Walls and doors, STC 48 minimum.

- 5.2 INTERNALS, HORIZONTAL:
 - Floor: Hard Surface: Vinyl composition tile.
 - Ceiling: Suspended, exposed grid, lay-in acoustical tile.

- 5.3 FINISHES, SPECIAL:
 - None.

- 5.4 INTERIORS:
 - Work counter for each station. Provide two wheelchair accessible stations.
 - Clear floor space shall be 30" x 48".
 - Knee clearances 27" high, 30 " wide and 19 " deep.
 - Height of counters 28" to 34" above the finished floor.
 - Base & Wall Cabinets.
 - Clear floor space 30" x 48" for forward or parallel approach.
 - Forward approach maximum high reach = 48", minimum low = 15".
 - Parallel approach maximum high = 54", minimum low = 9".

- 6.0 SPECIALTIES:
 - Chalk/marker board
 - Tack board.

- 7.0 EQUIPMENT:
 - None.

- 8.0 SPECIAL CONSTRUCTION:
 - None.

- 10.1 PLUMBING AND FIRE PROTECTION:
 - Water, drains, gas, air (all Type A requirements).
 - Sprinkler system.

- 10.2 HVAC:
 - Heating and air conditioning.
 - Heating and ventilation (no A/C) at NAU Flagstaff.
 - Exhaust hood at each station.

SERIES 200 LABORATORY FACILITIES
B-230 INDIVIDUAL STUDY LABORATORY (TO 30), TYPE A

11.0 ELECTRICAL:

- Lighting - Fluorescent light fixtures, ceiling, recessed.
- Power - A.C. power outlets each wall and station.
- Special Systems - Audio, video, computer jack: 1 dual jack (data and voice), and 1 jack coaxial broadband at each station. 1 wall telephone jack at exit door.
- Class A Fire Alarm System, audible and visible.

B-235 INDIVIDUAL STUDY LABORATORY (TO 30), TYPE B, 1,000 S.F.

Physics, Electronics, etc., with individual work counters and lockable base cabinet storage at each station. Wheelchair accessible, fixed student stations.

5.1 INTERNALS, VERTICAL:

- Perimeter walls, floor to structure, of metal studs with gypsum board, epoxy paint.
- Doors and frames, hollow metal.
- Walls and doors, STC 48 minimum.

5.2 INTERNALS, HORIZONTAL:

- Floor: Hard Surface: Vinyl composition tile.
- Ceiling: Open joists for hanging equipment.

5.3 FINISHES, SPECIAL:

- None.

5.4 INTERIORS:

- Work counter for each station. Provide two wheelchair accessible stations.
 - Clear floor space shall be 30" x 48".
 - Knee clearances 27" high, 30" wide and 19" deep.
 - Height of counters 28" to 34" above the finished floor.
- Base & Wall Cabinets.
 - Clear floor space 30" x 48" for forward or parallel approach.
 - Forward approach maximum high reach = 48", minimum low = 15".
 - Parallel approach maximum high = 54", minimum low = 9".

6.0 SPECIALTIES:

- Chalk/marker board
- Tack board.

7.0 EQUIPMENT:

- None.

8.0 SPECIAL CONSTRUCTION:

- None.

10.1 PLUMBING AND FIRE PROTECTION:

- Water, drains, air (all Type B requirements).
- Sprinkler system.

10.2 HVAC:

- Heating and air conditioning.
- Heating and ventilation (no A/C) at NAU Flagstaff.
- Exhaust hoods at each station.

SERIES 200 LABORATORY FACILITIES
B-235 INDIVIDUAL STUDY LABORATORY (TO 30), TYPE B

11.0 ELECTRICAL:

- Lighting-Fluorescent light fixtures, ceiling, recessed.
- Power - A.C. power outlets each wall and station.
- Special Systems - Audio, video, computer jack: 1 dual jack (data and voice) at each station, 1 jack coaxial broadband at each station. 1 wall telephone jack at exit door.
- Class A Fire Alarm System, audible and visible.

B-236 INDIVIDUAL STUDY/RESEARCH LAB, SMALL TYPE A, 200 S.F.

An area, individual room, that can be locked. Study research in chemistry etc. Wheelchair accessible.

5.1 INTERNALS, VERTICAL:

- Perimeter walls, floor to structure, of metal studs with gypsum board, epoxy paint.
- Doors and frames, hollow metal.

5.2 INTERNALS, HORIZONTAL:

- Floor: Hard Surface: Vinyl composition tile.
- Ceiling: Suspended, exposed grid, lay-in acoustical tile or exposed for hanging equipment.

5.3 FINISHES, SPECIAL:

- None.

5.4 INTERIORS:

- Base & Wall Cabinets.
 - Clear floor space 30" x 48" for forward or parallel approach.
 - Forward approach maximum high reach = 48", minimum low = 15".
 - Parallel approach maximum high = 54", minimum low = 9".

6.0 SPECIALTIES:

- Chalk/marker board.
- Tack board.

7.0 EQUIPMENT:

- None.

8.0 SPECIAL CONSTRUCTION:

- None.

10.1 PLUMBING AND FIRE PROTECTION:

- Water, drains, gas, air (all Type A requirements).
- Sprinkler system.

10.2 HVAC:

- Heating and air conditioning.
- Heating and ventilation (no A/C) at NAU Flagstaff.
- Special exhaust hoods.

11.0 ELECTRICAL:

- Lighting - Fluorescent light fixtures, ceiling, recessed.
- Power - A.C. power outlets each wall.
- Special Systems - Audio, video, computer jack: 1 dual jack (data and voice), 1 jack coaxial broadband, 1 wall telephone jack at exit door.
- Class A Fire Alarm System, audible and visible.

B-237 INDIVIDUAL STUDY/RESEARCH LABORATORY, SMALL TYPE B, 200 S.F.

An area, individual room, that can be locked. Study research in physics, electronics, etc. Wheelchair accessible.

5.1 INTERNALS, VERTICAL:

- Perimeter walls, floor to structure, of metal studs with gypsum board, epoxy paint.
- Doors and frames, hollow metal.

5.2 INTERNALS, HORIZONTAL:

- Floor: Hard Surface: Vinyl composition tile.
- Ceiling: Suspended, exposed grid, lay-in acoustical tile or exposed for hanging equipment.

5.3 FINISHES, SPECIAL:

- None.

5.4 INTERIORS:

- Base & Wall Cabinets.
 - Clear floor space 30" x 48" for forward or parallel approach.
 - Forward approach maximum high reach = 48", minimum low = 15".
 - Parallel approach maximum high = 54", minimum low = 9".

6.0 SPECIALTIES:

- Chalk/marker board.
- Tack board.

7.0 EQUIPMENT:

- None.

8.0 SPECIAL CONSTRUCTION:

- None.

10.1 PLUMBING AND FIRE PROTECTION:

- Water, drains, air (all Type B requirements).
- Sprinkler system.

10.2 HVAC:

- Heating and air conditioning.
- Heating and ventilation (no A/C) at NAU Flagstaff.
- Special exhaust hoods.

11.0 ELECTRICAL:

- Lighting - Fluorescent light fixtures, ceiling, recessed.
- Power - A.C. & D.C. power outlets each wall (variable voltage required).
- Special Systems - Audio, video, computer jack: 1 dual jack (data and voice), 1 jack coaxial broadband, 1 wall telephone jack at exit door.
- Class A Fire Alarm System, audible and visible.

B-238 RESEARCH, LARGE AREA, TYPE A, 2,500 S.F.

A large area with the floor unencumbered with benches and furnishings, research equipment can be located anywhere. Services (Gas, Water, Air, etc.) are provided from the ceiling and run the length of the room with stub-outs, enabling service connections where needed. Chemistry Research etc. Wheelchair accessible.

5.1 INTERNALS, VERTICAL:

- Perimeter walls, floor to structure, of metal studs with gypsum board, epoxy paint.
- Doors and frames, hollow metal.

5.2 INTERNALS, HORIZONTAL:

- Floor: Hard Surface: Vinyl composition tile.
- Ceiling: Suspended, exposed grid, lay-in acoustical tile or exposed for hanging equipment.

5.3 FINISHES, SPECIAL:

- None.

5.4 INTERIORS:

- Minimal Base & Wall cabinets.
 - Clear floor space 30" x 48" for forward or parallel approach.
 - Forward approach maximum high reach = 48", minimum low = 15".
 - Parallel approach maximum high = 54", minimum low = 9".

6.0 SPECIALTIES:

- Chalk/marker board.
- Tack board.

7.0 EQUIPMENT:

- None.

8.0 SPECIAL CONSTRUCTION:

- None.

10.1 PLUMBING AND FIRE PROTECTION:

- Water, drains, gas, air (all Type A requirements).
- Sprinkler system.

10.2 HVAC:

- Heating and air conditioning.
- Heating and ventilation (no A/C) at NAU Flagstaff.
- Special exhaust hoods.

SERIES 200 LABORATORY FACILITIES
B-238 RESEARCH LARGE AREA, TYPE A

11.0 ELECTRICAL:

- Lighting-Fluorescent light fixtures, ceiling, recessed.
- Power - A.C. power outlets each wall.
- Special Systems - Audio, video, computer jack: 2 dual jacks (data and voice) 2 jacks coaxial broadband. 1 wall telephone jack at exit door.
- Class A Fire Alarm System, audible and visible.

B-239 RESEARCH, LARGE AREA, TYPE B, 2,500 S.F.

A large area with the floor unencumbered with benches and furnishings, research equipment can be located anywhere. Services (Gas, Water, Air, Power, etc.) are provided from the ceiling and run the length of the room with stub-outs, enabling service connections where needed. Physics, Electronic, Research, etc. Wheelchair accessible.

5.1 INTERNALS, VERTICAL:

- Perimeter walls, floor to structure, of metal studs with gypsum board, epoxy paint.
- Doors and frames, hollow metal.

5.2 INTERNALS, HORIZONTAL:

- Floor: Hard Surface: Vinyl composition tile.
- Ceiling: Suspended, exposed grid, lay-in acoustical tile or exposed for hanging equipment.

5.3 FINISHES, SPECIAL:

- None.

5.4 INTERIORS:

- Minimal Base & Wall cabinets.
 - Clear floor space 30" x 48" for forward or parallel approach.
 - Forward approach maximum high reach = 48", minimum low = 15".
 - Parallel approach maximum high = 54", minimum low = 9".

6.0 SPECIALTIES:

- Chalk/marker board.
- Tack board.

7.0 EQUIPMENT:

- None.

8.0 SPECIAL CONSTRUCTION:

- None.

10.1 PLUMBING AND FIRE PROTECTION:

- Water, drains, air (all Type B requirements).
- Sprinkler system.

10.2 HVAC:

- Heating and air conditioning.
- Heating and ventilation (no A/C) at NAU Flagstaff.
- Special exhaust hoods.

SERIES 200 LABORATORY FACILITIES
B-239 RESEARCH LARGE AREA, TYPE B

11.0 ELECTRICAL:

- Lighting-Fluorescent light fixtures, ceiling, recessed.
- Power - A.C. power outlets each wall.
- Special Systems - Audio, video, computer jack: 2 dual jacks (data and voice), 2 jacks coaxial broadband. 1 wall telephone jack at exit door.
- Power AC, DC power outlets walls and ceiling variable voltage required.
- Class A Fire Alarm System, audible and visible.

SERIES 200 LABORATORY FACILITIES

B-240 RESEARCH, MEDICAL (924 sf. Per 6 PERSONNEL LAB)

DESCRIPTION:

A single facility consisting of several individual laboratories with each individual lab consisting of work space for four (4) to six (6) research personnel along with an area for animal housing and observation, there may also be an area/room for bacteria cultures. There should be a minimum of one exhaust hood for two (2) researchers along with work counter-top base cabinets and work top tables. Animal area and bacteria culture rooms should have temperature, humidity and light level that can be readily adapted to whatever is the particular research being done at the time. Odor control is also a factor, particularly in the animal area.

Any areas researching infectious diseases must have exhausted air pass through gas flames or electric grids before being released into the atmosphere.

The support areas, such as animal housing and observation and bacteria culture rooms are comparable in cost and are included in the laboratory cost.

All areas should be wheelchair accessible.

5.1 INTERNALS, VERTICAL:

- Perimeter walls, floor to structure, of metal studs with gypsum board, epoxy paint.
- Doors and Frames - Hollow Metal, gasketed.

5.2 INTERNALS, HORIZONTAL:

- Floor: Hard Surface - Welded seam sheet vinyl with integral cove base
- Ceiling: Suspended, exposed grid, lay-in vinyl faced acoustical tile.

5.3 FINISHES, SPECIAL:

- None

5.4 INTERIORS:

- Base and Wall Cabinets:
Base Cabinet - 144 LF
Wall Cabinet - 102 LF

6.0 SPECIALTIES:

- Chalk/Marker Board
- Tack Board

10B - 45A

Added April 29, 2002

SERIES 200 LABORATORY FACILITIES
B-240 RESEARCH MEDICAL

7.0 EQUIPMENT:

- None

8.0 SPECIAL CONSTRUCTION:

- None

10.1 PLUMBING AND FIRE PROTECTION:

- Water, drains, gas, air (All Type A requirements).
- Six (6) Stainless Steel Sinks.
- Sprinkler System
- Steam to water exchanger
- Acid Waste

10.2 HVAC:

- Heating and Air Conditioning.
- Special Exhaust Hoods, 3 per 6 person Lab.
- Odor Control.
- Animal rooms at 78 degrees F and 50% RH.
- Air Purification.
- Direct Digital Control
- Electric Grid Incinerator

11.0 ELECTRICAL:

- Lighting: - Fluorescent light fixtures, ceiling, recessed, dimmable.
- Power: - A.C. power outlets each wall, plug-mold at base cabinet counter top.
- Special Systems: - Audio, video, computer jack: 2 dual jacks (data & voice), 2 jacks coaxial broadband, 1 wall telephone jack per 2 personnel stations.
- Class A Fire Alarm System, audible and visible.
- Intrusion System; closed circuit TV, Card key access

B-310 OFFICE (100 - 150 S.F.)

Wheelchair accessible.

5.1 INTERNALS, VERTICAL:

- Perimeter walls floor to structure, STC 45 minimum.
- Door and frame, hollow metal.

5.2 INTERNALS, HORIZONTAL:

- Floor: Carpet. Maximum pile thickness of 1/2". Edges fastened to floor surface and edge trim beveled with slope no greater than 1:2.
- Ceiling: Suspended, exposed grid, lay-in acoustical tile.

5.3 FINISHES, SPECIAL:

- None.

5.4 INTERIORS:

- None.

6.0 SPECIALTIES:

- None.

7.0 EQUIPMENT:

- None.

8.0 SPECIAL CONSTRUCTION:

- None.

10.1 PLUMBING AND FIRE PROTECTION:

- No Plumbing.
- Sprinkler system.

10.2 HVAC:

- Heating and air conditioning.
- Heating and ventilation (no A/C) at NAU Flagstaff.

11.0 ELECTRICAL:

- Lighting: Fluorescent fixtures, ceiling, recessed.
- Power: AC power outlets each wall.
- Special Systems - Audio, video, computer jacks: 2 dual jacks (data and voice), 1 jack coaxial broadband.
- Class A Fire Alarm System, audible and visible.

B-311 OFFICE (150 + S.F.)

Wheelchair accessible.

5.1 INTERNALS, VERTICAL:

- Perimeter walls floor to structure, STC 45 minimum.
- Door and frame, hollow metal.

5.2 INTERNALS, HORIZONTAL:

- Floor: Carpet. Maximum pile thickness of 1/2". Edges fastened to floor surface and edge trim beveled with slope no greater than 1:2.
- Ceiling: Suspended, exposed grid, lay-in acoustical tile.

5.3 FINISHES, SPECIAL:

- None.

5.4 INTERIORS:

- None.

6.0 SPECIALTIES:

- None.

7.0 EQUIPMENT:

- None.

8.0 SPECIAL CONSTRUCTION:

- None.

10.1 PLUMBING AND FIRE PROTECTION:

- No Plumbing.
- Sprinkler system.

10.2 HVAC:

- Heating and air conditioning.
- Heating and ventilation (no A/C) at NAU Flagstaff.

11.0 ELECTRICAL:

- Lighting: Fluorescent fixtures, ceiling, recessed.
- Power: AC power outlets each wall.
- Special Systems - Audio, video, computer jacks: 2 dual jacks (data and voice), 2 jacks coaxial broadband.
- Class A Fire Alarm System, audible and visible.

B-350 CONFERENCE ROOM (TO 25), 500 S.F.

Wheelchair accessible.

5.1 INTERNALS, VERTICAL:

- Perimeter walls floor to structure, STC 45 minimum.
- Door and frame, hollow metal with sound control, gasketed STC 45 minimum.

5.2 INTERNALS, HORIZONTAL:

- Floor: Carpet. Maximum pile thickness of 1/2". Edges fastened to floor surface and edge trim beveled with slope no greater than 1:2.
- Ceiling: Suspended, exposed grid, lay-in acoustical tile.

5.3 FINISHES, SPECIAL:

- None.

5.4 INTERIORS:

- None.

6.0 SPECIALTIES:

- Chalk/marker board.
- Projection screen.

7.0 EQUIPMENT:

- None.

8.0 SPECIAL CONSTRUCTION:

- None.

10.1 PLUMBING AND FIRE PROTECTION:

- No Plumbing.
- Sprinkler system.

10.2 HVAC:

- Heating and air conditioning.
- Heating and ventilation (no A/C) at NAU Flagstaff.

11.0 ELECTRICAL:

- Lighting: Fluorescent fixtures, ceiling, recessed. (Two zone switching - lighting foot candles can be reduced for presentations).
- Power: AC power outlets each wall.
- Special Systems - Audio, video, computer jacks: 2 dual jacks (data and voice), 1 jack coaxial broadband.
- Central location for control of lights and media.
- Class A Fire Alarm System, audible and visible.

B-351 CONFERENCE ROOM (ADVANCED T.V.), 600 S.F.

Wheelchair accessible.

5.1 INTERNALS, VERTICAL:

- Perimeter walls floor to structure, STC 45 minimum.
- Door and frame, hollow metal with sound control, gasketed STC 45 minimum.

5.2 INTERNALS, HORIZONTAL:

- Floor: Carpet. Maximum pile thickness of 1/2". Edges fastened to floor surface and edge trim beveled with slope no greater than 1:2.
- Ceiling: Suspended, exposed grid, lay-in acoustical tile.

5.3 FINISHES, SPECIAL:

- None.

5.4 INTERIORS:

- None.

6.0 SPECIALTIES:

- Chalk/marker board.
- Projection screen.

7.0 EQUIPMENT:

- None.

8.0 SPECIAL CONSTRUCTION:

- None.

10.1 PLUMBING AND FIRE PROTECTION:

- No Plumbing.
- Sprinkler system.

10.2 HVAC:

- Heating and air conditioning.
- Heating and ventilation (no A/C) at NAU Flagstaff.

11.0 ELECTRICAL:

- Lighting: Fluorescent fixtures, ceiling, recessed. (Two zone switching - lighting foot candles can be reduced for presentations).
- Power: AC power outlets each wall.
- Special Systems - Audio, video, computer jacks: 2 dual jacks (data and voice), 1 jack coaxial broadband.
- Provisions for video to video transmittal.
- Central location for control of lights and media.
- Class A Fire Alarm System, audible and visible.

B-360 OPEN OFFICE AREA W/MODULAR WORK STATIONS (100 S.F. PER STATION)

Wheelchair accessible.

- 5.1 INTERNALS, VERTICAL:
 - Perimeter walls floor to structure, STC 45 minimum.
 - Door and frame, hollow metal.
- 5.2 INTERNALS, HORIZONTAL:
 - Floor: Carpet. Maximum pile thickness of 1/2". Edges fastened to floor surface and edge trim beveled with slope no greater than 1:2.
 - Ceiling: Suspended, exposed grid, lay-in acoustical tile.
- 5.3 FINISHES, SPECIAL:
 - None.
- 5.4 INTERIORS:
 - None.
- 6.0 SPECIALTIES:
 - None.
- 7.0 EQUIPMENT:
 - None.
- 8.0 SPECIAL CONSTRUCTION:
 - None.
- 10.1 PLUMBING AND FIRE PROTECTION:
 - No Plumbing.
 - Sprinkler system.
- 10.2 HVAC:
 - Heating and air conditioning.
 - Heating and ventilation (no A/C) at NAU Flagstaff.
- 11.0 ELECTRICAL:
 - Lighting: Fluorescent fixtures, ceiling, recessed.
 - Power: AC power outlets each wall and in each station by power poles.
 - Special Systems - Audio, video, computer jacks (fed by power poles): 1 dual jack (data and voice) at each station, 1 jack coaxial broadband at each station.
 - Class A Fire Alarm System, audible and visible.

B-410 READING/STUDY ROOM, 2,000 S.F.

Wheelchair accessible.

5.1 INTERNALS, VERTICAL:

- Perimeter walls to structure above metal studs and gypsum board painted.
- Doors and frames, hollow metal.

5.2 INTERNALS, HORIZONTAL:

- Floor: Carpet. Maximum pile thickness of 1/2". Edges fastened to floor surface and edge trim beveled with slope no greater than 1:2.
- Ceiling: Suspended, exposed grid, lay-in acoustical tile.

5.3 FINISHES, SPECIAL:

- None.

5.4 INTERIORS:

- None.

6.0 SPECIALTIES:

- None.

7.0 EQUIPMENT:

- None.

8.0 SPECIAL CONSTRUCTION:

- None.

10.1 PLUMBING AND FIRE PROTECTION:

- No Plumbing.
- Sprinkler system.

10.2 HVAC:

- Heating and air conditioning.
- Heating and ventilation (no A/C) at NAU Flagstaff.

11.0 ELECTRICAL:

- Lighting: Fluorescent fixtures, ceiling, recessed.
- Power: AC power outlets in perimeter walls and at study carrel locations.
- Special Systems - Audio, video, computer jacks at carrel locations: 1 dual jack (data and voice), 1 jack coaxial broadband.
- Class A Fire Alarm System, audible and visible.

B-410a COMPUTER COMMONS, 1,200 + S.F.

Large open area on raised access floor with computer work stations of various types and including various output devices for use by students on an individual basis for individual study, research and work. Open 24 hours. Wheelchair accessible.

5.1 INTERNALS, VERTICAL:

- Perimeter walls to structure above metal studs and gypsum board painted.
- Doors and frames, hollow metal.

5.2 INTERNALS, HORIZONTAL:

- Floor: Raised access floor with carpet surface. Pile of carpet at 1/2" maximum.
- Ceiling: Suspended, exposed grid, lay-in acoustical tile.

5.3 FINISHES, SPECIAL:

- None.

5.4 INTERIORS:

- None.

6.0 SPECIALTIES:

- Raised access floor.

7.0 EQUIPMENT:

- None.

8.0 SPECIAL CONSTRUCTION:

- Recess structural floor to allow for raised access floor.

10.1 PLUMBING AND FIRE PROTECTION:

- No Plumbing.
- Sprinkler system.

10.2 HVAC:

- Heating and air conditioning.
- Heating and ventilation (no A/C) at NAU Flagstaff.

11.0 ELECTRICAL:

- Lighting: Fluorescent fixtures, ceiling, recessed.
- Power: AC power outlets in perimeter walls and flush mounted in raised floor.
- Isolated power for computers.
- Special Systems - Audio, video, computer jacks flush mounted in floor at one per each 30 S.F.:
1 dual jack (data and voice), 1 jack coaxial broadband.
- Class A Fire Alarm System, audible and visible.

B-420 STACKS

Wheelchair accessible.

5.1 INTERNALS, VERTICAL:

- Perimeter walls to structure above, metal studs and gypsum board painted.
- Doors and frames, hollow metal.

5.2 INTERNALS, HORIZONTAL:

- Floor: Carpet. Maximum pile thickness of 1/2". Edges fastened to floor surface and edge trim beveled with slope no greater than 1:2.
- Ceiling: Suspended, exposed grid, lay-in acoustical tile.

5.3 FINISHES, SPECIAL:

- None.

5.4 INTERIORS:

- Shelving metal, height is unrestricted.

6.0 SPECIALTIES:

- Signage.

7.0 EQUIPMENT:

- None.

8.0 SPECIAL CONSTRUCTION:

- Increased structural due to above normal loading.

10.1 PLUMBING AND FIRE PROTECTION:

- No Plumbing.
- Sprinkler system. (Rare book area: dry type, 2 stage).

10.2 HVAC:

- Heating and air conditioning.
- Heating and ventilation (no A/C) at NAU Flagstaff.
- Special air and humidity control for rare book collections.

11.0 ELECTRICAL:

- Lighting: Fluorescent fixtures, ceiling, recessed.
- Power: AC power outlets in perimeter walls and at study carrel locations.
- Special Systems - Audio, video, computer jacks at study carrels: 1 dual jack (data and voice), 1 jack coaxial broadband.
- Class A Fire Alarm System, audible and visible.

B-430 OPEN STACK READING ROOM, 2,000 - 4,000 S.F.

Wheelchair accessible.

5.1 INTERNALS, VERTICAL:

- Perimeter walls to structure above, metal studs and gypsum board painted.
- Doors and frames, hollow metal.

5.2 INTERNALS, HORIZONTAL:

- Floor: Carpet. Maximum pile thickness of 1/2". Edges fastened to floor surface and edge trim beveled with slope no greater than 1:2.
- Ceiling: Suspended, exposed grid, lay-in acoustical tile.

5.3 FINISHES, SPECIAL:

- None.

5.4 INTERIORS:

- Shelving metal, height is unrestricted.

6.0 SPECIALTIES:

- None.

7.0 EQUIPMENT:

- None.

8.0 SPECIAL CONSTRUCTION:

- Increased structural due to above normal loading.

10.1 PLUMBING AND FIRE PROTECTION:

- No Plumbing.
- Sprinkler system.

10.2 HVAC:

- Heating and air conditioning.
- Heating and ventilation (no A/C) at NAU Flagstaff.

11.0 ELECTRICAL:

- Lighting: Fluorescent fixtures, ceiling, recessed.
- Power: AC power outlets in perimeter walls and at study carrel locations.
- Special Systems - Audio, video, computer jacks at carrel locations: 1 dual jack (data and voice), 1 jack coaxial broadband.
- Class A Fire Alarm System, audible and visible.

B-440 LIBRARY WORK ROOM, 600 S.F.

Wheelchair accessible.

5.1 INTERNALS, VERTICAL:

- Perimeter walls to structure above, metal studs and gypsum board painted.
- Doors and frames, hollow metal.

5.2 INTERNALS, HORIZONTAL:

- Floor: Hard surface, vinyl composition tile.
- Ceiling: Suspended, exposed grid, lay-in acoustical tile.

5.3 FINISHES, SPECIAL:

- None.

5.4 INTERIORS:

- Base and wall cabinets.
- Clear floor space 30" x 48" for forward or parallel approach.
- Forward approach maximum high reach = 48", minimum low 15".
- Parallel approach maximum high = 54", minimum low = 9".

6.0 SPECIALTIES:

- Chalk/marker board.
- Tack board.

7.0 EQUIPMENT:

- None.

8.0 SPECIAL CONSTRUCTION:

- None.

10.1 PLUMBING AND FIRE PROTECTION:

- Water and drains.
- Sprinkler system.

10.2 HVAC:

- Heating and air conditioning.
- Heating and ventilation (no A/C) at NAU Flagstaff.

11.0 ELECTRICAL:

- Lighting: Fluorescent fixtures, ceiling, recessed.
- Power: AC power outlets in perimeter walls.
- Special Systems - Audio, video, computer jacks: 2 dual jacks (data and voice), 2 jacks coaxial broadband.
- Class A Fire Alarm System, audible and visible.

B-450 INDIVIDUAL STUDY ROOM, 40 S.F.

Wheelchair accessible.

5.1 INTERNALS, VERTICAL:

- Perimeter walls to structure above, metal studs and gypsum board painted.
- Door and frame, hollow metal with glazing.

5.2 INTERNALS, HORIZONTAL:

- Floor: Carpet. Maximum pile thickness of 1/2". Edges fastened to floor surface and edge trim beveled with slope no greater than 1:2.
- Ceiling: Suspended, exposed grid, lay-in acoustical tile.

5.3 FINISHES, SPECIAL:

- None.

5.4 INTERIORS:

- Base and wall cabinets.
- Clear floor space 30" x 48" for forward of parallel approach.
- Forward approach maximum high reach = 48", minimum low 15".
- Parallel approach maximum high = 54", minimum low = 9".

6.0 SPECIALTIES:

- Chalk/marker board.

7.0 EQUIPMENT:

- None.

8.0 SPECIAL CONSTRUCTION:

- None.

10.1 PLUMBING AND FIRE PROTECTION:

- No plumbing.
- Sprinkler system.

10.2 HVAC:

- Heating and air conditioning.
- Heating and ventilation (no A/C) at NAU Flagstaff.

11.0 ELECTRICAL:

- Lighting: Fluorescent fixtures, ceiling, recessed.
- Power: AC power outlets in perimeter walls.
- Special Systems - Audio, video, computer jacks: 1 dual jack (data and voice), 1 jack coaxial broadband.
- Class A Fire Alarm System, audible and visible.

SERIES 400 STUDY FACILITIES

B-460A ARCHIVE/ARTIFACTS STORAGE, 4000 SF.

DESCRIPTION:

A facility with special environmental conditions for storing, collections of irreplaceable materials such as rare books, original manuscripts, historical documents, artwork, artifacts and archaeological finds, etc.

The facility requires special humidity control, special lighting levels, special ventilation and a control center from which all of the environmental requirements can be monitored. Also required is a security system of cameras and monitors. Structurally, the building is within the existing Series A structure matrix.

5.1 INTERNALS, VERTICAL:

- Perimeter walls, floor to structure, of metal studs and gypsum board, painted.
- Doors and frames: Hollow metal, gasketed.

5.2 INTERNALS, HORIZONTAL:

- Floor: Hard surface, vinyl composition tile.
- Ceiling: Suspended, exposed grid, lay-in Acoustical tile.

5.3 FINISHES, SPECIAL:

- None

5.4 INTERIORS:

- Built-in cabinetry, base cabinets with pull-out drawers for small items.
- Built-in storage (wardrobe) units approximately 7'- 0" high for larger items.
- Built-in storage unit approximately 4'- 0" deep, 7'- 0" to 8'- 0" high with compartments/shelves that pull-out and hold stored paintings.

6.0 SPECIALTIES:

- Chalk/Marker Board
- Tack Board
- Signage

7.0 EQUIPMENT:

- None

8.0 SPECIAL CONSTRUCTION:

- None

**SERIES 400 STUDY FACILITIES
B-460A ARCHIVE/ARTIFACTS STORAGE, 4000SF**

10.1 PLUMBING & FIRE PROTECTION:

- Water and drains
- Sprinkler System
- FM 200 Fire Suppression System

10.2 HVAC:

- Heating & air conditioning and humidity control
- Art storage areas: 65-72 degrees fahrenheit, ± 1 degree fahrenheit and 50% RH $\pm 2\%$.
- Stuffed animals, fossils, etc., storage, 40-50 degrees fahrenheit and 50% RH.
- Individually controlled zones.

11.0 ELECTRICAL:

- Lighting: Flexible lighting system, lower lighting level in some storage areas, and general overall area lighting.
- Power: AC power outlets.
- Security alarm system connected to a central station.
- Special Systems: Audio, video, computer jacks: 2 dual jacks (data and voice) 2 jacks coaxial broadband.
- Class A Fire Alarm System, audible and visible.

SERIES 400 STUDY FACILITIES

B-460B ARCHIVE/ARTIFACTS EXHIBITION, 2000 SF.

DESCRIPTION:

A facility with special environmental conditions for displaying collections of irreplaceable materials such as rare books, original manuscripts, historical documents, artwork, artifacts and archaeological finds, etc.

The facility requires areas or display cases with special humidity control, special lighting levels, special ventilation and a control center from which all of the environmental requirements can be monitored. Also required is a security system of cameras and monitors. Structurally, the building is within the existing Series A structure matrix.

5.1 INTERNALS, VERTICAL:

- Perimeter walls, floor to structure, of metal studs and gypsum board, painted.
- Doors and frames: Hollow Metal, gasketed.

5.2 INTERNALS, HORIZONTAL:

- Floor: hard surface, vinyl composition tile.
- Ceiling: Suspended, exposed grid, lay-in Acoustical tile.

5.3 FINISHES, SPECIAL:

- None

5.4 INTERIORS:

- Built-in display cabinets with environmental control - Horizontal Type, 4'- 0" high with glazing top and sides. Vertical Type, 8'- 0" high with glazing on all sides.

6.0 SPECIALTIES:

- Signage

7.0 EQUIPMENT:

- None

8.0 SPECIAL CONSTRUCTION:

- None

10.1 PLUMBING & FIRE PROTECTION:

- Water and drains
- Sprinkler System
- FM 200 Fire Suppression System

10B-56C

Added April 29, 2002

SERIES 400 STUDY FACILITIES
B-460B ARCHIVE/ARTIFACTS EXHIBITION,
2000 SF.

10.2 HVAC:

- Heating & air conditioning and humidity control
- Art display areas: 65-72 degrees Fahrenheit, ± 1 degree Fahrenheit and 50% RH $\pm 2\%$.
- Stuffed animals, fossils, etc., 40-50 degrees Fahrenheit and 50% RH.
- Individually controlled zones.

11.0 ELECTRICAL:

- Lighting: Flexible lighting system, lower lighting level in some areas, and general overall area lighting.
- Power: AC power outlets.
- Security alarm system connected to a central station.
- Special Systems: Audio, video, computer jacks: 2 dual jacks (data and voice), 2 jacks coaxial broadband.
- Class A Fire Alarm System, audible and visible.

SERIES 500 SPECIAL USE FACILITIES (ATHLETIC)

B-520 ATHLETIC/PHYSICAL EDUCATION/RECREATION (LOCKER, SHOWER), 4,000 S.F.

Space for lockers, showers, toweling rooms, equipment storage, supply rooms. All wheelchair accessible.

5.1 INTERNALS, VERTICAL:

- Perimeter walls, masonry, to structure above w/hard finish.
- Doors and frames, hollow metal.

5.2 INTERNALS, HORIZONTAL:

- Floor: Hard surface, ceramic tile.
- Ceiling: Water resistant gypsum board plaster cement (Keene's).

5.3 FINISHES, SPECIAL:

- Ceramic tile on floor and walls (non-slip floor tile).

5.4 INTERIORS:

- Metal lockers.

6.0 SPECIALTIES:

- Shower partition - at least one wheelchair accessible shower.
36 x 36 shower with 48 x 36 stall or
30 x 60 shower with 36 x 60 stall
with shower seat, grab bars, special controls with
shower unit with hose.

7.0 EQUIPMENT:

- None.

8.0 SPECIAL CONSTRUCTION:

- None.

10.1 PLUMBING AND FIRE PROTECTION:

- Water, drains.
- Sprinkler system.

10.2 HVAC:

- Heating and air conditioning.
- Heating and ventilation (no A/C) at NAU Flagstaff.
- Additional exhaust.

11.0 ELECTRICAL:

- Lighting: Fluorescent fixtures.
- Power: AC power outlets.
- Class A Fire Alarm System, audible and visible.

SERIES 500 SPECIAL USE FACILITIES (ATHLETIC)

B-521 ATHLETIC/PHYSICAL EDUCATION/RECREATION (LARGE GYM), 10,000 S.F.

General physical education class work, intramurals. Wheelchair accessible.

5.1 INTERNALS, VERTICAL:

- Perimeter walls, masonry, to structure above w/hard finish.
- Doors and frames, hollow metal.

5.2 INTERNALS, HORIZONTAL:

- Floor: Hard surface.
- Ceiling: Exposed or suspended, exposed grid, acoustical tile.

5.3 FINISHES, SPECIAL:

- Wood Gym Floor.

5.4 INTERIORS:

- None.

6.0 SPECIALTIES:

- Backboards that swing-up.

7.0 EQUIPMENT:

- None.

8.0 SPECIAL CONSTRUCTION:

- None.

10.1 PLUMBING AND FIRE PROTECTION:

- Water, drains (drinking fountains).
- Sprinkler system.

10.2 HVAC:

- Heating and air conditioning.
- Heating and ventilation (no A/C) at NAU Flagstaff.

11.0 ELECTRICAL:

- Lighting: Mercury Vapor, Halogen, Fluorescent (shielded).
- Power: AC outlets, provisions for scoring and timing devices.
- Special Systems - Audio, video, computer jacks: 1 dual jack (data and voice), 1 jack coaxial broadband. Sound amplification system: Provisions for such as conduit, supports for speakers, equipment etc., but not the actual sound equipment.
- Class A Fire Alarm System, audible and visible.

SERIES 500 SPECIAL USE FACILITIES (ATHLETIC)

B-522 ATHLETIC/PHYSICAL EDUCATION/RECREATION (SMALL GYM), 5,000 S.F.

Fencing, dancing, therapeutic exercises, weight lifting. Wheelchair accessible.

5.1 INTERNALS, VERTICAL:

- Perimeter walls, masonry, to structure above w/hard finish.
- Doors and frames, hollow metal.

5.2 INTERNALS, HORIZONTAL:

- Floor: Hard surface.
- Ceiling: Exposed or suspended, exposed grid, acoustical tile.

5.3 FINISHES, SPECIAL:

- Wood Gym Floor with flush floor plates for equipment.

5.4 INTERIORS:

- Full Length Mirrors (dance).
- Stretch bar.

6.0 SPECIALTIES:

- Chalk/marker board.
- Tack board.

7.0 EQUIPMENT:

- None.

8.0 SPECIAL CONSTRUCTION:

- None.

10.1 PLUMBING AND FIRE PROTECTION:

- Water, drains (drinking fountains).
- Sprinkler system.

10.2 HVAC:

- Heating and air conditioning.
- Heating and ventilation (no A/C) at NAU Flagstaff.

11.0 ELECTRICAL:

- Lighting: Mercury Vapor, Halogen, Fluorescent (shielded).
- Power: AC outlets.
- Special Systems - Audio, video, computer jacks: 1 dual jack (data and voice), 1 jack coaxial broadband. Sound amplification system: Provisions for such as conduit, supports for speakers, equipment etc., but not the actual sound equipment.
- Class A Fire Alarm System, audible and visible.

B-523 ATHLETIC/PHYSICAL EDUCATION/RECREATION (SPECIAL COURTS), 400 - 1,500 S.F.

Handball, racquetball, squash. Wheelchair accessible.

5.1 INTERNALS, VERTICAL:

- Perimeter walls, studs 16" o.c. maximum or masonry, floor to structure above with hard maple wood finish.
- Hollow metal doors and frames with shatter-proof window.
- Flush type pulls and hinges.
- Hollow metal frame with shatter-proof glass in back wall (for spectator gallery).

5.2 INTERNALS, HORIZONTAL:

- Floor: Hardwood standard gymnasium construction.
- Ceiling: Plaster.

5.3 FINISHES, SPECIAL:

- None.

5.4 INTERIORS:

- None.

6.0 SPECIALTIES:

- None.

7.0 EQUIPMENT:

- None.

8.0 SPECIAL CONSTRUCTION:

- None.

10.1 PLUMBING AND FIRE PROTECTION:

- No plumbing.
- No sprinkler heads in ceiling.

10.2 HVAC:

- Heating and air conditioning.
- Heating and ventilation (no A/C) at NAU Flagstaff.

11.0 ELECTRICAL:

- Lighting: Fluorescent, flush with ceiling (minimum 30 ft. candles at floor).
- Control switch for all lights in court on exterior, near entrance door.
- Warning lights outside each court indicate court in use.
- Power: No outlets in court.
- Class A Fire Alarm System, audible and visible.

SERIES 500 SPECIAL USE FACILITIES (ATHLETIC)

B-524 ATHLETIC/PHYSICAL EDUCATION/RECREATION (SPECTATOR SEATING), 6 S.F./PERSON

Wheelchair accessible.

- 5.1 INTERNALS, VERTICAL:
 - Perimeter walls, floor to structure above, masonry or metal studs, with gypsum board painted.
 - Hollow metal doors and frames.
- 5.2 INTERNALS, HORIZONTAL:
 - Floor: Concrete with paint or sealer.
 - Ceiling: Suspended, exposed grid, lay-in acoustical tile.
- 5.3 FINISHES, SPECIAL:
 - None.
- 5.4 INTERIORS:
 - None.
- 6.0 SPECIALTIES:
 - Handrails.
 - Signage to notify patrons of assistive listening availability.
- 7.0 EQUIPMENT:
 - None.
- 8.0 SPECIAL CONSTRUCTION:
 - Stepped concrete floor for bench seating.
 - Ramp accessible levels of stepped concrete floor.
 - Designated areas for wheelchairs with no bench seating.
- 10.1 PLUMBING AND FIRE PROTECTION:
 - No plumbing.
 - Sprinkler system.
- 10.2 HVAC:
 - Heating and air conditioning.
 - Heating and ventilation (no A/C) at NAU Flagstaff.
- 11.0 ELECTRICAL:
 - Lighting: Fluorescent light fixtures, ceiling, recessed.
 - Power - AC outlets.
 - Special systems: Provisions for score board.
 - Class A Fire Alarm System, audible and visible.
 - Assistive listening device required.
 - Minimum number of receivers = 4% of total number of seats.

B-530 STUDIO - AUDIO/VISUAL T.V., 1,000 - 2,000 S.F.

Wheelchair accessible.

5.1 INTERNALS VERTICAL:

- Perimeter walls: Floor to structure above, metal studs with gypsum board painted, STC 52 minimum.
- Hollow metal doors and frames, sound proof type, gasketed, STC 52 minimum.
- Hollow metal frame with glazing, sound control type, STC 52 minimum.

5.2 INTERNALS, HORIZONTAL:

- Floor: Hard surface.
- Ceiling: Exposed with acoustical baffles. Metal grid for hanging equipment, light fixtures, etc.

5.3 FINISHES, SPECIAL:

- Acoustical wall treatment.

5.4 INTERIORS:

- Cyclorama.

6.0 SPECIALTIES:

- Chalk/marker board.
- Tack board.

7.0 EQUIPMENT:

- None.

8.0 SPECIAL CONSTRUCTION:

- None.

10.1 PLUMBING AND FIRE PROTECTION:

- No plumbing.
- Sprinkler system.

10.2 HVAC:

- Heating and air conditioning (additional air conditioning due to extra lighting).

11.0 ELECTRICAL:

- Lighting: Lighting grid for hanging fixtures.
- Provisions for floor-mounted luminaries.
- Patch panel (switchboard) for lighting connection.
- Dimming equipment.
- Power: AC outlets.
- Power for electrical equipment separated from power for building equipment.
- Special Systems: Audio, video, computer jacks: 2 dual jacks (data and voice), 2 jacks coaxial broadband.
- Class A Fire Alarm System, audible and visible.

B-540 CLINIC EXAM ROOM, NON-HEALTH, 150 - 200 S.F.

A room used for providing diagnosis, consultation, treatment or other services other than those related to medicine, dentistry or student health care. Included in this category are examination rooms, testing rooms and consultation rooms associated with psychology, law, speech and hearing etc. Wheelchair accessible.

5.1 INTERNALS VERTICAL:

- Perimeter walls floor to structures, of metal studs and gypsum board, epoxy paint.
- Doors and frames, hollow metal.

5.2 INTERNALS, HORIZONTAL:

- Floor: Hard surface, vinyl composition tile.
- Ceiling: Suspended, exposed grid, acoustical tile.

5.3 FINISHES, SPECIAL:

- None.

5.4 INTERIORS:

- Base cabinets and wall cabinets.
 - Clear floor space 30" x 48" for forward or parallel approach.
 - Forward approach maximum high reach = 48", minimum low = 15".
 - Parallel approach maximum high = 54", minimum low = 9".

6.0 SPECIALTIES:

- Chalk/marker board.
- Tack board.

7.0 EQUIPMENT:

- None.

8.0 SPECIAL CONSTRUCTION:

- None.

10.1 PLUMBING AND FIRE PROTECTION:

- Sprinkler system.

10.2 HVAC:

- Heating and air conditioning.
- Heating and ventilation (no A/C) at NAU Flagstaff.

11.0 ELECTRICAL:

- Lighting: Fluorescent fixtures, ceiling, recessed.
- Power: AC outlets.
- Special Systems: Audio, video, computer jacks: 1 dual jack (data and voice), 1 jack coaxial broadband.
- Class A Fire Alarm System, audible and visible.

B-570 ANIMAL QUARTERS (RESEARCH MEDICAL AND BIOLOGICAL), 2,500 S.F.

Wheelchair accessible.

5.1 INTERNALS VERTICAL:

- Perimeter walls: Floor to structure above, concrete or masonry painted - acid and solvent resistant, withstand high water pressure.
- Hollow metal doors and frames, special sizes (3'-8" wide minimum etc.) gasketed, air tight. Viewing window.

5.2 INTERNALS, HORIZONTAL:

- Floor: Hard surface - smooth, waterproof, nonabsorbent, nonslip, wear resistant, acid and solvent resistant.
- Ceiling: Plaster or gypsum board sealed and painted with a washable finish.

5.3 FINISHES, SPECIAL:

- None.

5.4 INTERIORS:

- None.

6.0 SPECIALTIES:

- None.

7.0 EQUIPMENT:

- None.

8.0 SPECIAL CONSTRUCTION:

- Minimum floor slope 1/4" per foot to drains.

10.1 PLUMBING AND FIRE PROTECTION:

- Water, drains (floor drains 4" minimum).
- Sprinkler system.

10.2 HVAC:

- Heating and air conditioning.
- + or - 2 degrees fahrenheit for any temperature within a range of 65 degrees to 85 degrees fahrenheit.
- 10 to 16 room air changes per hour.
- No recirculation of room air unless it has been filtered.
- Humidity control, relative humidity maintained year around within a range of 30 to 70 percent.
- For more precise studies: Temperature + or - 1 degrees fahrenheit, relative humidity within 5%, using 100% fresh air at all times.
- Recording devices for temperature and humidity installed in rooms.

SERIES 500 SPECIAL USE (NON-ATHLETIC)
B-570 ANIMAL QUARTERS (RESEARCH MEDICAL AND BIOLOGICAL)

11.0 ELECTRICAL:

- Lighting: Fluorescent light fixtures.
- Power: AC outlets (explosion proof where anesthetics may be used and waterproof where water is used for cleaning).
- Burglar Alarm System connected to a central station.
- Class A Fire Alarm System, audible and visible.
- Special Systems: 1 dual jack (data and voice).

B-571 ANIMAL QUARTERS (RESEARCH AGRICULTURE), 2,500 S.F.

Wheelchair accessible.

5.1 INTERNALS VERTICAL:

- Perimeter walls: Concrete or masonry painted, withstand high water pressure.
- Hollow metal doors and frames, special sizes (3'-8" wide minimum etc.)

5.2 INTERNALS, HORIZONTAL:

- Floor: Hard surface - smooth, waterproof, nonabsorbent, nonslip, wear resistant.
- Ceiling: Plaster or gypsum board sealed and painted with a washable finish.

5.3 FINISHES, SPECIAL:

- None.

5.4 INTERIORS:

- None.

6.0 SPECIALTIES:

- None.

7.0 EQUIPMENT:

- None.

8.0 SPECIAL CONSTRUCTION:

- Minimum floor slope 1/4" per foot to drains.

10.1 PLUMBING AND FIRE PROTECTION:

- Water, drains (floor drains 4" minimum).
- Sprinkler system.

10.2 HVAC:

- Heating and air conditioning.
- Heating and ventilating (no A/C) at NAU Flagstaff.

11.0 ELECTRICAL:

- Lighting: Fluorescent light fixtures, ceiling recessed.
- Power: AC outlets, waterproof.
- Burglar Alarm System connected to a central station.
- Class A Fire Alarm System, audible and visible.
- Special Systems: 1 dual jack (data and voice).

B-580 GREENHOUSE (PROPAGATION), 2,500 S.F.

Wheelchair accessible.

5.1 INTERNALS VERTICAL:

- Perimeter walls: Concrete or masonry sill height 3' - 0" (+ or -), with transparent material above.
- Metal doors and frames with glazing.

5.2 INTERNALS, HORIZONTAL:

- Floor: Hard surface concrete sealed.
- Ceiling: Transparent material.

5.3 FINISHES, SPECIAL:

- None.

5.4 INTERIORS:

- Work benches along exterior walls. Provide one wheelchair accessible station.
 - Clear floor space shall be 30" x 48".
 - Knee clearances 27" high, 30" wide and 19" deep.
 - Height of counters 28" to 34" above the finished floor.

6.0 SPECIALTIES:

- None.

7.0 EQUIPMENT:

- None.

8.0 SPECIAL CONSTRUCTION:

- Multiple compartments for separate climates.

10.1 PLUMBING AND FIRE PROTECTION:

- Water, drains.
- Water purification system (remove fluoride and chlorine, PH value of 5.0 - 6.0.)

10.2 HVAC:

- Environmental control.
- Temperature control 65 degrees fahrenheit to 85 degrees fahrenheit.
- Relative humidity 50 - 60 %.

11.0 ELECTRICAL:

- Lighting: Fluorescent fixtures, provisions for additional lighting sources, as required.
- Power: AC outlets.
- Class A Fire Alarm System, audible and visible.

B-581 GREENHOUSE (TESTING OF PESTICIDES, CHEMICALS, ETC.), 2,500 S.F.

Wheelchair accessible.

5.1 INTERNALS VERTICAL:

- Perimeter walls: Concrete or masonry sill height 3' - 0" (+ or -), with transparent material above.
- Metal doors and frames with glazing. Doors gasketed for air filtration control.

5.2 INTERNALS, HORIZONTAL:

- Floor: Hard surface concrete sealed.
- Ceiling: Transparent material.

5.3 FINISHES, SPECIAL:

- None.

5.4 INTERIORS:

- Work benches along exterior walls. Provide one wheelchair accessible station.
 - Clear floor space shall be 30" x 48".
 - Knee clearances 27" high, 30" wide and 19" deep.
 - Height of counters 28" to 34" above the finished floor.

6.0 SPECIALTIES:

- None.

7.0 EQUIPMENT:

- None.

8.0 SPECIAL CONSTRUCTION:

- Multiple compartments for separate climates.

10.1 PLUMBING AND FIRE PROTECTION:

- Water, drains.
- Water purification system (remove fluoride and chlorine, PH value of 5.0 - 6.0.)

10.2 HVAC:

- Environmental control.
- Temperature control 65 degrees fahrenheit to 85 degrees fahrenheit.
- Relative humidity 50 - 60 %.
- Filtering of intake and exhaust air.

11.0 ELECTRICAL:

- Lighting: Fluorescent fixtures, provisions for additional lighting sources, as required.
- Power: AC outlets.
- Class A Fire Alarm System, audible and visible.

SERIES 500 SPECIAL USE (NON-ATHLETIC)

B-590 CLEAN ROOM (CLASS 100), 2700 SF.

DESCRIPTION:

An enclosed area with carefully controlled environmental conditions for critical operations in electronics, pharmaceuticals, medicine, food processing, bioscience, aerospace and manufacturing. Classifications are by the quantity of particulate matter in the air.

5.1 INTERNALS, VERTICAL:

- Perimeter Walls - Steel Studs,
Pre-Laminated acrylic/PVC Panels.
- Hollow Metal Doors and Frames, Gasketed for Sound and Air Control.

5.2 INTERNALS, HORIZONTAL:

- Floor: Raised flooring system with conductive and static dissipative vinyl.
Perforated floor panels for straight down air flow.
- Ceiling: Suspended, with clean room mylar ceiling tiles, clean room exposed tee grid and ceiling hepa filters.

5.3 SPECIAL FINISHES:

- All surfaces to be non-particulate generating.

5.4 INTERIORS:

- Stainless Steel Base and Wall Cabinets.
- Two (2) areas wheelchair accessible w/clear floor space 30" x 98" for forward or parallel approach. Forward approach-max. high reach= 48"; minimum low=15". Parallel approach-max. high=54", min. low= 9".

6.0 SPECIALTIES:

- None

7.0 EQUIPMENT:

- None

8.0 SPECIAL CONSTRUCTION:

- Airlock/Gowning Area/Air Shower

9.0 CONVEYING:

- None

10B-68A
Added April 29, 2002

**SERIES 500 SPECIAL USE(NON-ATHLETIC)
B-590 CLEAN ROOM (CLASS 100), 2700 SF.**

10.1 PLUMBING AND FIRE PROTECTION:

- Water, drains
- Fixtures, Stainless Steel Sinks
- Sprinkler System

10.2 HVAC:

- Heating and Air Conditioning
- Controlled air flow with laminar flow system and HEPA (High efficiency particulate air) filters for air flow straight down through perforated floor panels.
- Class 100 air flow of 70 to 90 cfm/sf. ft.

11.0 ELECTRICAL:

- Lighting - Fluorescent Light Fixtures, ceiling, recessed, non-particle creating lens.
- Power - A.C. power outlets above counters, plug mold.
- Special Systems - Audio, Video Computer Jack: 1 dual jack (data & voice) and 1 jack coaxial broadband. 1 wall telephone @ exit door.
- Class A Fire Alarm System, Audible and Visible.

SERIES 500 SPECIAL USE (NON-ATHLETIC)

B-591 CLEAN ROOM (CLASS 1000), 2700 SF.

DESCRIPTION:

An enclosed area with carefully controlled environmental conditions for critical operations in electronics, pharmaceuticals, medicine, food processing, bioscience, aerospace and manufacturing. Classifications are by the quantity of particulate matter in the air.

5.1 INTERNALS, VERTICAL:

- Perimeter Walls - Steel Studs,
Pre-Laminated acrylic/PVC Panels with wall mounted return air grills..
- Hollow Metal Doors and Frames, Gasketed for Sound and Air Control.

5.2 INTERNALS, HORIZONTAL:

- Floor: Conductive and Static dissipative vinyl.
- Ceiling: Suspended, with clean room mylar ceiling tiles, clean room exposed tee grid and ceiling hepa filters.

5.3 SPECIAL FINISHES:

- All surfaces to be non-particulate generating.

5.4 INTERIORS:

- Stainless Steel Base and Wall Cabinets.
- Two (2) areas wheelchair accessible w/clear floor space 30" x 98" for forward or parallel approach. Forward approach-max. high reach= 48"; minimum low=15". Parallel approach-max. high=54", min. low= 9".

6.0 SPECIALTIES:

- None

7.0 EQUIPMENT:

- None

8.0 SPECIAL CONSTRUCTION:

- Airlock/Gowning Area/Air Shower

9.0 CONVEYING:

- None

10B-68C

Added April 29, 2002

SERIES 500 SPECIAL USE(NON-ATHLETIC)
B-591 CLEAN ROOM (CLASS 1000), 2700 SF.

10.1 PLUMBING AND FIRE PROTECTION:

- Water, drains
- Fixtures, Stainless Steel Sinks
- Sprinkler System

10.2 HVAC:

- Heating and Air Conditioning
- Controlled air flow with laminar flow system and HEPA (High efficiency particulate air) filters for air flow straight down through wall mounted return air grills..
- Class 1000 air flow of 50 to 60 air changes/hr.-min.

11.0 ELECTRICAL:

- Lighting - Fluorescent Light Fixtures, ceiling, recessed, non-particle creating lens.
- Power - A.C. power outlets above counters, plug mold.
- Special Systems - Audio, Video Computer Jack: 1 dual jack (data & voice) and 1 jack coaxial broadband. 1 wall telephone @ exit door.
- Class A Fire Alarm System, Audible and Visible.

B-610 THEATER (HOUSE SIDE), 6 S.F./PERSON

Wheelchair accessible, special wheelchair areas must be indicated.

1. Minimum size for two wheelchairs side by side = 48" x 66" forward or rear access, 60" x 66" side access.
2. Number of required wheelchair locations:

Capacity of Seating in Assembly Areas	Number of Required Wheelchair Locations
4 to 25	1
26 to 50	2
51 to 300	4
301 to 500	6
over 500	6, plus 1 additional space for each total seating capacity increase of 100

- 5.1 INTERNALS VERTICAL:
 - Perimeter wall: Floor to structure above with acoustical surface material. STC 52 minimum.
 - Metal doors and frames gasketed for sound control, STC 52 minimum.
- 5.2 INTERNALS HORIZONTAL:
 - Floor: Carpet. Max pile thickness 1/2". Edges fastened to floor surface and edge trim beveled with slope no greater than 1:2.
 - Ceiling: Suspended and shaped for acoustics.
- 5.3 SPECIAL FINISHES:
 - Acoustic control materials, walls and ceiling.
- 5.4 INTERIORS:
 - None.
- 6.0 SPECIALTIES:
 - Theater seats, upholstered for acoustical control.
 - 1%, but not less than one, of all fixed seats shall be aisle seats with no armrests or removable folding armrests.
 - Signage to notify patrons of aisle seats w/o arm rest.
 - Signage to notify patrons of assistive listening availability.
- 7.0 EQUIPMENT:
 - None.
- 8.0 SPECIAL CONSTRUCTION:
 - Sloped floor, must be wheelchair accessible.

SERIES 600 GENERAL USE FACILITIES
B-610 THEATER, (HOUSE SIDE)

10.1 PLUMBING AND FIRE PROTECTION:

- No plumbing.
- Sprinkler system.

10.2 HVAC:

- Heating and air conditioning: Five to eight air changes/hr.
- Air outlet and inlet velocities baffled for noise control.
- Provide for dehumidification and humidification.

11.0 ELECTRICAL:

- Lighting: Lights with reflectors in coves (color-neutral through warm).
- Power: AC outlets.
- Class A Fire Alarm System, audible and visible.
- Assistive listening device - required.
 - Permanently installed system.
 - Minimum number of receivers = 4% of total number of seats but not less than 2.

B-611 THEATER (STAGE AND BACKSTAGE - PERFORMING), 12,000 S.F.

Wheelchair accessible.

5.1 INTERNALS VERTICAL:

- Perimeter wall: Floor to structure above, hard surface finish - paint. STC 52 minimum.
- Hollow metal doors and frames, gasketed for sound control, STC 52 minimum. Scenery doors - minimum 8'-0" wide x 14' x 0" tall.

5.2 INTERNALS HORIZONTAL:

- Floor: Stage, close grained pine finish with coats of oil. Additional areas, hard surface, sealed concrete, vinyl composition tile etc.
- Ceiling: Stage, exposed, fly space with grid and battens. Backstage, suspended acoustical tile.

5.3 SPECIAL FINISHES:

- Acoustic control materials, walls and ceiling.

5.4 INTERIORS:

- Stage (proscenium) curtain.
- Cyclorama.

6.0 SPECIALTIES:

- Chalk/marker board.
- Tack board.

7.0 EQUIPMENT:

- Catwalk.
- Scenery appartus.

8.0 SPECIAL CONSTRUCTION:

- None.

9.0 CONVEYING:

- Stage lift.

10.1 PLUMBING AND FIRE PROTECTION:

- Water, drains.
- Sprinkler system.

10.2 HVAC:

- Heating and air conditioning.
- Additional air conditioning to allow for lights.

11.0 ELECTRICAL:

- Lighting: Provisions for: Front light from slots in auditorium ceiling. Front light from wall slots in auditorium. Follow spot in booth at rear of auditorium. Spotlights on battens.
- Special Systems: Computer to control lighting and audio equipment, booth at rear of auditorium. Video and projection systems. Overhead projector facilities.
- Class A Fire Alarm System, audible and visible.

B-612 THEATER (STAGE AND BACKSTAGE - MUSIC CONCERT), 7,000 S.F.

Wheelchair accessible.

5.1 INTERNALS VERTICAL:

- Perimeter walls: Floor to structure above, hard surface finish - paint. STC 52 minimum.
- Hollow metal doors and frames, gasketed for sound control, STC 52 minimum.
- Door opening wide enough for grand piano.

5.2 INTERNALS HORIZONTAL:

- Floor: Stage, close grained pine finish with coats of oil. Additional areas hard surface, sealed concrete, vinyl composition tile etc.
- Ceiling: Stage, exposed, fly space with grid and battens. Backstage, suspended acoustical tile.

5.3 SPECIAL FINISHES:

- Acoustical control materials, walls and ceiling (sound shell).

5.4 INTERIORS:

- Stage (proscenium) curtain.

6.0 SPECIALTIES:

- Chalk/marker board.
- Tack board.

7.0 EQUIPMENT:

- Carwalk.

8.0 SPECIAL CONSTRUCTION:

- None.

10.1 PLUMBING AND FIRE PROTECTION:

- Water, drains.
- Sprinkler system.

10.2 HVAC:

- Heating and air conditioning.
- Additional air conditioning to allow for lights.

11.0 ELECTRICAL:

- Lighting: Provisions for: Front light from slots in auditorium ceiling. Front light from wall slots in auditorium. Follow spot in booth at rear of auditorium. Spotlights on battens.
- Special Systems: Computer to control lighting and audio equipment, booth at rear of auditorium. Video and projection systems. Overhead projector facilities.
- Class A Fire Alarm System, audible and visible.

B-620 SPECIALIZED MUSEUM SPACE, 2,000 S.F.

Wheelchair accessible.

5.1 INTERNALS VERTICAL:

- Perimeter walls: Floor to structure above, metal studs with gypsum board.
- Hollow metal doors and frames.

5.2 INTERNALS HORIZONTAL:

- Floor: Carpet, (maximum pile height of 1/2") and hard surface cleanable material (vinyl composition tile etc.).
- Ceiling: Suspended, exposed grid, lay-in acoustical tile, or suspended gypsum board plaster.

5.3 SPECIAL FINISHES:

- Wall material suitable for hanging displays.

5.4 INTERIORS:

- Storage cabinets.

6.0 SPECIALTIES:

- Tack board.

7.0 EQUIPMENT:

- None.

8.0 SPECIAL CONSTRUCTION:

- Facilities for natural lighting, skylights, clerestory, etc.

10.1 PLUMBING AND FIRE PROTECTION:

- Water, drains.
- Fire sprinkler-Dry type, 2 stage.

10.2 HVAC:

- Heating and air conditioning and humidity control.
- Exhibit areas: 70-75 degrees fahrenheit, 50% RH.
- Art storage areas: 65-72 degrees fahrenheit, + or - 1 degree fahrenheit and 50% RH + or - 2 percent.
- Stuffed animals, fossils, etc. storage, 40-50 degrees fahrenheit and 50% RH.
- Individually controlled zones.

11.0 ELECTRICAL:

- Lighting: Flexible lighting system, lighting concentrated on exhibits and in show cases, and general overall area lighting.
- Power: AC power outlets in perimeter walls.
- Burglar alarm system connected to a central station.
- Special Systems: Audio, video, computer jacks: 2 dual jacks (data and voice) 2 jacks coaxial broadband.
- Class A Fire Alarm System, audible and visible.

B-630 FOOD FACILITY - PREP/SERVING, 3,100 S.F.

Wheelchair accessible.

5.1 INTERNALS VERTICAL:

- Perimeter walls, floor to structure of metal studs and water resistant gypsum board. STC 47 minimum.
- Hollow metal doors and frames, gasketed for sound control, STC 47 minimum.

5.2 INTERNALS HORIZONTAL:

- Floor: Hard surface to slope to drains, quarry tile finish, etc.
- Ceiling: Suspended gypsum board ceiling with epoxy paint with acoustical treatment.

5.3 SPECIAL FINISHES:

- Tile on floors and walls.

5.4 INTERIORS:

- Storage cabinets.

6.0 SPECIALTIES:

- Chalk/marker board.
- Tack board.

7.0 EQUIPMENT:

- Kitchen Equipment Type I and Type II equipment*, included.
- Serving lines.
 - Minimum clear width 36", 42" preferred.
 - Tray slides 34" maximum above floor.

8.0 SPECIAL CONSTRUCTION:

- None.

10.1 PLUMBING AND FIRE PROTECTION:

- Water, drains.
- Sprinkler system.

10.2 HVAC:

- Heating and air conditioning.
- Heating and ventilation (no A/C) at NAU Flagstaff.
- Hoods over all cooking equipment. Six air changes/hour with 2 speed fans.

11.0 ELECTRICAL:

- Lighting: Fluorescent fixtures, ceiling recessed.
- Power: AC outlets, special wiring facilities for heavy equipment.
- Special Systems: Audio, computer jacks at food service check-out line: 1 dual jack (data and voice).
- Class A Fire Alarm System, audible and visible.

SERIES 600 GENERAL USE FACILITIES
B-630 FOOD FACILITY - PREP/SERVING

*KITCHEN EQUIPMENT:

- Type I: All equipment that is built-in such as hoods, refrigerator/freezer rooms (not prefabricated).
- Type II: All equipment that is bolted down, attached, or hand wired, such as a stove.

B-631 FOOD FACILITY - DINING, 5,000 S.F.

Wheelchair accessible.

5.1 INTERNALS VERTICAL:

- Perimeter walls, floor to structure of metal studs and gypsum board painted.
- Doors and frames, hollow metal.

5.2 INTERNALS HORIZONTAL:

- Floor: Hard surface (vinyl composition tile) or carpet, max pile thickness 1/2". Edges fastened to floor surface and edge trim beveled with slope no greater than 1:2.
- Ceiling: Suspended, exposed grid, acoustical tile.

5.3 SPECIAL FINISHES:

- Tile floors/walls.
- Special wall coverings (vinyl, etc.)

5.4 INTERIORS:

- Base and wall cabinets at water station.
 - Maximum height for dispenser is 54".
 - Base counter height = 34".

6.0 SPECIALTIES:

- Tack board.

7.0 EQUIPMENT:

- None.

8.0 SPECIAL CONSTRUCTION:

- None.

10.1 PLUMBING AND FIRE PROTECTION:

- Water, drains.
- Sprinkler system.

10.2 HVAC:

- Heating and air conditioning.
- Heating and ventilation (no A/C) at NAU Flagstaff.

11.0 ELECTRICAL:

- Lighting: Fluorescent fixtures, ceiling, recessed.
- Power: AC outlets.
- Special systems: Audio, video, computer jacks: 2 dual jacks (data and voice) 2 jacks coaxial broadband.
- Class A Fire Alarm System, audible and visible.

B-632 CONCESSIONAIRE FAST FOOD, 3,000 - 4,000 S.F.

Wheelchair accessible.

5.1 INTERNALS VERTICAL:

- Perimeter walls, floor to structure, of metal studs and gypsum board. Painted walls in dining area, tile walls in kitchen area.
- Doors and frames, hollow metal.

5.2 INTERNALS HORIZONTAL:

- Floor: Hard surface, tile.
- Ceiling: Suspended, gypsum board with epoxy paint in kitchen area. Suspended, exposed grid, lay-in acoustical tile in dining area.

5.3 FINISHES, SPECIAL:

- Tile floors/walls.

5.4 INTERIORS:

- Sales Counter.
 - 5'-0" long portion of counter to be 28" to 34" high.
- Dining booths and built-in seating.
 - Clear floor space shall be 30" x 48".
 - Knee clearances 27" high, 30" wide and 19" deep.
 - Height of table 28" to 34" above the finished floor.

6.0 SPECIALTIES:

- Tack board.

7.0 EQUIPMENT:

- Kitchen equipment by Concessionaire. Services for equipment included under Plumbing, (10.1), HVAC (10.2) and Electrical (11.0).

8.0 SPECIAL CONSTRUCTION:

- None.

10.1 PLUMBING AND FIRE PROTECTION:

- Water, drains.
- Sprinkler system.

10.2 HVAC:

- Heating and air conditioning.
- Heating and ventilation (no A/C) at NAU Flagstaff.
- Hoods over all cooking equipment. Six air changes/hour with 2 speed fans.

11.0 ELECTRICAL:

- Lighting: Fluorescent fixtures, ceiling, recessed.
- Power: AC outlets, special wiring facilities for heavy duty equipment.
- Special systems: Audio, computer jacks at food service check out lines: 1 dual jack (data and voice).
- Class A Fire Alarm System, audible and visible.

B-650 LOUNGE, LOBBY, WAITING, 1,200 S.F.

Wheelchair accessible.

5.1 INTERNALS VERTICAL:

- Perimeter walls, to structure, of metal studs and gypsum board painted.
- Doors and frames, hollow metal.

5.2 INTERNALS HORIZONTAL:

- Floor: Carpet. Max pile thickness 1/2". Edges fastened to floor surface and edge trim beveled with slope no greater than 1:2.
- Ceiling: Suspended, exposed grid, lay-in acoustical tile.

5.3 FINISHES, SPECIAL:

- Tile floor/walls.
- Special wall finishes: vinyl, etc.

5.4 INTERIORS:

- No case work or built-ins.

6.0 SPECIALTIES:

- None.

7.0 EQUIPMENT:

- None.

8.0 SPECIAL CONSTRUCTION:

- None.

10.1 PLUMBING AND FIRE PROTECTION:

- No plumbing.
- Sprinkler system.

10.2 HVAC:

- Heating and air conditioning.
- Heating and ventilation (no A/C) at NAU Flagstaff.

11.0 ELECTRICAL:

- Lighting: Fluorescent light fixtures, ceiling, recessed. Down lights (high hats) for area lighting.
- Power: AC outlets each wall.
- Special systems: Audio, video, computer jacks: 2 dual jacks (data and voice) 2 jacks coaxial broadband.
- Class A Fire Alarm System, audible and visible.

B-660 BOOK STORE, SHOPS, (BOOK STORE 4,000 - 5,000 S.F.) (SHOPS 400 - 2,000 S.F.)

Wheelchair accessible.

5.1 INTERNALS VERTICAL:

- Perimeter walls, floor to structure, of metal studs and gypsum board painted.
- Doors and frames, hollow metal.

5.2 INTERNALS HORIZONTAL:

- Floor: Hard surface, vinyl composition tile; or carpet, max pile thickness 1/2". Edges fastened to floor surface and edge trim beveled with slope no greater than 1:2.
- Ceiling: Suspended, exposed grid, acoustical tile.

5.3 FINISHES, SPECIAL:

- None.

5.4 INTERIORS:

- Sales counter.
 - Portion of counter minimum 36" long with maximum of 34" above finished floor.
 - Accessible route 36" minimum wide.
 - Accessible counters to be dispensed thru out the facility.
- Built-in Shelving.
 - Height unrestricted.

6.0 SPECIALTIES:

- Tack board.

7.0 EQUIPMENT:

- None.

8.0 SPECIAL CONSTRUCTION:

- None.

10.1 PLUMBING AND FIRE PROTECTION:

- Water, drain.
- Sprinkler system.

10.2 HVAC:

- Heating and air conditioning.
- Heating and ventilation (no A/C) at NAU Flagstaff.

11.0 ELECTRICAL:

- Lighting: Fluorescent fixtures, ceiling, recessed.
- Power: AC outlets.
- Special systems: Audio, computer jacks at each check out area: 1 dual jack (data and voice).
- Class A Fire Alarm System, audible and visible.

B-680 LARGE MEETING, CONFERENCE, BALL ROOM, 6,000 S.F.

Wheelchair accessible.

5.1 INTERNALS VERTICAL:

- Perimeter walls, to structure, of metal studs and gypsum board.
- Doors and frames, hollow metal or special wood.

5.2 INTERNALS HORIZONTAL:

- Floor: Carpet or hardwood. Carpet. Max pile thickness 1/2". Edges fastened to floor surface and edge trim beveled with slope no greater than 1:2.
- Ceiling: Suspended, exposed grid, lay-in acoustical tile and some special area down-lights.

5.3 SPECIAL FINISHES:

- Special wood finishes for walls or special materials.

5.4 INTERIORS:

- None.

6.0 SPECIALTIES:

- Folding partitions for dividing into smaller areas.

7.0 EQUIPMENT:

- None.

8.0 SPECIAL CONSTRUCTION:

- None.

10.1 PLUMBING AND FIRE PROTECTION:

- No plumbing.
- Sprinkler system.

10.2 HVAC:

- Heating and air conditioning.
- Heating and ventilation (no A/C) at NAU Flagstaff.

11.0 ELECTRICAL:

- Lighting: Fluorescent light fixtures, ceiling, recessed. Down lights (high hats) for area lighting.
- Power: AC outlets each wall.
- Special systems: Audio, video, computer jacks: 2 dual jacks (data and voice) 2 jacks coaxial broadband.
- Class A Fire Alarm System, audible and visible.

B-710 DATA PROCESSING (COMPUTER ROOM), 1,200 S.F.

Wheelchair accessible.

- 5.1 INTERNALS, VERTICAL:
 - Perimeter walls, floor to structure, of metal studs and gypsum board painted, STC 42 minimum.
 - Doors and frames, hollow metal, gasketed, STC 42 minimum.
- 5.2 INTERNALS, HORIZONTAL:
 - Floor: Raised floor system (free access type).
 - Ceiling: Suspended, exposed grid, acoustical tile.
- 5.3 FINISHES, SPECIAL:
 - None
- 5.4 INTERIORS:
 - None.
- 6.0 SPECIALTIES:
 - Chalk/marker board.
 - Tack board.
- 7.0 EQUIPMENT:
 - None.
- 8.0 SPECIAL CONSTRUCTION:
 - Raised flooring system.
- 10.1 PLUMBING & FIRE PROTECTION:
 - No water.
 - Fire sprinkler-dry type, 2 stage.
- 10.2 HVAC:
 - Heating and air conditioning.
 - Separate air conditioning system serving electrical data processing equipment.
 - Stand-by equipment provided.
 - Humidity control.
- 11.0 ELECTRICAL:
 - Lighting: Fluorescent fixtures, ceiling, recessed. General lighting zoned so portions may be turned on or off. Minimum average 40 foot candles measures 30" above the floor.
 - Power - A.C. outlets.
 - Special Systems - Data processing feeder should feed only the system (isolated power). 1 dual jack (data and voice) at each work station.
 - System with circuit flexibility, power source dependability and safety.
 - Class A Fire Alarm System, audible and visible.

B-720 SHOP, MAINTENANCE (FACILITIES AND VEHICLES), 1,200 S.F.

Wheelchair accessible.

5.1 INTERNALS, VERTICAL:

- Perimeter walls, floor to structure, hard surface materials, concrete masonry units, epoxy paint.
- Doors and frames: Hollow metal.

5.2 INTERNALS, HORIZONTAL:

- Floor: Sealed concrete.
- Ceiling: Exposed structure.

5.3 FINISHES, SPECIAL:

- None.

5.4 INTERIORS:

- Base and wall cabinets.
- Clear floor space 30" x 48" for forward or parallel approach.
- Forward approach maximum high reach = 48", minimum low = 15".
- Parallel approach maximum high = 54", minimum low = 9".

6.0 SPECIALTIES:

- Chalk/marker board.
- Tack board.

7.0 EQUIPMENT:

- None.

8.0 SPECIAL CONSTRUCTION:

- Auto hoist.
- Monorail hoist.

10.1 PLUMBING & FIRE PROTECTION:

- Water and drains.
- Air lines.
- Sprinkler system.

10.2 HVAC:

- Heating and air conditioning.
- Heating and ventilating (no A/C) at NAU Flagstaff.

11.0 ELECTRICAL:

- Lighting: Fluorescent fixtures, ceiling suspended.
- Power - A.C. outlets.
- Special Systems - Audio, visual, computer jacks: 1 dual jack (data and voice) 1 jack coaxial broadband.
- Class A Fire Alarm System, audible and visible.

B-730 WAREHOUSE, 10,000 S.F.

Wheelchair accessible.

5.1 INTERNALS, VERTICAL:

- Perimeter walls, floor to structure, hard surface materials, concrete masonry units, epoxy paint or metal panels.
- Doors and frames: Hollow metal, overhead doors.

5.2 INTERNALS, HORIZONTAL:

- Floor: Sealed concrete.
- Ceiling: Exposed structure.

5.3 FINISHES, SPECIAL:

- None.

5.4 INTERIORS:

- None.

6.0 SPECIALTIES:

- Chalk/marker board.
- Tack board.

7.0 EQUIPMENT:

- None.

8.0 SPECIAL CONSTRUCTION:

- Dock levelers.

10.1 PLUMBING & FIRE PROTECTION:

- Water and drains.
- Sprinkler system.

10.2 HVAC:

- Heating and air conditioning.
- Heating and ventilating (no A/C) at NAU Flagstaff.

11.0 ELECTRICAL:

- Lighting: Fluorescent fixtures, ceiling suspended.
- Power - A.C. outlets.
- Special Systems - Audio, visual, computer jacks: 1 dual jack (data and voice) 1 jack coaxial broadband.
- Class A Fire Alarm System, audible and visible.

B-740 VEHICLE STORAGE (ENCLOSED) N.A.U. ONLY, 375 S.F./VEHICLE

Wheelchair accessible.

5.1 INTERNALS, VERTICAL:

- Perimeter walls, floor to structure, hard surface materials, concrete masonry units, epoxy paint or metal panels.
- Doors and frames: Hollow metal, overhead doors.

5.2 INTERNALS, HORIZONTAL:

- Floor: Sealed concrete.
- Ceiling: Exposed structure.

5.3 FINISHES, SPECIAL:

- None.

5.4 INTERIORS:

- None.

6.0 SPECIALTIES:

- None.

7.0 EQUIPMENT:

- None.

8.0 SPECIAL CONSTRUCTION:

- None.

10.1 PLUMBING & FIRE PROTECTION:

- Water and drains.
- Sprinkler system.

10.2 HVAC:

- Heating and air conditioning.
- Heating and ventilating (no A/C) at NAU Flagstaff.

11.0 ELECTRICAL:

- Lighting: Fluorescent fixtures, ceiling suspended.
- Power - A.C. outlets.
- Class A Fire Alarm System, audible and visible.

B-810 PATIENT ROOM AND BATH, 150 S.F.

Wheelchair accessible, at least 10% of the room/baths.

5.1 INTERNALS, VERTICAL:

- Perimeter walls, floor to structure, of metal studs and gypsum board, paint on room walls, ceramic tile in bath.
- Doors and frames: Hollow metal.

5.2 INTERNALS, HORIZONTAL:

- Floor hard surface, vinyl composition tile in patient room; ceramic tile in bath.
- Ceiling: Suspended acoustical tile in patient room; suspended Keene cement plaster in bath.

5.3 FINISHES, SPECIAL:

- Ceramic tile, floor and walls of bath.

5.4 INTERIORS:

- Built-in drawers and shelves.
 - Clear floor space 30" x 48" for forward or parallel approach.
 - Forward approach maximum high reach = 48", minimum low = 15".
 - Parallel approach maximum high = 54", minimum low = 9".

6.0 SPECIALTIES:

- Mirror.
- Toilet paper holder.
- Towel rack.
- Grab bars.

7.0 EQUIPMENT:

- Privacy curtain/track.

8.0 SPECIAL CONSTRUCTION:

- None

10.1 PLUMBING & FIRE PROTECTION:

- Water, drain.
- Water closet, bath tub, shower head.
 - Handicapped accessible shower: 36" x 36" with 48" x 36" stall area, or 30" x 60" with 60" x 36" stall area. Spray unit with a hose.
- Oxygen outlet over bed, suction outlet.
- Sprinkler system.

10.2 HVAC:

- Heating and air conditioning.
- Heating and ventilating (No A/C) at NAU Flagstaff.

SERIES 800 HEALTH CARE INFIRMARY
B-810 PATIENT ROOM AND BATH

11.0 ELECTRICAL:

- Lighting Fluorescent fixtures, ceiling, recessed. Light over mirror in bath. Over bed light fixture.
- Power - A.C. outlets.
- Special Systems - Nurses call; audio, video, computer jacks: 1 dual jack (data and voice) 1 jack coaxial broadband.
- Class A Fire Alarm System, audible and visible.

B-830 NURSE STATION, 144 S.F.

Wheelchair accessible.

5.1 INTERNALS, VERTICAL:

- Perimeter walls, floor to structure, of metal studs and gypsum board, epoxy paint.
- Doors and frames: Hollow metal.

5.2 INTERNALS, HORIZONTAL:

- Floor hard surface, vinyl composition tile, or carpet; max pile thickness 1/2". Edges fastened to floor surface and edge trim beveled with slope no greater than 1:2.
- Ceiling: Suspended, exposed grid, acoustical tile.

5.3 FINISHES, SPECIAL:

- None.

5.4 INTERIORS:

- Built-in counter with nurse call, telephone, computer, etc. Functions of counter to have.
 - Clear floor space shall be 30" x 48".
 - Knee clearances 27" high, 30" wide and 19" deep.
 - Height of counters 28" to 34" above the finished floor.

6.0 SPECIALTIES:

- Chalk/marker board.
- Tack board.

7.0 EQUIPMENT:

- None.

8.0 SPECIAL CONSTRUCTION:

- None

10.1 PLUMBING & FIRE PROTECTION:

- Water, drain.
- Sprinkler system.

10.2 HVAC:

- Heating and air conditioning.
- Heating and ventilating (No A/C) at NAU Flagstaff.

11.0 ELECTRICAL:

- Lighting Fluorescent fixtures, ceiling, recessed.
- Power - A.C. outlets.
- Special Systems - Nurses call; Audio, video, computer jacks: 2 dual jacks (data and voice) 2 jacks coaxial broadband.
- Class A Fire Alarm System, audible and visible.

B-840 EMERGENCY ROOM, 400 S.F.

Wheelchair accessible.

5.1 INTERNALS, VERTICAL:

- Perimeter walls, floor to structure, of metal studs and gypsum board, epoxy paint.
- Doors and frames: Hollow metal.

5.2 INTERNALS, HORIZONTAL:

- Floor hard surface, vinyl composition tile.
- Ceiling: Suspended, exposed grid, acoustical tile.

5.3 FINISHES, SPECIAL:

- None.

5.4 INTERIORS:

- Wall cabinets.
- Base cabinets.
 - Clear floor space 30" x 48" for forward or parallel approach.
 - Forward approach maximum high reach = 48", minimum low = 15".
 - Parallel approach maximum high = 54", minimum low = 9".

6.0 SPECIALTIES:

- Chalk/marker board.
- Tack board.
- Privacy curtains.

7.0 EQUIPMENT:

- None.

8.0 SPECIAL CONSTRUCTION:

- None.

10.1 PLUMBING & FIRE PROTECTION:

- Water, drain.
- Oxygen.
- Suction.
- Sprinkler system.

10.2 HVAC:

- Heating and air conditioning.
- Heating and ventilating (No A/C) at NAU Flagstaff.

11.0 ELECTRICAL:

- Lighting Fluorescent fixtures, ceiling, recessed.
- Power - A.C. outlets.
- Special Systems - Nurse calls; Audio, video, computer jacks: 2 dual jacks (data and voice) 2 jacks coaxial broadband.
- Class A Fire Alarm System, audible and visible.

B-850 TREATMENT, 144 S.F.

Wheelchair accessible.

5.1 INTERNALS, VERTICAL:

- Perimeter walls, floor to structure, of metal studs and gypsum board, epoxy paint.
- Doors and frames: Hollow metal.

5.2 INTERNALS, HORIZONTAL:

- Floor hard surface, vinyl composition tile.
- Ceiling: Suspended, exposed grid, acoustical tile.

5.3 FINISHES, SPECIAL:

- None.

5.4 INTERIORS:

- Wall cabinets.
- Base cabinets.
 - Clear floor space 30" x 48" for forward or parallel approach.
 - Forward approach maximum high reach = 48", minimum low = 15".
 - Parallel approach maximum high = 54", minimum low = 9".

6.0 SPECIALTIES:

- Chalk/marker board.
- Tack board.
- Privacy curtains.

7.0 EQUIPMENT:

- None.

8.0 SPECIAL CONSTRUCTION:

- None.

10.1 PLUMBING & FIRE PROTECTION:

- Water, drain.
- Oxygen.
- Suction.
- Sprinkler system.

10.2 HVAC:

- Heating and air conditioning.
- Heating and ventilating (No A/C) at NAU Flagstaff.

11.0 ELECTRICAL:

- Lighting Fluorescent fixtures, ceiling, recessed.
- Power - A.C. outlets.
- Special Systems - Nurse calls; Audio, video, computer jacks: 2 dual jacks (data and voice) 2 jacks coaxial broadband.
- Class A Fire Alarm System, audible and visible.

B-860 MEDICAL LABORATORY, 200 S.F.

Wheelchair accessible.

5.1 INTERNALS, VERTICAL:

- Perimeter walls, floor to structure, of metal studs and gypsum board, epoxy paint.
- Doors and frames: Hollow metal.

5.2 INTERNALS, HORIZONTAL:

- Floor hard surface, vinyl composition tile.
- Ceiling: Suspended, exposed grid, lay-in acoustical tile.

5.3 FINISHES, SPECIAL:

- None.

5.4 INTERIORS:

- Wall cabinets.
- Base cabinets.
 - Clear floor space 30" x 48" for forward or parallel approach.
 - Forward approach maximum high reach = 48", minimum low = 15".
 - Parallel approach maximum high = 54", minimum low = 9".

6.0 SPECIALTIES:

- Chalk/marker board.
- Tack board.

7.0 EQUIPMENT:

- None.

8.0 SPECIAL CONSTRUCTION:

- None.

10.1 PLUMBING & FIRE PROTECTION:

- Water, drains, gas, air (all Type A requirements, See Series 200).
- Sprinkler system.

10.2 HVAC:

- Heating and air conditioning.
- Heating and ventilating (No A/C) at NAU Flagstaff.
- Special exhaust hoods.

11.0 ELECTRICAL:

- Lighting Fluorescent fixtures, ceiling, recessed.
- Power - A.C. outlets each wall.
- Special Systems - Audio, video, computer jacks: 2 dual jacks (data and voice) 2 jacks coaxial broadband.
- Class A Fire Alarm System, audible and visible.

B-880 WAITING, 200 S.F.

Wheelchair accessible.

5.1 INTERNALS, VERTICAL:

- Perimeter walls, floor to structure, of metal studs and gypsum board, painted.
- Doors and frames: Hollow metal.

5.2 INTERNALS, HORIZONTAL:

- Floor: Carpet. Maximum pile thickness 1/2". Edges fastened to floor surface and edge trim beveled with slope no greater than 1:2.
- Ceiling: Suspended, exposed grid, lay-in acoustical tile.

5.3 FINISHES, SPECIAL:

- None.

5.4 INTERIORS:

- None.

6.0 SPECIALTIES:

- None.

7.0 EQUIPMENT:

- None.

8.0 SPECIAL CONSTRUCTION:

- None.

10.1 PLUMBING & FIRE PROTECTION:

- No plumbing.
- Sprinkler system.

10.2 HVAC:

- Heating and air conditioning.
- Heating and ventilating (No A/C) at NAU Flagstaff.

11.0 ELECTRICAL:

- Lighting Fluorescent light fixtures, ceiling, recessed.
- Power - A.C. outlets each wall.
- Class A Fire Alarm System, audible and visible.

B-890 X-RAY RADIOLOGY, 324 S.F.

Wheelchair accessible.

5.1 INTERNALS, VERTICAL:

- Perimeter walls, floor to structure, of heavy gage studs, lead lining where required and gypsum board, epoxy paint. epoxy paint.
- Doors and frames: Lead lined.

5.2 INTERNALS, HORIZONTAL:

- Floor hard surface, vinyl composition tile.
- Ceiling: Suspended, exposed grid, acoustical tile.

5.3 FINISHES, SPECIAL:

- None.

5.4 INTERIORS:

- Wall cabinets.
- Base cabinets.
 - Clear floor space 30" x 48" for forward or parallel approach.
 - Forward approach maximum high reach = 48", minimum low = 15".
 - Parallel approach maximum high = 54", minimum low = 9".

6.0 SPECIALTIES:

- None.

7.0 EQUIPMENT:

- None.

8.0 SPECIAL CONSTRUCTION:

- Support for X-ray equipment.

10.1 PLUMBING & FIRE PROTECTION:

- Water, drain.
- Sprinkler system.

10.2 HVAC:

- Heating and air conditioning.
- Heating and ventilating (No A/C) at NAU Flagstaff.
- Temperature of 75 degrees to 80 degrees fahrenheit with relative humidity or 50% and ventilation rate of 6 air changes per hour.

11.0 ELECTRICAL:

- Lighting Fluorescent fixtures, ceiling, recessed.
- Power - A.C. outlets. Independent feeder with sufficient capacity to prevent voltage drop greater than 3%.
- Special Systems - Nurses call; Audio, video, computer jacks: 2 dual jacks (data and voice) 2 jacks coaxial broadband.
- Class A Fire Alarm System, audible and visible.

B-910 RESIDENCE HALL ROOMS (WITH COMMON BATH), 240 S.F.

Wheelchair accessible rooms. The quantities of such rooms shall be provided as follows:

Number of Rooms	Accessible Rooms	Rooms with Roll-in Showers
1 to 25	1	
26 to 75	2	
51 to 75	3	1
76 to 100	4	1
101 to 150	5	2
151 to 200	6	2
201 to 300	7	3
301 to 400	8	4
401 to 500	9	4 plus one for each additional 100 over 400
501 to 1000	2% of total	
1001 and over	20 plus 1 for each 100 over 1000	

5.1 INTERNALS, VERTICAL:

- Perimeter walls, floor to structure, STC 48 minimum.
- Doors and frame, hollow metal, STC 48 minimum.

5.2 INTERNALS, HORIZONTAL:

- Floor: Room vinyl composition tile or carpet. Max pile thickness 1/2". Edges fastened to floor surface and edge trim beveled with slope no greater than 1:2. Bath ceramic tile.
- Ceiling: Room suspended gypsum board. Bath - suspended Keene cement plaster.

5.3 FINISHES, SPECIAL:

- Room: Tackable wall material, cork etc.
- Bath walls: Ceramic tile.

5.4 INTERIORS:

- Room-Built-in shelving and desk area.
 - Clear floor space shall be 30" x 48".
 - Knee clearances 27" high, 30" wide and 19" deep.
 - Height of counters 28" to 24" above the finished floor.

6.0 SPECIALTIES:

- Toilet partitions, mirrors, toilet paper holders, grab bars, sanitary napkin dispensers and disposals. Stainless steel shelving, towel bars.

SERIES 900 RESIDENTIAL
B-910 RESIDENCE HALL ROOMS (WITH COMMON BATHS)

7.0 EQUIPMENT:

- None.

8.0 SPECIAL CONSTRUCTION:

- None

10.1 PLUMBING & FIRE PROTECTION:

- Water, drain.
- Sprinkler system.
- Fixtures: Water closets, lavatories, showers, urinals.
- Shower - Roll-in shower 30" x 60" with seat and clear area of 36" x 60".

10.2 HVAC:

- Heating and air conditioning.
- Heating and ventilating (No A/C) at NAU Flagstaff.
- Exhaust in bath.

11.0 ELECTRICAL:

- Lighting: Fluorescent fixtures, ceiling, recessed.
- Power - A.C. outlets.
- Special Systems - Audio, video, computer jacks: 2 dual jacks (data and voice) 2 jacks coaxial broadband.
- Class A Fire Alarm System, audible and visible.

B-919 RESIDENCE HALL ROOMS (WITH PRIVATE BATH), 280 S.F.

Wheelchair accessible rooms. The quantities of such rooms shall be provided as follows:

Number of Rooms	Accessible Rooms	Rooms with Roll-in Showers
1 to 25	1	
26 to 75	2	
51 to 75	3	1
76 to 100	4	1
101 to 150	5	2
151 to 200	6	2
201 to 300	7	3
301 to 400	8	4
401 to 500	9	4 plus one for each additional 100 over 400
501 to 1000	2% of total	
1001 and over	20 plus 1 for each 100 over 1000	

5.1 INTERNALS, VERTICAL:

- Perimeter walls, floor to structure, STC 48 minimum.
- Doors and frames, hollow metal, STC 48 minimum.

5.2 INTERNALS, HORIZONTAL:

- Floor: Room vinyl composition tile or carpet. Max pile thickness 1/2". Edges fastened to floor surface and edge trim beveled with slope no greater than 1:2. Bath ceramic tile.
- Ceiling: Room suspended gypsum board. Bath - suspended Keene cement plaster.

5.3 FINISHES, SPECIAL:

- Room: Tackable wall material, cork etc.
- Bath walls: Ceramic tile.

5.4 INTERIORS:

- Room-Built-in shelving and desk area.
 - Clear floor space shall be 30" x 48".
 - Knee clearances 27" high, 30" wide and 19" deep.
 - Height of counters 28" to 24" above the finished floor.

6.0 SPECIALTIES:

- Mirror, toilet paper holders, towel bar, grab bars.

SERIES 900 RESIDENTIAL
B-919 RESIDENCE HALL ROOMS (WITH PRIVATE BATH)

7.0 EQUIPMENT:

- None.

8.0 SPECIAL CONSTRUCTION:

- None

10.1 PLUMBING & FIRE PROTECTION:

- Water, drain.
- Fixtures: Water closet, lavatory, shower/tub.
 - Shower - Roll-in shower 30" x 60" with seat and clear area of 36" x 60".
- Sprinkler system.

10.2 HVAC:

- Heating and air conditioning.
- Heating and ventilating (No A/C) at NAU Flagstaff.
- Exhaust in bath.

11.0 ELECTRICAL:

- Lighting: Fluorescent fixtures, ceiling, recessed.
- Power - A.C. outlets.
- Special Systems - Audio, video, computer jacks: 2 dual jacks (data and voice) 2 jacks coaxial broadband.
- Class A Fire Alarm System, audible and visible.

B-920 RESIDENCE ROOMS (2 ROOMS WITH COMMON BATH), 580 S.F.

Wheelchair accessible rooms. The quantities of such rooms shall be provided as follows:

Number of Rooms	Accessible Rooms	Rooms with Roll-in Showers
1 to 25	1	
26 to 75	2	
51 to 75	3	1
76 to 100	4	1
101 to 150	5	2
151 to 200	6	2
201 to 300	7	3
301 to 400	8	4
401 to 500	9	4 plus one for each additional 100 over 400
501 to 1000	2% of total	
1001 and over	20 plus 1 for each 100 over 1000	

5.1 INTERNALS, VERTICAL:

- Perimeter walls, floor to structure, STC 48 minimum.
- Doors and frame, hollow metal, STC 48 minimum.

5.2 INTERNALS, HORIZONTAL:

- Floor: Room vinyl composition tile, or carpet; max pile thickness 1/2". Edges fastened to floor surface and edge trim beveled with slope no greater than 1:2. Bath ceramic tile.
- Ceiling: Room suspended gypsum board. Bath - suspended Keene cement plaster.

5.3 FINISHES, SPECIAL:

- Room: Tackable wall material, cork etc.
- Bath walls: Ceramic tile.

5.4 INTERIORS:

- Room-Built-in shelving and desk area.
 - Clear floor space shall be 30" x 48".
 - Knee clearances 27" high, 30" wide and 19" deep.
 - Height of counters 28" to 24" above the finished floor.

6.0 SPECIALTIES:

- Mirror, toilet paper holders, towel bar, grab bars.

SERIES 900 RESIDENTIAL
B-920 RESIDENCE ROOMS (2 WITH COMMON BATHS)

7.0 EQUIPMENT:

- None.

8.0 SPECIAL CONSTRUCTION:

- None

10.1 PLUMBING & FIRE PROTECTION:

- Water, drain.
- Fixtures: Water closet, lavatory, shower/tub.
 - Shower - Roll-in shower 30" x 60" with seat and clear area of 36" x 60".
- Sprinkler system.

10.2 HVAC:

- Heating and air conditioning.
- Heating and ventilating (No A/C) at NAU Flagstaff.
- Exhaust in common bath.

11.0 ELECTRICAL:

- Lighting: Fluorescent fixtures, ceiling, recessed.
- Power - A.C. outlets.
- Special Systems - Audio, video, computer jacks each room: 2 dual jacks (data and voice) 2 jacks coaxial broadband.
- Class A Fire Alarm System, audible and visible.

B-950 APARTMENT WITH COOKING FACILITIES, 800 - 900 S.F.

Wheelchair accessible, percentage of units to be determined.

- 5.1 INTERNALS, VERTICAL:
 - Perimeter walls, floor to structure, STC 48 minimum.
 - Doors and frame, hollow metal, STC 48 minimum.
- 5.2 INTERNALS, HORIZONTAL:
 - Floor: Kitchen - vinyl composition tile. Bath - ceramic tile. Others - carpet; max pile thickness 1/2". Edges fastened to floor surface and edge trim beveled with slope no greater than 1:2.
 - Ceiling: Bath - suspended Keene cement plaster. Others suspended gypsum board.
- 5.3 FINISHES, SPECIAL:
 - Bedroom walls: Tackable wall material, cork etc.
 - Bath walls: Ceramic tile.
- 5.4 INTERIORS:
 - Kitchen, base and wall cabinets.
 - Clear floor space 30" x 48" for forward or parallel approach.
 - Forward approach maximum high reach = 48", minimum low = 15".
 - Parallel approach maximum high = 54", minimum low = 9".
- 6.0 SPECIALTIES:
 - Mirror, toilet paper holder, towel rack, grab bars.
- 7.0 EQUIPMENT:
 - Stove/oven, refrigerator.
- 8.0 SPECIAL CONSTRUCTION:
 - None
- 10.1 PLUMBING & FIRE PROTECTION:
 - Water, drains.
 - Fixtures: Kitchen sink, water closet, lavatory, shower/tub.
 - Sprinkler system.
 - Shower - Roll-in shower 30" x 60" with seat and clear area of 36" x 60".
- 10.2 HVAC:
 - Heating and air conditioning.
 - Heating and ventilating (No A/C) at NAU Flagstaff.
 - Hood/exhaust in kitchen..
 - Exhaust in bath.
- 11.0 ELECTRICAL:
 - Lighting: Fluorescent fixtures, ceiling, recessed.
 - Power - A.C. outlets.
 - Special Systems - Audio, video, computer jacks: 2 dual jacks (data and voice) 2 jacks coaxial broadband.
 - Class A Fire Alarm System, audible and visible.

B-WWW CIRCULATION

Wheelchair accessible.

5.1 INTERNALS, VERTICAL:

- Perimeter walls, floor to structure, of metal studs and gypsum board. Fire rating required depending on occupancy.
- Doors and frames, hollow metal.

5.2 INTERNALS, HORIZONTAL:

- Floor: Vinyl composition tile. Carpet; max pile thickness 1/2". Edges fastened to floor surface and edge trim beveled with slope no greater than 1:2.
- Ceiling: Suspended, exposed grid, lay-in acoustical tile.

5.3 FINISHES, SPECIAL:

- None

5.4 INTERIORS:

- None.

6.0 SPECIALTIES:

- Tack boards/depending on circulation location and width.
- Signage: Raised and brailled and pictorial symbol signs.

7.0 EQUIPMENT:

- None.

8.0 SPECIAL CONSTRUCTION:

- None

10.1 PLUMBING & FIRE PROTECTION:

- Sprinkler system.

10.2 HVAC:

- Heating and air conditioning.
- Heating and ventilating (No A/C) at NAU Flagstaff.

11.0 ELECTRICAL:

- Lighting Fluorescent fixtures, ceiling, recessed.
- Power - A.C. outlets.
- Class A Fire Alarm System, audible and visible.

B-XXX CUSTODIAL

Individuals with disabilities can approach, enter and exit, but work areas are not required to be accessible.

5.1 INTERNALS, VERTICAL:

- Perimeter walls, floor to structure, of metal studs and gypsum board.

5.2 INTERNALS, HORIZONTAL:

- Floor: Vinyl composition tile, sealed concrete.
- Ceiling: Suspended, exposed grid, lay-in acoustical tile, on exposed structure.

5.3 FINISHES, SPECIAL:

- Epoxy wall finishes or water resistant panels at mop sink area.

5.4 INTERIORS:

- Minimal length of base and wall cabinets.

6.0 SPECIALTIES:

- Tack board.
- Mop rack.

7.0 EQUIPMENT:

- None.

8.0 SPECIAL CONSTRUCTION:

- None.

10.1 PLUMBING & FIRE PROTECTION:

- Water, drain.
- Mop sink.
- Sprinkler system.

10.2 HVAC:

- Heating and air conditioning.
- Heating and ventilating (No A/C) at NAU Flagstaff.

11.0 ELECTRICAL:

- Lighting Fluorescent fixtures, ceiling, recessed.
- Power - A.C. outlets.
- Class A Fire Alarm System, audible and visible.

B-YYY MECHANICAL/ELECTRICAL

Individuals with disabilities can approach, enter and exit, but work areas are not required to be accessible.

5.1 INTERNALS, VERTICAL:

- Perimeter walls, floor to structure, fire rated, STC 58-65 minimum.
- Doors and frames: Fire rated and gasketed sound control.

5.2 INTERNALS, HORIZONTAL:

- Floor: Sealed concrete.
- Ceiling: Exposed structure or suspended acoustical tile to provide fire rating as required.

5.3 FINISHES, SPECIAL:

- Plywood panel for telephone board.

5.4 INTERIORS:

- None.

6.0 SPECIALTIES:

- None.

7.0 EQUIPMENT:

- None.

8.0 SPECIAL CONSTRUCTION:

- None.

10.1 PLUMBING & FIRE PROTECTION:

- Water, drain.
- Sprinkler system.

10.2 HVAC:

- Heating and air conditioning.
- Heating and ventilating (No A/C) at NAU Flagstaff.
- Additional and/or specialized air handling depending on equipment in room.

11.0 ELECTRICAL:

- Lighting Fluorescent fixtures, ceiling, recessed or suspended.
- Power - A.C. outlets and/or as required for equipment.
- Class A Fire Alarm System, audible and visible.

B-ZZZ PUBLIC TOILET ROOMS

Wheelchair accessible.

5.1 INTERNALS, VERTICAL:

- Perimeter walls, floor to structure, on metal studs and gypsum board, epoxy paint.
- Doors and frames, hollow metal.

5.2 INTERNALS, HORIZONTAL:

- Floor: Ceramic, quarry tile.
- Ceiling: Suspended gypsum board ceiling painted.

5.3 FINISHES, SPECIAL:

- Ceramic tile walls.

5.4 INTERIORS:

- None.

6.0 SPECIALTIES:

- Toilet partitions.
- Mirrors: stainless steel shelves, soap dispensers, paper towel dispenses and receptacle, sanitary napkin dispenses and receptacle, toilet paper holder, grab bars.

7.0 EQUIPMENT:

- None.

8.0 SPECIAL CONSTRUCTION:

- None.

10.1 PLUMBING & FIRE PROTECTION:

- Water, drains.
- Water closets, lavatories, urinals.
- Sprinkler system.

10.2 HVAC:

- Heating and air conditioning.
- Heating and ventilating (No A/C) at NAU Flagstaff.
- Exhaust.

11.0 ELECTRICAL:

- Lighting Fluorescent fixtures, ceiling, recessed.
- Power - A.C. outlets.
- Class A Fire Alarm System, audible and visible.

**ARIZONA BOARD OF REGENTS
CONSTRUCTION COST CONTROL
& PROFESSIONAL FEE GUIDELINES**

SCG NO.: 00-028
Prepared by: G.AMARI
Checked by: L.SAYLOR

**SERIES A
STRUCTURAL/BUILDING CONFIGURATION MATRIX**

Date: 04/29/02

PHOENIX-TUCSON

ITEM NO.	DESCRIPTION	ONE-STORY CLASS/OFFICE	ONE-STORY CLASS/OFFICE 16'-0" FLOOR TO STRUCTURE	ONE-STORY III BAY LONG SPAN FIELD-HOUSE GYMS	ONE-STORY III BAY LONG SPAN LAB	TWO STORY CLASS/OFFICE	TWO STORY CLASS/OFFICE 16'-0" FLOOR TO FLOOR
		A-1	A-1A	A-2	A-2A	A-3	A-3A
2.0	SUBSTRUCTURE	10.55	11.75	10.10	12.32	9.57	10.52
3.0	STRUCTURE*	23.28	23.69	24.14	28.26	23.59	23.94
4.1	ENCLOSURE VERTICAL	12.51	12.51	12.51	12.51	12.21	15.44
4.2	ENCLOSURE HORIZONTAL**	5.42	5.42	5.42	5.42	2.69	2.69
4.3	SUPPORT ITEMS	2.30	2.30	2.30	2.30	3.98	4.23
5.1	INTERNAL VERTICAL	-	-	-	-	-	-
5.2	INTERNAL HORIZONTAL	-	-	-	-	-	-
5.3	SPECIAL FINISHES	-	-	-	-	-	-
5.4	INTERIORS	-	-	-	-	-	-
6.0	BUILDING SPECIALTIES	-	-	-	-	-	-
7.0	EQUIPMENT	-	-	-	-	-	-
8.0	SPECIAL CONSTRUCTION	-	-	-	-	-	-
9.0	CONVEYING	-	-	-	-	-	-
10.1	PLUMBING & FIRE PROTECTION***	-	-	-	-	2.07	2.71
10.2	HVAC***	-	-	-	-	-	-
11.0	ELECTRICAL***	-	-	-	-	-	-
TOTAL CONSTRUCTION COST / S.F.		\$54.06	\$55.67	\$54.47	\$60.81	\$54.11	\$59.53

NOTE

- * Add \$.49/SF of roof area to structural costs for use of clay tile roof material.
- ** Add \$ 4.26/SF of roof area to enclosure horizontal costs for use of clay tile roof material.
- *** Shell & core costs only

**ARIZONA BOARD OF REGENTS
CONSTRUCTION COST CONTROL
& PROFESSIONAL FEE GUIDELINES**

SCG NO.: 00-028
Prepared by: G.AMARI
Checked by: L.SAYLOR

SERIES A
STRUCTURAL/BUILDING CONFIGURATION MATRIX

Date: 04/29/02

PHOENIX-TUCSON

ITEM NO.	DESCRIPTION	MULTI-STORY 3-5 CLASS/OFFICE	MULTI-STORY 3-5 LAB	MULTI-STORY 3-5 CLASS/OFF. 16'-0" FLOOR TO FLOOR	MULTI-STORY 6-10 CLASS/OFFICE	MULTI-STORY THEATER COMPLEX	MULTI-STORY 6-10 LAB
		A-4	A-4A	A-4B	A-5	A-5A	A-5B
2.0	SUBSTRUCTURE	8.58	9.95	8.95	7.77	13.73	10.37
3.0	STRUCTURE*	26.20	43.47	23.01	28.55	54.62	54.99
4.1	ENCLOSURE VERTICAL	11.13	18.84	20.96	11.38	34.30	21.92
4.2	ENCLOSURE HORIZONTAL**	1.82	1.58	1.58	0.85	6.64	0.85
4.3	SUPPORT ITEMS	3.60	4.35	4.76	3.71	10.60	5.20
5.1	INTERNAL VERTICAL	-	-	-	-	-	-
5.2	INTERNAL HORIZONTAL	-	-	-	-	-	-
5.3	SPECIAL FINISHES	-	-	-	-	-	-
5.4	INTERIORS	-	-	-	-	-	-
6.0	BUILDING SPECIALTIES	-	-	-	-	-	-
7.0	EQUIPMENT	-	-	-	-	-	-
8.0	SPECIAL CONSTRUCTION	-	-	-	-	-	-
9.0	CONVEYING	5.80	5.80	6.45	6.67	10.60	4.83
10.1	PLUMBING & FIRE PROTECTION***	3.27	4.07	3.86	9.45	-	8.20
10.2	HVAC***	5.26	6.58	5.81	7.23	-	6.80
11.0	ELECTRICAL***	7.67	9.23	8.27	8.27	-	7.52
TOTAL CONSTRUCTION COST / S.F.		\$73.33	\$103.87	\$83.65	\$83.88	\$130.49	\$120.68

NOTE

* Add \$.49/SF of roof area to structural costs for use of clay tile roof material.

** Add \$ 4.26/SF of roof area to enclosure horizontal costs for use of clay tile roof material.

*** Shell & core costs only

**ARIZONA BOARD OF REGENTS
CONSTRUCTION COST CONTROL
& PROFESSIONAL FEE GUIDELINES**

SCG NO.: 00-028
Prepared by: G.AMARI
Checked by: L.SAYLOR

**SERIES A
STRUCTURAL/BUILDING CONFIGURATION MATRIX**

Date: 04/29/02

PHOENIX-TUCSON

ITEM NO.	DESCRIPTION	ONE OR TWO STORY BELOW GRADE CLASS/OFFICE (BLDG ABOVE)	ONE OR TWO STORY BELOW GRADE LAB (BLDG. ABOVE)	ONE OR TWO STORY BELOW GRADE CLASSRM/OFF. (NO BLDG. ABOVE)	RESIDENTIAL ONE OR TWO STORY	RESIDENTIAL ONE OR TWO STORY WOOD FRAME	RESIDENTIAL 3-5 STORIES
		A-6	A-6A	A-6B	A-7	A-7A	A-8
2.0	SUBSTRUCTURE	34.21	37.11	37.11	10.07	8.11	5.90
3.0	STRUCTURE*	19.00	35.85	37.59	18.31	12.34	22.67
4.1	ENCLOSURE VERTICAL	1.84	3.54	3.54	9.68	7.88	9.68
4.2	ENCLOSURE HORIZONTAL**	3.43	3.43	3.43	3.43	2.44	1.55
4.3	SUPPORT ITEMS	3.16	4.41	4.02	0.82	1.49	1.93
5.1	INTERNALS VERTICAL	-	-	-	-	-	-
5.2	INTERNALS HORIZONTAL	-	-	-	-	-	-
5.3	SPECIAL FINISHES	-	-	-	-	-	-
5.4	INTERIORS	-	-	-	-	-	-
6.0	BUILDING SPECIALTIES	-	-	-	-	-	-
7.0	EQUIPMENT	-	-	-	-	-	-
8.0	SPECIAL CONSTRUCTION	-	-	-	-	-	-
9.0	CONVEYING	3.88	3.88	3.88	1.69	1.54	5.42
10.1	PLUMBING & FIRE PROTECTION***						5.92
10.2	HVAC***						1.63
11.0	ELECTRICAL***						1.97
TOTAL CONSTRUCTION COST / S.F.		\$65.52	\$88.22	\$89.57	\$44.00	\$33.80	\$56.67

NOTE

* Add \$.49/SF of roof area to structural costs for use of clay tile roof material.

** Add \$ 4.26/SF of roof area to enclosure horizontal costs for use of clay tile roof material.

*** Shell & core costs only

**ARIZONA BOARD OF REGENTS
CONSTRUCTION COST CONTROL
& PROFESSIONAL FEE GUIDELINES**

SCG NO.: 00-028
Prepared by: G.AMARI
Checked by: L.SAYLOR

**SERIES A
STRUCTURAL/BUILDING CONFIGURATION MATRIX**

Date: 04/29/02

PHOENIX-TUCSON							
ITEM NO.	DESCRIPTION	RESIDENTIAL 6-10 STORIES A-9	PARKING STRUCTURE TO 3 LEVELS SEISMIC ZONE 2 A-10	PARKING STRUCTURE 4-5 LEVELS SEISMIC ZONE 2 A-11	PARKING STRUCTURE 1 OR 2 LEVELS BELOW GRADE SEISMIC ZONE 2 A-12	PRE-ENGINEERED BUILDING GREENHOUSE 550-1132 SF A-13	PRE-ENGINEERED BUILDING GREENHOUSE 1132-2264 SF A-14
2.0	SUBSTRUCTURE	5.90	3.14	2.85	7.27	3.73	3.73
3.0	STRUCTURE*	22.71	13.44	14.35	11.55	29.40	25.59
4.1	ENCLOSURE VERTICAL	9.97	1.23	1.86	1.86	14.17	13.16
4.2	ENCLOSURE HORIZONTAL**	0.85	1.27	1.60	1.60	9.57	8.89
4.3	SUPPORT ITEMS	3.71	0.64	0.87	0.67	5.15	4.77
5.1	INTERNALS VERTICAL	-	0.20	0.22	0.23	-	-
5.2	INTERNALS HORIZONTAL	-	0.04	0.06	0.02	-	-
5.3	SPECIAL FINISHES	-	-	-	-	-	-
5.4	INTERIORS	-	-	-	-	-	-
6.0	BUILDING SPECIALTIES	-	0.16	0.10	0.16	-	-
7.0	EQUIPMENT	-	0.16	0.11	0.82	-	-
8.0	SPECIAL CONSTRUCTION	-	-	-	-	-	-
9.0	CONVEYING	4.43	0.32	0.32	0.39	-	-
10.1	PLUMBING & FIRE PROTECTION***	6.20	0.55	0.57	0.83	-	-
10.2	HVAC***	1.52	-	-	-	-	-
11.0	ELECTRICAL***	3.07	0.69	0.69	1.18	-	-
TOTAL CONSTRUCTION COST / S.F.		\$58.36	\$21.84	\$23.60	\$26.58	\$62.02	\$56.14

NOTE

- * Add \$.43/SF of roof area to structural costs for use of clay tile roof material.
- ** Add \$ 3.70/SF of roof area to enclosure horizontal costs for use of clay tile roof material.
- *** Shell & core costs only

**ARIZONA BOARD OF REGENTS
CONSTRUCTION COST CONTROL
& PROFESSIONAL FEE GUIDELINES**

SCG NO.: 00-028
Prepared by: G.AMARI
Checked by: L.SAYLOR

**SERIES A
STRUCTURAL/BUILDING CONFIGURATION MATRIX**

Date: 04/29/02

PHOENIX-TUCSON

ITEM NO.	DESCRIPTION	PRE-ENGINEERED BUILDING WAREHOUSE 1 STORY A-15					
2.0	SUBSTRUCTURE	5.41	-	-	-	-	-
3.0	STRUCTURE*	10.66	-	-	-	-	-
4.1	ENCLOSURE VERTICAL	10.36	-	-	-	-	-
4.2	ENCLOSURE HORIZONTAL**	8.90	-	-	-	-	-
4.3	SUPPORT ITEMS	3.59	-	-	-	-	-
5.1	INTERNAL VERTICAL	-	-	-	-	-	-
5.2	INTERNAL HORIZONTAL	-	-	-	-	-	-
5.3	SPECIAL FINISHES	-	-	-	-	-	-
5.4	INTERIORS	-	-	-	-	-	-
6.0	BUILDING SPECIALTIES	-	-	-	-	-	-
7.0	EQUIPMENT	-	-	-	-	-	-
8.0	SPECIAL CONSTRUCTION	-	-	-	-	-	-
9.0	CONVEYING	-	-	-	-	-	-
10.1	PLUMBING & FIRE PROTECTION***	-	-	-	-	-	-
10.2	HVAC***	-	-	-	-	-	-
11.0	ELECTRICAL***	-	-	-	-	-	-
TOTAL CONSTRUCTION COST / S.F.		\$38.92					

NOTE

- * Add \$.49/SF of roof area to structural costs for use of clay tile roof material.
- ** Add \$ 4.26/SF of roof area to enclosure horizontal costs for use of clay tile roof material.
- *** Shell & core costs only

**ARIZONA BOARD OF REGENTS
CONSTRUCTION COST CONTROL
& PROFESSIONAL FEE GUIDELINES**

SCG NO.: 00-028
Prepared by: G.AMARI
Checked by: L.SAYLOR

SERIES B-100
INTERIORS / BUILDING USE MATRIX

Date: 04/29/02

PHOENIX-TUCSON							
ITEM NO.	DESCRIPTION	CLASSROOM SEMINAR (TO 25) B-110	CLASSROOM SEMINAR (TO 40) B-111	LECTURE CLASSROOM (TO 75) B-112	LECTURE CLASSROOM W/ITFS (TO 75) B-113	LECTURE CLASSROOM (200) TYPE A B-114	LECTURE CLASSROOM (200) TYPE B B-115
2.0	SUBSTRUCTURE	-	-	-	-	-	-
3.0	STRUCTURE	-	-	-	-	-	-
4.1	ENCLOSURE VERTICAL	-	-	-	-	-	-
4.2	ENCLOSURE HORIZONTAL	-	-	-	-	-	-
4.3	SUPPORT ITEMS	-	-	-	-	-	-
5.1	INTERNALS VERTICAL	9.91	8.60	6.81	8.96	5.41	5.41
5.2	INTERNALS HORIZONTAL	5.77	5.77	5.77	5.77	6.19	6.19
5.3	SPECIAL FINISHES	-	-	-	1.02	0.53	0.53
5.4	INTERIORS	-	-	2.79	2.79	3.93	3.93
6.0	BUILDING SPECIALTIES	2.79	2.25	1.67	1.67	1.14	1.14
7.0	EQUIPMENT	-	-	-	-	-	-
8.0	SPECIAL CONSTRUCTION	-	-	-	-	2.85	1.87
9.0	CONVEYING	-	-	-	-	-	-
10.1	PLUMBING & FIRE PROTECTION	1.36	1.93	1.71	1.71	17.06	10.76
10.2	HVAC*	14.05	13.36	14.05	14.05	14.20	14.20
11.0	ELECTRICAL**	24.69	24.69	26.10	28.95	27.53	25.81
TOTAL CONSTRUCTION COST / S.F.		\$58.57	\$56.60	\$58.90	\$64.92	\$78.84	\$69.84

Note

* Added DDC Controls

** Electrical added class "A" Fire Alarm

**ARIZONA BOARD OF REGENTS
CONSTRUCTION COST CONTROL
& PROFESSIONAL FEE GUIDELINES**

SCG NO.: 00-028
Prepared by: G.AMARI
Checked by: L.SAYLOR

SERIES B-100
INTERIORS / BUILDING USE MATRIX

Date: 04/29/02

PHOENIX-TUCSON

ITEM NO.	DESCRIPTION	STUDIO CLASSROOM	EXHIBIT SPACE	MUSIC ROOM LARGE GROUP	MUSIC ROOM PRACTICE SMALL GROUP	HIGHLY MEDIATED LECTURE CLASS (TO 400)	HIGHLY MEDIATED CLASSROOM (TO 45)
		B-116	B-117	B-118	B-119	B-120	B-121
2.0	SUBSTRUCTURE	-	-	-	-	-	-
3.0	STRUCTURE	-	-	-	-	-	-
4.1	ENCLOSURE VERTICAL	-	-	-	-	-	-
4.2	ENCLOSURE HORIZONTAL	-	-	-	-	-	-
4.3	SUPPORT ITEMS	-	-	-	-	-	-
5.1	INTERNAL VERTICAL	7.46	5.68	6.43	7.49	6.18	9.89
5.2	INTERNAL HORIZONTAL	4.88	6.64	10.72	9.52	6.67	9.53
5.3	SPECIAL FINISHES	-	2.44	0.82	2.61	1.22	-
5.4	INTERIORS	2.76	-	0.89	-	4.52	-
6.0	BUILDING SPECIALTIES	1.47	-	1.69	-	8.82	6.49
7.0	EQUIPMENT	-	-	-	-	-	-
8.0	SPECIAL CONSTRUCTION	2.15	-	3.30	-	3.62	17.31
9.0	CONVEYING	-	-	-	-	-	-
10.1	PLUMBING & FIRE PROTECTION	5.51	1.76	1.76	2.93	2.86	2.86
10.2	HVAC*	17.12	17.49	16.50	16.43	19.22	17.93
11.0	ELECTRICAL**	29.93	30.41	30.41	31.92	36.90***	70.32
TOTAL CONSTRUCTION COST / S.F.		\$71.28	\$64.42	\$72.52	\$70.90	\$90.01	\$134.33

NOTE:

*Added DDC Controls

** Electrical Added Class "A" Fire Alarm

*** If each student station requires access to data jack and isolated power, add \$43.14 to the electrical cost

**ARIZONA BOARD OF REGENTS
CONSTRUCTION COST CONTROL
& PROFESSIONAL FEE GUIDELINES**

SCG NO.: 00-028
Prepared by: G.AMARI
Checked by: L.SAYLOR

SERIES B-100
INTERIORS / BUILDING USE MATRIX

Date: 04/29/02

PHOENIX-TUCSON

ITEM NO.	DESCRIPTION	HIGHLY MEDIATED CLASSROOM (TO 75)	MULTI-MEDIA CLASSROOM (TO 250)	INTERACTIVE TV LECTURE CLASSROOM (TO 90)	INTERACTIVE TV CLASSROOM FLEXIBLE (TO 40)	INTERACTIVE TV CLASSROOM FIXED (TO 40)	
		B-122	B-123	B-124	B-125	B-126	
2.0	SUBSTRUCTURE	-	-	-	-	-	-
3.0	STRUCTURE	-	-	-	-	-	-
4.1	ENCLOSURE VERTICAL	-	-	-	-	-	-
4.2	ENCLOSURE HORIZONTAL	-	-	-	-	-	-
4.3	SUPPORT ITEMS	-	-	-	-	-	-
5.1	INTERNALS VERTICAL	7.82	7.82	8.99	8.99	8.99	-
5.2	INTERNALS HORIZONTAL	8.31	8.31	5.77	8.31	5.77	-
5.3	SPECIAL FINISHES	-	-	1.84	-	-	-
5.4	INTERIORS	-	-	2.79	3.16	3.16	-
6.0	BUILDING SPECIALTIES	5.64	6.06	7.68	3.53	7.68	-
7.0	EQUIPMENT	-	-	-	-	-	-
8.0	SPECIAL CONSTRUCTION	15.05	15.05	16.60	15.05	-	-
9.0	CONVEYING	-	-	-	-	-	-
10.1	PLUMBING & FIRE PROTECTION	2.42	2.42	2.42	2.42	2.42	-
10.2	HVAC*	15.59	15.59	18.24	18.95	18.95	-
11.0	ELECTRICAL**	60.52	60.52	41.29	36.98	36.98	-
TOTAL CONSTRUCTION COST / S.F.		\$115.35	\$115.77	\$105.62	\$97.39	\$83.95	

NOTE:

* Added DDC Controls

** Electrical Added Class "A" Fire Alarm

**ARIZONA BOARD OF REGENTS
CONSTRUCTION COST CONTROL
& PROFESSIONAL FEE GUIDELINES**

SCG NO.: 00-028
Prepared by: G.AMARI
Checked by: L.SAYLOR

SERIES B-200
INTERIORS / BUILDING USE MATRIX

Date: 04/29/02

PHOENIX-TUCSON

ITEM NO.	DESCRIPTION	CLASSROOM LAB (TO 30) TYPE A	CLASSROOM LAB (TO 30) TYPE B	CLASSROOM LAB (TO 30) TYPE C	HAZARDOUS MATERIAL STORAGE	INDIVIDUAL STUDY/LAB (TO 30) TYPE A	INDIVIDUAL STUDY/LAB (TO 30) TYPE B
		B-210	B-220	B-221	B-225	B-230	B-235
2.0	SUBSTRUCTURE	-	-	-	-	-	-
3.0	STRUCTURE	-	-	-	-	-	-
4.1	ENCLOSURE VERTICAL	-	-	-	-	-	-
4.2	ENCLOSURE HORIZONTAL	-	-	-	-	-	-
4.3	SUPPORT ITEMS	-	-	-	-	-	-
5.1	INTERNALS VERTICAL	8.73	8.73	10.18	10.18	9.87	9.87
5.2	INTERNALS HORIZONTAL	5.42	5.42	6.64	5.42	4.58	1.70
5.3	SPECIAL FINISHES	-	-	-	-	-	-
5.4	INTERIORS	36.85	36.85	36.85	-	34.40	34.40
6.0	BUILDING SPECIALTIES	1.73	1.94	2.43	-	1.59	1.86
7.0	EQUIPMENT	-	-	-	-	-	-
8.0	SPECIAL CONSTRUCTION	-	-	-	-	-	-
9.0	CONVEYING	-	-	-	-	-	-
10.1	PLUMBING & FIRE PROTECTION	28.72	14.64	13.10	28.72	27.81	14.64
10.2	HVAC	42.85	30.77	21.75	21.75	42.85	30.77
11.0	ELECTRICAL	47.22	35.70	38.20	38.20	47.22	35.70
	TOTAL CONSTRUCTION COST / S.F.	\$171.52	\$134.05	\$129.15	\$104.27	\$168.32	\$128.94

**ARIZONA BOARD OF REGENTS
CONSTRUCTION COST CONTROL
& PROFESSIONAL FEE GUIDELINES**

SCG NO.: 00-028
Prepared by: G.AMARI
Checked by: L.SAYLOR

SERIES B-200
INTERIORS / BUILDING USE MATRIX

Date: 04/29/02

PHOENIX-TUCSON

ITEM NO.	DESCRIPTION	INDIVIDUAL STUDY/RESEARCH LAB, SMALL TYPE A B-236	INDIVIDUAL STUDY/RESEARCH LAB, SMALL TYPE B B-237	RESEARCH LARGE TYPE A B-238	RESEARCH LARGE TYPE B B-239	RESEARCH MEDICAL LAB 6 PERSON B-240	
2.0	SUBSTRUCTURE	-	-	-	-	-	-
3.0	STRUCTURE	-	-	-	-	-	-
4.1	ENCLOSURE VERTICAL	-	-	-	-	-	-
4.2	ENCLOSURE HORIZONTAL	-	-	-	-	-	-
4.3	SUPPORT ITEMS	-	-	-	-	-	-
5.1	INTERNAL VERTICAL	14.12	14.12	5.41	5.41	10.56	-
5.2	INTERNAL HORIZONTAL	4.58	4.58	4.58	4.58	4.58	-
5.3	SPECIAL FINISHES	-	-	-	-	-	-
5.4	INTERIORS	17.20	17.20	12.06	12.06	16.56	-
6.0	BUILDING SPECIALTIES	3.06	3.06	0.64	0.64	2.92	-
7.0	EQUIPMENT	-	-	-	-	-	-
8.0	SPECIAL CONSTRUCTION	-	-	-	-	-	-
9.0	CONVEYING	-	-	-	-	-	-
10.1	PLUMBING & FIRE PROTECTION	27.81	14.65	23.36	14.54	36.57	-
10.2	HVAC	42.85	30.77	31.25	27.62	40.70	-
11.0	ELECTRICAL	49.32	37.65	39.00	39.00	43.62	-
	TOTAL CONSTRUCTION COST / S.F.	\$158.94	\$122.03	\$116.30	\$103.85	\$155.51	

**ARIZONA BOARD OF REGENTS
CONSTRUCTION COST CONTROL
& PROFESSIONAL FEE GUIDELINES**

SCG NO.: 00-028
Prepared by: G.AMARI
Checked by: L.SAYLOR

**SERIES B-300
INTERIORS / BUILDING USE MATRIX**

Date: 04/29/02

PHOENIX-TUCSON

ITEM NO.	DESCRIPTION	OFFICE (100-150 SF)	OFFICE (150+SF)	CONFERENCE ROOM (TO 25)	CONFERENCE ROOM (ADVANCED TV)	OPEN OFFICE AREA, MODULAR WORK STATION (100 SF/STA)	
		B-310	B-311	B-350	B-351	B-360	
2.0	SUBSTRUCTURE	-	-	-	-	-	-
3.0	STRUCTURE	-	-	-	-	-	-
4.1	ENCLOSURE VERTICAL	-	-	-	-	-	-
4.2	ENCLOSURE HORIZONTAL	-	-	-	-	-	-
4.3	SUPPORT ITEMS	-	-	-	-	-	-
5.1	INTERNALS VERTICAL	11.43	11.19	12.83	11.70	11.19	-
5.2	INTERNALS HORIZONTAL	6.64	6.64	6.64	6.64	6.64	-
5.3	SPECIAL FINISHES	-	-	-	-	-	-
5.4	INTERIORS	-	-	-	-	-	-
6.0	BUILDING SPECIALTIES	-	-	4.24	3.53	-	-
7.0	EQUIPMENT	-	-	-	-	-	-
8.0	SPECIAL CONSTRUCTION	-	-	-	-	-	-
9.0	CONVEYING	-	-	-	-	-	-
10.1	PLUMBING & FIRE PROTECTION	6.18	6.18	6.18	6.18	6.18	-
10.2	HVAC	16.28	16.28	23.22	24.98	16.28	-
11.0	ELECTRICAL	29.20	29.20	33.29	35.93	33.29	-
	TOTAL CONSTRUCTION COST / S.F.	\$69.73	\$69.49	\$86.40	\$88.96	\$73.58	

**ARIZONA BOARD OF REGENTS
CONSTRUCTION COST CONTROL
& PROFESSIONAL FEE GUIDELINES**

SCG NO.: 00-028
Prepared by: G.AMARI
Checked by: L.SAYLOR

**SERIES B-400
INTERIORS / BUILDING USE MATRIX**

Date: 04/29/02

PHOENIX-TUCSON

ITEM NO.	DESCRIPTION	READING/STUDY ROOM	COMPUTER COMMONS	STACKS	OPEN STACK READING ROOM	LIBRARY WORK ROOM	INDIVIDUAL STUDY ROOM
		B-410	B-410A	B-420	B-430	B-440	B-450
2.0	SUBSTRUCTURE	-	-	-	-	-	-
3.0	STRUCTURE	-	-	-	-	-	-
4.1	ENCLOSURE VERTICAL	-	-	-	-	-	-
4.2	ENCLOSURE HORIZONTAL	-	-	-	-	-	-
4.3	SUPPORT ITEMS	-	-	-	-	-	-
5.1	INTERNAL VERTICAL	5.68	5.68	4.98	4.36	10.21	14.35
5.2	INTERNAL HORIZONTAL	6.64	6.64	6.64	6.64	6.64	6.64
5.3	SPECIAL FINISHES	-	-	-	-	-	-
5.4	INTERIORS	-	-	19.22	10.14	12.52	9.03
6.0	BUILDING SPECIALTIES	-	4.06	2.32	-	2.62	3.08
7.0	EQUIPMENT	-	-	-	-	-	-
8.0	SPECIAL CONSTRUCTION	-	17.31	-	2.48	-	-
9.0	CONVEYING	-	-	-	-	-	-
10.1	PLUMBING & FIRE PROTECTION	1.76	2.86	6.93	1.76	5.51	7.34
10.2	HVAC	14.05	19.63	18.02	18.02	17.94	19.49
11.0	ELECTRICAL	28.78	64.08	27.97	27.97	27.89	29.20
	TOTAL CONSTRUCTION COST / S.F.	\$56.91	\$120.26	\$86.08	\$71.37	\$83.33	\$89.13

**ARIZONA BOARD OF REGENTS
CONSTRUCTION COST CONTROL
& PROFESSIONAL FEE GUIDELINES**

SCG NO.: 00-028
Prepared by: G.AMARI
Checked by: L.SAYLOR

**SERIES B-400
INTERIORS / BUILDING USE MATRIX**

Date: 04/29/02

PHOENIX-TUCSON

ITEM NO.	DESCRIPTION	ARCHIVE ARTIFACTS STORAGE 4000 SF	ARCHIVE ARTIFACTS EXHIBITION 2000 SF				
		B-460A	B-460B				
2.0	SUBSTRUCTURE	-	-	-	-	-	-
3.0	STRUCTURE	-	-	-	-	-	-
4.1	ENCLOSURE VERTICAL	-	-	-	-	-	-
4.2	ENCLOSURE HORIZONTAL	-	-	-	-	-	-
4.3	SUPPORT ITEMS	-	-	-	-	-	-
5.1	INTERNAL VERTICAL	10.18	10.85	-	-	-	-
5.2	INTERNAL HORIZONTAL	5.42	5.96	-	-	-	-
5.3	SPECIAL FINISHES	-	-	-	-	-	-
5.4	INTERIORS	17.52	24.52	-	-	-	-
6.0	BUILDING SPECIALTIES	1.89	0.78	-	-	-	-
7.0	EQUIPMENT	-	-	-	-	-	-
8.0	SPECIAL CONSTRUCTION	-	-	-	-	-	-
9.0	CONVEYING	-	-	-	-	-	-
10.1	PLUMBING & FIRE PROTECTION	16.87	19.84	-	-	-	-
10.2	HVAC	29.27	31.51	-	-	-	-
11.0	ELECTRICAL	36.80	41.05	-	-	-	-
	TOTAL CONSTRUCTION COST / S.F.	\$117.95	\$134.51				

**ARIZONA BOARD OF REGENTS
CONSTRUCTION COST CONTROL
& PROFESSIONAL FEE GUIDELINES**

SCG NO.: 00-028
Prepared by: G.AMARI
Checked by: L.SAYLOR

SERIES B-500
INTERIORS / BUILDING USE MATRIX

Date: 04/29/02

PHOENIX-TUCSON

ITEM NO.	DESCRIPTION	ATH/PHYS EDUC/REC (LOCKER/SHOWER)	ATH/PHYS EDUC/REC (LARGE GYM)	ATH/PHYS EDUC/REC (SMALL GYM)	ATH/PHYS EDUC/REC (SPECIAL COURTS)	ATH/PHYS EDUC/REC (SPECIAL SEATING)	STUDIO AUDIO VISUAL TV
		B-520	B-521	B-522	B-523	B-524	B-530
2.0	SUBSTRUCTURE	-	-	-	-	-	-
3.0	STRUCTURE	-	-	-	-	-	-
4.1	ENCLOSURE VERTICAL	-	-	-	-	-	-
4.2	ENCLOSURE HORIZONTAL	-	-	-	-	-	-
4.3	SUPPORT ITEMS	-	-	-	-	-	-
5.1	INTERNALS VERTICAL	11.06	4.82	5.57	47.87	4.09	6.33
5.2	INTERNALS HORIZONTAL	8.69	2.89	2.89	12.67	3.20	6.01
5.3	SPECIAL FINISHES	27.83	19.37	10.14	-	-	0.82
5.4	INTERIORS	9.75	-	5.82	-	-	4.50
6.0	BUILDING SPECIALTIES	4.24	2.17	0.74	-	2.17	0.62
7.0	EQUIPMENT	-	-	-	-	-	-
8.0	SPECIAL CONSTRUCTION	-	-	-	-	18.99	-
9.0	CONVEYING	-	-	-	-	-	-
10.1	PLUMBING & FIRE PROTECTION	20.22	4.05	5.51	-	2.54	2.54
10.2	HVAC	11.40	7.49	7.49	14.48	7.13	14.55
11.0	ELECTRICAL	23.45	30.20	30.20	20.59	26.74	59.52
TOTAL CONSTRUCTION COST / S.F.		\$116.64	\$70.99	\$68.36	\$95.61	\$64.86	\$94.89

**ARIZONA BOARD OF REGENTS
CONSTRUCTION COST CONTROL
& PROFESSIONAL FEE GUIDELINES**

SCG NO.: 00-028
Prepared by: G.AMARI
Checked by: L.SAYLOR

**SERIES B-500
INTERIORS / BUILDING USE MATRIX**

Date: 04/29/02

PHOENIX-TUCSON

ITEM NO.	DESCRIPTION	CLINIC EXAM ROOM NON-HEALTH	ANIMAL QUARTERS (RESEARCH MED & BIO)	ANIMAL QUARTERS (RESEARCH AGRICULTURAL)	GREENHOUSE (PROPAGATION)	GREENHOUSE TESTING	CLEANROOM (CLASS 100) 2700 SF
		B-540	B-570	B-571	B-580	B-581	B-590
2.0	SUBSTRUCTURE	-	-	-	-	-	-
3.0	STRUCTURE	-	-	-	-	-	-
4.1	ENCLOSURE VERTICAL	-	-	-	-	-	-
4.2	ENCLOSURE HORIZONTAL	-	-	-	-	-	-
4.3	SUPPORT ITEMS	-	-	-	-	-	-
5.1	INTERNAL VERTICAL	11.19	8.44	8.44	12.89	12.89	64.52
5.2	INTERNAL HORIZONTAL	6.64	14.61	14.61	7.34	7.34	45.65
5.3	SPECIAL FINISHES	-	-	-	-	-	-
5.4	INTERIORS	12.25	-	-	2.88	2.88	109.11
6.0	BUILDING SPECIALTIES	2.23	-	-	-	-	-
7.0	EQUIPMENT	-	-	-	-	-	-
8.0	SPECIAL CONSTRUCTION	-	0.22	0.22	12.24	12.24	13.31
9.0	CONVEYING	-	-	-	-	-	-
10.1	PLUMBING & FIRE PROTECTION	2.54	17.77	17.77	6.38	8.88	36.83
10.2	HVAC	15.71	32.49	13.81	7.42	9.36	45.85
11.0	ELECTRICAL	27.89	43.14	42.32	21.32	21.32	42.39
	TOTAL CONSTRUCTION COST / S.F.	\$78.45	\$116.67	\$97.17	\$70.47	\$74.91	\$357.66

**ARIZONA BOARD OF REGENTS
CONSTRUCTION COST CONTROL
& PROFESSIONAL FEE GUIDELINES**

SCG NO.: 00-028
Prepared by: G.AMARI
Checked by: L.SAYLOR

**SERIES B-500
INTERIORS / BUILDING USE MATRIX**

Date: 04/29/02

PHOENIX-TUCSON

ITEM NO.	DESCRIPTION	CLEANROOM (CLASS 1000 SF)					
		B-591					
2.0	SUBSTRUCTURE	-	-	-	-	-	-
3.0	STRUCTURE	-	-	-	-	-	-
4.1	ENCLOSURE VERTICAL	-	-	-	-	-	-
4.2	ENCLOSURE HORIZONTAL	-	-	-	-	-	-
4.3	SUPPORT ITEMS	-	-	-	-	-	-
5.1	INTERNALS VERTICAL	64.52	-	-	-	-	-
5.2	INTERNALS HORIZONTAL	45.65	-	-	-	-	-
5.3	SPECIAL FINISHES	-	-	-	-	-	-
5.4	INTERIORS	83.14	-	-	-	-	-
6.0	BUILDING SPECIALTIES	-	-	-	-	-	-
7.0	EQUIPMENT	-	-	-	-	-	-
8.0	SPECIAL CONSTRUCTION	13.31	-	-	-	-	-
9.0	CONVEYING	-	-	-	-	-	-
10.1	PLUMBING & FIRE PROTECTION	36.83	-	-	-	-	-
10.2	HVAC	25.33	-	-	-	-	-
11.0	ELECTRICAL	42.39	-	-	-	-	-
		-	-	-	-	-	-
	TOTAL CONSTRUCTION COST / S.F.	\$311.17	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

**ARIZONA BOARD OF REGENTS
CONSTRUCTION COST CONTROL
& PROFESSIONAL FEE GUIDELINES**

SCG NO.: 98-53N
Prepared by: G.AMARI
Checked by: L.SAYLOR

SERIES B-600
INTERIORS / BUILDING USE MATRIX

Date: 04/29/02

PHOENIX-TUCSON

ITEM NO.	DESCRIPTION	THEATER (HOUSE SIDE)	THEATER (STAGE & BACK, PERFORMING)	THEATER (STAGE & BACK, MUSICAL)	THEATER MULTI-MEDIA (STAGE & BACK)	SPECIALIZED MUSEUM SPACE	FOOD FACILITY PREP/SERVE
		B-610	B-611	B-612	B-613	B-620	B-630
2.0	SUBSTRUCTURE	-	-	-	-	-	-
3.0	STRUCTURE*	-	-	-	-	-	-
4.1	ENCLOSURE VERTICAL	-	-	-	-	-	-
4.2	ENCLOSURE HORIZONTAL**	-	-	-	-	-	-
4.3	SUPPORT ITEMS	-	-	-	-	-	-
5.1	INTERNALS VERTICAL	11.10	8.44	9.49	9.49	11.09	6.64
5.2	INTERNALS HORIZONTAL	14.67	4.32	3.08	6.79	6.50	5.43
5.3	SPECIAL FINISHES	6.41	4.21	6.31	4.21	21.55	15.15
5.4	INTERIORS	-	-	0.83	4.25	2.13	0.62
6.0	BUILDING SPECIALTIES	19.16	0.63	0.31	2.34	0.17	0.17
7.0	EQUIPMENT	-	52.50	47.87	51.85	-	58.85
8.0	SPECIAL CONSTRUCTION	4.50	-	-	-	-	-
9.0	CONVEYING	-	4.50	-	-	-	-
10.1	PLUMBING & FIRE PROTECTION	3.23	5.91	5.14	13.96	27.03	27.54
10.2	HVAC	19.04	13.98	12.16	27.88	15.43	14.73
11.0	ELECTRICAL	31.42	51.74	44.99	60.07	37.47	30.22
	TOTAL CONSTRUCTION COST / S.F.	\$109.53	\$146.23	\$130.18	\$180.84	\$121.37	\$159.35

**ARIZONA BOARD OF REGENTS
CONSTRUCTION COST CONTROL
& PROFESSIONAL FEE GUIDELINES**

SCG NO.: 00-028
Prepared by: G.AMARI
Checked by: L.SAYLOR

**SERIES B-600
INTERIORS / BUILDING USE MATRIX**

Date: 04/29/02

PHOENIX-TUCSON

ITEM NO.	DESCRIPTION	FOOD FACILITY DINING	CONCESSIONAIRE FAST FOOD	LOUNGE, LOBBY WAITING	BOOK STORE SHOPS	LARGE MEETING CONF. BALL ROOM	
		B-631	B-632	B-650	B-660	B-680	
2.0	SUBSTRUCTURE	-	-	-	-	-	-
3.0	STRUCTURE	-	-	-	-	-	-
4.1	ENCLOSURE VERTICAL	-	-	-	-	-	-
4.2	ENCLOSURE HORIZONTAL	-	-	-	-	-	-
4.3	SUPPORT ITEMS	-	-	-	-	-	-
5.1	INTERNALS VERTICAL	6.64	7.23	9.44	7.42	14.38	-
5.2	INTERNALS HORIZONTAL	4.93	4.93	7.51	8.19	12.67	-
5.3	SPECIAL FINISHES	15.15	13.69	16.38	-	16.51	-
5.4	INTERIORS	0.62	8.43	-	1.71	-	-
6.0	BUILDING SPECIALTIES	0.17	0.18	-	-	6.05	-
7.0	EQUIPMENT	-	-	-	-	-	-
8.0	SPECIAL CONSTRUCTION	-	-	-	-	-	-
9.0	CONVEYING	-	-	-	-	-	-
10.1	PLUMBING & FIRE PROTECTION	11.14	14.67	2.54	10.43	2.86	-
10.2	HVAC	9.87	11.99	11.71	11.71	16.72	-
11.0	ELECTRICAL	34.34	32.15	33.13	29.68	37.80	-
	TOTAL CONSTRUCTION COST / S.F.	\$82.86	\$93.27	\$80.71	\$69.14	\$106.99	

**ARIZONA BOARD OF REGENTS
CONSTRUCTION COST CONTROL
& PROFESSIONAL FEE GUIDELINES**

SCG NO.: 00-028
Prepared by: G.AMARI
Checked by: L.SAYLOR

SERIES B-700
INTERIORS / BUILDING USE MATRIX

Date: 04/29/02

PHOENIX-TUCSON

ITEM NO.	DESCRIPTION	DATA PROCESSING ROOM	SHOP MAINTENANCE FACILITIES & VEHICLES	WAREHOUSE	VEHICLE STORAGE (ENCLOSED NAU ONLY)		
		B-710	B-720	B-730	B-740		
2.0	SUBSTRUCTURE	-	-	-	-	-	-
3.0	STRUCTURE	-	-	-	-	-	-
4.1	ENCLOSURE VERTICAL	-	-	-	-	-	-
4.2	ENCLOSURE HORIZONTAL	-	-	-	-	-	-
4.3	SUPPORT ITEMS	-	-	-	-	-	-
5.1	INTERNALS VERTICAL	13.64	9.58	2.25	4.77	-	-
5.2	INTERNALS HORIZONTAL	2.89	0.31	0.31	0.31	-	-
5.3	SPECIAL FINISHES	-	-	-	-	-	-
5.4	INTERIORS	-	6.27	-	-	-	-
6.0	BUILDING SPECIALTIES	0.41	0.32	0.08	-	-	-
7.0	EQUIPMENT	-	-	-	-	-	-
8.0	SPECIAL CONSTRUCTION	19.53	5.28	1.91	-	-	-
9.0	CONVEYING	-	-	-	-	-	-
10.1	PLUMBING & FIRE PROTECTION	23.21	16.77	3.74	3.74	-	-
10.2	HVAC	31.27	7.31	7.31	7.31	-	-
11.0	ELECTRICAL	31.58	26.99	6.60	6.60	-	-
	TOTAL CONSTRUCTION COST / S.F.	\$122.53	\$72.83	\$22.20	\$22.73		

**ARIZONA BOARD OF REGENTS
CONSTRUCTION COST CONTROL
& PROFESSIONAL FEE GUIDELINES**

SCG NO.: 00-028
Prepared by: G.AMARI
Checked by: L.SAYLOR

**SERIES B-800
INTERIORS / BUILDING USE MATRIX**

Date: 04/29/02

PHOENIX-TUCSON

ITEM NO.	DESCRIPTION	PATIENT ROOM & BATH	NURSE STATION	EMERGENCY ROOM	TREATMENT	MEDICAL LAB	WAITING
		B-810	B-830	B-840	B-850	B-860	B-880
2.0	SUBSTRUCTURE	-	-	-	-	-	-
3.0	STRUCTURE	-	-	-	-	-	-
4.1	ENCLOSURE VERTICAL	-	-	-	-	-	-
4.2	ENCLOSURE HORIZONTAL	-	-	-	-	-	-
4.3	SUPPORT ITEMS	-	-	-	-	-	-
5.1	INTERNAL VERTICAL	12.50	12.21	13.28	12.21	13.63	10.50
5.2	INTERNAL HORIZONTAL	5.73	5.73	5.73	5.73	5.26	6.57
5.3	SPECIAL FINISHES	17.39	-	-	-	-	-
5.4	INTERIORS	3.77	45.07	20.73	19.53	70.30	-
6.0	BUILDING SPECIALTIES	2.62	3.75	3.50	6.01	6.01	-
7.0	EQUIPMENT	4.62	-	-	-	-	-
8.0	SPECIAL CONSTRUCTION	-	-	-	-	-	-
9.0	CONVEYING	-	-	-	-	-	-
10.1	PLUMBING & FIRE PROTECTION	52.66	20.38	33.37	33.37	25.02	3.02
10.2	HVAC	18.68	8.31	24.08	24.08	43.75	8.31
11.0	ELECTRICAL	47.83	46.64	48.00	45.63	45.63	30.00
TOTAL CONSTRUCTION COST / S.F.		\$165.80	\$142.09	\$148.69	\$146.56	\$209.60	\$58.40

**ARIZONA BOARD OF REGENTS
CONSTRUCTION COST CONTROL
& PROFESSIONAL FEE GUIDELINES**

SCG NO.: 00-028
Prepared by: G.AMARI
Checked by: L.SAYLOR

**SERIES B-800
INTERIORS / BUILDING USE MATRIX**

Date: 04/29/02

PHOENIX-TUCSON

ITEM NO.	DESCRIPTION	X-RAY RADIOLOGY					
		B-890					
2.0	SUBSTRUCTURE	-	-	-	-	-	-
3.0	STRUCTURE	-	-	-	-	-	-
4.1	ENCLOSURE VERTICAL	-	-	-	-	-	-
4.2	ENCLOSURE HORIZONTAL	-	-	-	-	-	-
4.3	SUPPORT ITEMS	-	-	-	-	-	-
5.1	INTERNAL VERTICAL	15.63	-	-	-	-	-
5.2	INTERNAL HORIZONTAL	5.73	-	-	-	-	-
5.3	SPECIAL FINISHES	-	-	-	-	-	-
5.4	INTERIORS	17.35	-	-	-	-	-
6.0	BUILDING SPECIALTIES	-	-	-	-	-	-
7.0	EQUIPMENT	-	-	-	-	-	-
8.0	SPECIAL CONSTRUCTION	8.13	-	-	-	-	-
9.0	CONVEYING	-	-	-	-	-	-
10.1	PLUMBING & FIRE PROTECTION	20.38	-	-	-	-	-
10.2	HVAC	31.56	-	-	-	-	-
11.0	ELECTRICAL	48.00	-	-	-	-	-
	TOTAL CONSTRUCTION COST / S.F.	\$146.78					

**ARIZONA BOARD OF REGENTS
CONSTRUCTION COST CONTROL
& PROFESSIONAL FEE GUIDELINES**

SCG NO.: 00-028
Prepared by: G.AMARI
Checked by: L.SAYLOR

**SERIES B-900
INTERIORS / BUILDING USE MATRIX**

Date: 04/29/02

PHOENIX-TUCSON

ITEM NO.	DESCRIPTION	RESIDENCE HALL (W/COMMON BATH)	RESIDENCE HALL (W/PRIVATE BATH)	RESIDENCE HALL (2 ROOMS W/COMMON BATH)	APARTMENT (W/COOKING FACILITIES)		
		B-910	B-919	B-20	B-950		
2.0	SUBSTRUCTURE	-	-	-	-	-	-
3.0	STRUCTURE	-	-	-	-	-	-
4.1	ENCLOSURE VERTICAL	-	-	-	-	-	-
4.2	ENCLOSURE HORIZONTAL	-	-	-	-	-	-
4.3	SUPPORT ITEMS	-	-	-	-	-	-
5.1	INTERNALS VERTICAL	10.45	12.02	11.43	10.50	-	-
5.2	INTERNALS HORIZONTAL	4.58	4.96	4.96	4.96	-	-
5.3	SPECIAL FINISHES	2.25	1.50	1.50	1.50	-	-
5.4	INTERIORS	2.25	4.09	4.09	7.22	-	-
6.0	BUILDING SPECIALTIES	1.27	1.46	1.24	1.24	-	-
7.0	EQUIPMENT	0.39	-	-	5.21	-	-
8.0	SPECIAL CONSTRUCTION	-	-	-	-	-	-
9.0	CONVEYING	-	-	-	-	-	-
10.1	PLUMBING & FIRE PROTECTION	9.10	12.03	10.70	6.58	-	-
10.2	HVAC	7.85	7.85	6.96	6.00	-	-
11.0	ELECTRICAL	10.97	10.97	10.89	10.83	-	-
	TOTAL CONSTRUCTION COST / S.F.	\$49.11	\$54.88	\$51.77	\$54.04		

**ARIZONA BOARD OF REGENTS
CONSTRUCTION COST CONTROL
& PROFESSIONAL FEE GUIDELINES**

SCG NO.: 00-028
Prepared by: G.AMARI
Checked by: L.SAYLOR

**NON-ASSIGNABLE AREAS
INTERIORS / BUILDING USE MATRIX**

Date: 04/29/02

PHOENIX-TUCSON

ITEM NO.	DESCRIPTION	CIRCULATION	CUSTODIAL	MECHANICAL/ ELECTRICAL	PUBLIC TOILET ROOMS		
		B-WWW	B-XXX	B-YYY	B-ZZZ		
2.0	SUBSTRUCTURE	-	-	-	-	-	-
3.0	STRUCTURE	-	-	-	-	-	-
4.1	ENCLOSURE VERTICAL	-	-	-	-	-	-
4.2	ENCLOSURE HORIZONTAL	-	-	-	-	-	-
4.3	SUPPORT ITEMS	-	-	-	-	-	-
5.1	INTERNAL VERTICAL	7.41	7.84	6.07	11.74	-	-
5.2	INTERNAL HORIZONTAL	4.60	4.60	2.91	17.41	-	-
5.3	SPECIAL FINISHES	-	1.33	0.33	16.58	-	-
5.4	INTERIORS	-	5.92	-	-	-	-
6.0	BUILDING SPECIALTIES	3.62	1.47	-	9.94	-	-
7.0	EQUIPMENT	-	-	-	-	-	-
8.0	SPECIAL CONSTRUCTION	-	-	-	-	-	-
9.0	CONVEYING	-	-	-	-	-	-
10.1	PLUMBING & FIRE PROTECTION	3.00	36.86	5.75	91.18	-	-
10.2	HVAC	15.78	15.78	18.62	15.34	-	-
11.0	ELECTRICAL	36.04	30.87	30.87	30.87	-	-
TOTAL CONSTRUCTION COST / S.F.		\$70.45	\$104.67	\$64.55	\$193.06		

**ARIZONA BOARD OF REGENTS
CONSTRUCTION COST CONTROL
& PROFESSIONAL FEE GUIDELINES**

SCG NO.: 00-028
Prepared by: G.AMARI
Checked by: L.SAYLOR

**SERIES A
STRUCTURAL/BUILDING CONFIGURATION MATRIX**

Date: 04/29/02

FLAGSTAFF							
ITEM NO.	DESCRIPTION	ONE-STORY CLASS/OFFICE	ONE-STORY CLASS/OFFICE 16'-0" FLOOR TO STRUCTURE	ONE-STORY HI BAY LONG SPAN FIELD-HOUSE GYMS	ONE-STORY HI BAY LONG SPAN LAB	TWO STORY CLASS/OFFICE	TWO STORY CLASS/OFFICE 16'-0" FLOOR TO FLOOR
		A-1	A-1A	A-2	A-2A	A-3	A-3A
2.0	SUBSTRUCTURE	11.61	12.93	11.11	13.55	10.53	11.57
3.0	STRUCTURE*	25.61	26.06	26.55	31.09	25.95	26.33
4.1	ENCLOSURE VERTICAL	13.76	13.76	13.76	13.76	13.43	16.98
4.2	ENCLOSURE HORIZONTAL**	5.96	5.96	5.96	5.96	2.96	2.96
4.3	SUPPORT ITEMS	2.53	2.53	2.53	2.53	4.38	4.65
5.1	INTERNALS VERTICAL	-	-	-	-	-	-
5.2	INTERNALS HORIZONTAL	-	-	-	-	-	-
5.3	SPECIAL FINISHES	-	-	-	-	-	-
5.4	INTERIORS	-	-	-	-	-	-
6.0	BUILDING SPECIALTIES	-	-	-	-	-	-
7.0	EQUIPMENT	-	-	-	-	-	-
8.0	SPECIAL CONSTRUCTION	-	-	-	-	-	-
9.0	CONVEYING	-	-	-	-	-	-
10.1	PLUMBING & FIRE PROTECTION***	-	-	-	-	2.28	2.98
10.2	HVAC***	-	-	-	-	-	-
11.0	ELECTRICAL***	-	-	-	-	-	-
TOTAL CONSTRUCTION COST / S.F.		\$59.47	\$61.24	\$59.91	\$66.89	\$59.53	\$65.47

NOTE

* Add \$.54/SF of roof area to structural costs for use of clay tile roof material.

** Add \$ 4.69/SF of roof area to enclosure horizontal costs for use of clay tile roof material.

*** Shell & core costs only

**ARIZONA BOARD OF REGENTS
CONSTRUCTION COST CONTROL
& PROFESSIONAL FEE GUIDELINES**

SCG NO.: 00-028
Prepared by: G.AMARI
Checked by: L.SAYLOR

SERIES A
STRUCTURAL/BUILDING CONFIGURATION MATRIX

Date: 04/29/02

FLAGSTAFF

ITEM NO.	DESCRIPTION	MULTI-STORY 3-5 CLASS/OFFICE	MULTI-STORY 3-5 LAB	MULTI-STORY 3-5 CLASS/OFF. 16'-0" FLOOR TO FLOOR	MULTI-STORY 6-10 CLASS/OFFICE	MULTI-STORY THEATER COMPLEX	MULTI-STORY 6-10 LAB
		A-4	A-4A	A-4B	A-5	A-5A	A-5B
2.0	SUBSTRUCTURE	9.44	10.95	9.85	11.55	26.01	11.41
3.0	STRUCTURE*	28.82	47.82	25.31	31.41	60.08	60.49
4.1	ENCLOSURE VERTICAL	12.24	20.72	23.06	12.52	37.73	24.11
4.2	ENCLOSURE HORIZONTAL**	2.00	2.24	1.74	1.22	9.44	0.98
4.3	SUPPORT ITEMS	3.96	6.02	5.24	5.13	14.69	5.89
5.1	INTERNALS VERTICAL	-	-	-	-	-	-
5.2	INTERNALS HORIZONTAL	-	-	-	-	-	-
5.3	SPECIAL FINISHES	-	-	-	-	-	-
5.4	INTERIORS	-	-	-	-	-	-
6.0	BUILDING SPECIALTIES	-	-	-	-	-	-
7.0	EQUIPMENT	-	-	-	-	-	-
8.0	SPECIAL CONSTRUCTION	-	-	-	-	-	-
9.0	CONVEYING	6.38	6.38	7.10	6.06	11.66	5.32
10.1	PLUMBING & FIRE PROTECTION***	3.60	4.48	4.25	10.40		9.02
10.2	HVAC***	5.79	7.24	6.39	7.95		7.48
11.0	ELECTRICAL***	8.44	10.15	9.10	9.10		8.27
TOTAL CONSTRUCTION COST / S.F.		\$80.67	\$116.00	\$92.04	\$95.34	\$159.61	\$132.97

NOTE

* Add \$.54/SF of roof area to structural costs for use of clay tile roof material.

** Add \$ 4.69/SF of roof area to enclosure horizontal costs for use of clay tile roof material.

*** Shell & core costs only

**ARIZONA BOARD OF REGENTS
CONSTRUCTION COST CONTROL
& PROFESSIONAL FEE GUIDELINES**

SCG NO.: 00-028
Prepared by: G.AMARI
Checked by: L.SAYLOR

**SERIES A
STRUCTURAL/BUILDING CONFIGURATION MATRIX**

Date: 04/29/02

FLAGSTAFF							
ITEM NO.	DESCRIPTION	ONE OR TWO STORY BELOW GRADE CLASS/OFFICE (BLDG ABOVE) A-6	ONE OR TWO STORY BELOW GRADE LAB (BLDG. ABOVE) A-6A	ONE OR TWO STORY BELOW GRADE CLASSRM/OFF. NO BLDG. ABOVE) A-6B	RESIDENTIAL ONE OR TWO STORY A-7	RESIDENTIAL ONE OR TWO STORY WOOD FRAME A-7A	RESIDENTIAL 3-5 STORIES A-8
2.0	SUBSTRUCTURE	37.63	56.76	56.76	14.89	12.07	8.71
3.0	STRUCTURE*	20.90	39.44	41.35	20.14	13.57	24.94
4.1	ENCLOSURE VERTICAL	2.72	3.89	3.89	10.65	8.67	10.65
4.2	ENCLOSURE HORIZONTAL**	4.80	6.17	5.68	2.57	2.21	5.12
4.3	SUPPORT ITEMS	3.48	4.85	4.42	0.90	1.64	2.12
5.1	INTERNALS VERTICAL	-	-	-	-	-	-
5.2	INTERNALS HORIZONTAL	-	-	-	-	-	-
5.3	SPECIAL FINISHES	-	-	-	-	-	-
5.4	INTERIORS	-	-	-	-	-	-
6.0	BUILDING SPECIALTIES	-	-	-	-	-	-
7.0	EQUIPMENT	-	-	-	-	-	-
8.0	SPECIAL CONSTRUCTION	-	-	-	-	-	-
9.0	CONVEYING	4.27	4.27	4.27	1.86	1.69	5.96
10.1	PLUMBING & FIRE PROTECTION***						6.51
10.2	HVAC***						1.79
11.0	ELECTRICAL***						2.17
TOTAL CONSTRUCTION COST / S.F.		\$73.80	\$115.38	\$116.37	\$51.01	\$39.85	\$67.97

NOTE

* Add \$.54/SF of roof area to structural costs for use of clay tile roof material.

** Add \$ 4.69/SF of roof area to enclosure horizontal costs for use of clay tile roof material.

***Shell & core costs only

**ARIZONA BOARD OF REGENTS
CONSTRUCTION COST CONTROL
& PROFESSIONAL FEE GUIDELINES**

SCG NO.: 00-028
Prepared by: G.AMARI
Checked by: L.SAYLOR

**SERIES A
STRUCTURAL/BUILDING CONFIGURATION MATRIX**

Date: 04/29/02

FLAGSTAFF

ITEM NO.	DESCRIPTION	RESIDENTIAL	PARKING	PARKING	PARKING	PRE-ENGINEERED	PRE-ENGINEERED
		6-10 STORIES	STRUCTURE TO 3 LEVELS SEISMIC ZONE 2	STRUCTURE 4-5 LEVELS SEISMIC ZONE 2	STRUCTURE 1 OR 2 LEVELS BELOW GRADE SEISMIC ZONE 2	BUILDING GREENHOUSE 550-1132 SF	BUILDING GREENHOUSE 1132-2264 SF
		A-9	A-10	A-11	A-12	A-13	A-14
2.0	SUBSTRUCTURE	7.47	4.69	4.49	12.19	4.72	4.72
3.0	STRUCTURE*	28.73	20.35	20.81	16.95	37.19	32.37
4.1	ENCLOSURE VERTICAL	12.62	1.84	2.21	2.14	17.93	16.64
4.2	ENCLOSURE HORIZONTAL**	1.81	1.75	1.93	1.88	12.11	11.24
4.3	SUPPORT ITEMS	4.70	0.75	1.11	0.78	6.51	6.04
5.1	INTERNAL VERTICAL	-	0.36	0.30	0.28	-	-
5.2	INTERNAL HORIZONTAL	-	0.08	0.08	0.05	-	-
5.3	SPECIAL FINISHES	-	-	-	-	-	-
5.4	INTERIORS	-	-	-	-	-	-
6.0	BUILDING SPECIALTIES	-	0.21	-	-	-	-
7.0	EQUIPMENT	-	0.21	0.15	0.98	-	-
8.0	SPECIAL CONSTRUCTION	-	-	-	-	-	-
9.0	CONVEYING	5.60	0.47	0.46	0.50	-	-
10.1	PLUMBING & FIRE PROTECTION***	7.84	0.68	0.68	2.51	-	-
10.2	HVAC***	1.93	-	-	0.70	-	-
11.0	ELECTRICAL***	3.88	1.14	1.33	1.44	-	-
TOTAL CONSTRUCTION COST / S.F.		\$74.58	\$32.53	\$33.55	\$40.40	\$78.46	\$71.01

NOTE

- * Add \$.54/SF of roof area to structural costs for use of clay tile roof material.
- ** Add \$ 4.69/SF of roof area to enclosure horizontal costs for use of clay tile roof material.
- ***Shell & core costs only

**ARIZONA BOARD OF REGENTS
CONSTRUCTION COST CONTROL
& PROFESSIONAL FEE GUIDELINES**

SCG NO.: 00-028
Prepared by: G.AMARI
Checked by: L.SAYLOR

**SERIES A
STRUCTURAL/BUILDING CONFIGURATION MATRIX**

Date: 04/29/02

FLAGSTAFF							
ITEM NO.	DESCRIPTION	PRE-ENGINEERED BUILDING WAREHOUSE 1 STORY					
		A-15					
2.0	SUBSTRUCTURE	5.95	-	-	-	-	-
3.0	STRUCTURE*	11.73	-	-	-	-	-
4.1	ENCLOSURE VERTICAL	11.40	-	-	-	-	-
4.2	ENCLOSURE HORIZONTAL**	9.79	-	-	-	-	-
4.3	SUPPORT ITEMS	3.95	-	-	-	-	-
5.1	INTERNALS VERTICAL	-	-	-	-	-	-
5.2	INTERNALS HORIZONTAL	-	-	-	-	-	-
5.3	SPECIAL FINISHES	-	-	-	-	-	-
5.4	INTERIORS	-	-	-	-	-	-
6.0	BUILDING SPECIALTIES	-	-	-	-	-	-
7.0	EQUIPMENT	-	-	-	-	-	-
8.0	SPECIAL CONSTRUCTION	-	-	-	-	-	-
9.0	CONVEYING	-	-	-	-	-	-
10.1	PLUMBING & FIRE PROTECTION***	-	-	-	-	-	-
10.2	HVAC***	-	-	-	-	-	-
11.0	ELECTRICAL***	-	-	-	-	-	-
TOTAL CONSTRUCTION COST / S.F.		\$42.82					

NOTE

* Add \$.54/SF of roof area to structural costs for use of clay tile roof material.

** Add \$ 4.69/SF of roof area to enclosure horizontal costs for use of clay tile roof material.

*** Shell & core costs only

**ARIZONA BOARD OF REGENTS
CONSTRUCTION COST CONTROL
& PROFESSIONAL FEE GUIDELINES**

SCG NO.: 00-028
Prepared by: G.AMARI
Checked by: L.SAYLOR

SERIES B-100
INTERIORS / BUILDING USE MATRIX

Date: 04/29/02

FLAGSTAFF							
ITEM NO.	DESCRIPTION	CLASSROOM SEMINAR (TO 25)	CLASSROOM SEMINAR (TO 40)	LECTURE CLASSROOM (TO 75)	LECTURE CLASSROOM W/ITFS (TO 75)	LECTURE CLASSROOM (200) TYPE A	LECTURE CLASSROOM (200) TYPE B
		B-110	B-111	B-112	B-113	B-114	B-115
2.0	SUBSTRUCTURE	-	-	-	-	-	-
3.0	STRUCTURE	-	-	-	-	-	-
4.1	ENCLOSURE VERTICAL	-	-	-	-	-	-
4.2	ENCLOSURE HORIZONTAL	-	-	-	-	-	-
4.3	SUPPORT ITEMS	-	-	-	-	-	-
5.1	INTERNALS VERTICAL	12.54	10.88	8.61	11.33	6.84	6.84
5.2	INTERNALS HORIZONTAL	7.30	7.30	7.30	7.30	7.83	7.83
5.3	SPECIAL FINISHES	-	-	-	1.29	0.67	0.67
5.4	INTERIORS	-	-	3.69	3.69	5.20	5.20
6.0	BUILDING SPECIALTIES	3.53	2.85	2.11	2.11	1.44	1.44
7.0	EQUIPMENT	-	-	-	-	-	-
8.0	SPECIAL CONSTRUCTION	-	-	-	-	3.61	2.37
9.0	CONVEYING	-	-	-	-	-	-
10.1	PLUMBING & FIRE PROTECTION	1.72	2.44	2.17	2.17	21.58	13.61
10.2	HVAC*	17.78	16.90	17.78	17.78	17.96	17.96
11.0	ELECTRICAL**	31.23	31.23	33.02	36.62	34.83	32.65
TOTAL CONSTRUCTION COST / S.F.		\$74.10	\$71.60	\$74.68	\$82.29	\$99.96	\$88.57

NOTE:

* Added DDC Controls

** Added Class "A" Fire Alarm System

**ARIZONA BOARD OF REGENTS
CONSTRUCTION COST CONTROL
& PROFESSIONAL FEE GUIDELINES**

SCG NO.: 00-028
Prepared by: G.AMARI
Checked by: L.SAYLOR

SERIES B-100
INTERIORS / BUILDING USE MATRIX

Date: 04/29/02

FLAGSTAFF							
ITEM NO.	DESCRIPTION	STUDIO CLASSROOM	EXHIBIT SPACE	MUSIC ROOM LARGE GROUP	MUSIC ROOM PRACTICE SMALL GROUP	HIGHLY MEDIATED LECTURE CLASS (TO 400)	HIGHLY MEDIATED CLASSROOM (TO 45)
		B-116	B-117	B-118	B-119	B-120	B-121
2.0	SUBSTRUCTURE	-	-	-	-	-	-
3.0	STRUCTURE	-	-	-	-	-	-
4.1	ENCLOSURE VERTICAL	-	-	-	-	-	-
4.2	ENCLOSURE HORIZONTAL	-	-	-	-	-	-
4.3	SUPPORT ITEMS	-	-	-	-	-	-
5.1	INTERNALS VERTICAL	8.21	6.25	7.07	8.24	6.80	10.88
5.2	INTERNALS HORIZONTAL	5.37	7.30	11.79	10.94	6.80	10.48
5.3	SPECIAL FINISHES	-	2.68	0.90	2.87	1.34	-
5.4	INTERIORS	3.04	-	0.98	-	4.97	-
6.0	BUILDING SPECIALTIES	1.62	-	1.86	-	9.70	7.14
7.0	EQUIPMENT	-	-	-	-	-	-
8.0	SPECIAL CONSTRUCTION	2.37	-	3.63	-	3.98	19.04
9.0	CONVEYING	-	-	-	-	-	-
10.1	PLUMBING & FIRE PROTECTION	6.06	1.94	1.94	3.22	3.15	3.15
10.2	HVAC*	18.83	19.24	18.15	18.07	21.14	19.72
11.0	ELECTRICAL**	32.92	33.45	33.45	35.11	27.32***	77.35
	TOTAL CONSTRUCTION COST / S.F.	\$78.42	\$70.86	\$79.77	\$78.45	\$85.20	\$147.76

NOTE:

* Added DDC Controls

** Electrical added Class "A" Fire Alarm

*** If each student station requires access to data jack and isolated power, add \$47.45 to the electrical cost

**ARIZONA BOARD OF REGENTS
CONSTRUCTION COST CONTROL
& PROFESSIONAL FEE GUIDELINES**

SCG NO.: 00-028
Prepared by: G.AMARI
Checked by: L.SAYLOR

SERIES B-100
INTERIORS / BUILDING USE MATRIX

Date: 04/29/02

FLAGSTAFF							
ITEM NO.	DESCRIPTION	HIGHLY MEDIATED CLASSROOM (TO 75)	MULTI-MEDIA CLASSROOM (TO 250)	INTERACTIVE TV LECTURE CLASSROOM (TO 90)	INTERACTIVE TV CLASSROOM FLEXIBLE (TO 40)	INTERACTIVE TV CLASSROOM FIXED (TO 40)	
		B-122	B-123	B-124	B-125	B-126	
2.0	SUBSTRUCTURE	-	-	-	-	-	-
3.0	STRUCTURE	-	-	-	-	-	-
4.1	ENCLOSURE VERTICAL	-	-	-	-	-	-
4.2	ENCLOSURE HORIZONTAL	-	-	-	-	-	-
4.3	SUPPORT ITEMS	-	-	-	-	-	-
5.1	INTERNALS VERTICAL	9.89	9.89	11.37	11.37	11.37	-
5.2	INTERNALS HORIZONTAL	10.52	10.52	7.30	10.52	7.30	-
5.3	SPECIAL FINISHES	-	-	2.33	-	-	-
5.4	INTERIORS	-	-	3.53	3.99	3.99	-
6.0	BUILDING SPECIALTIES	7.14	7.67	9.71	4.47	9.71	-
7.0	EQUIPMENT	-	-	-	-	-	-
8.0	SPECIAL CONSTRUCTION	19.04	19.04	21.00	19.04	-	-
9.0	CONVEYING	-	-	-	-	-	-
10.1	PLUMBING & FIRE PROTECTION	3.06	3.06	3.06	3.06	3.06	-
10.2	HVAC*	19.72	19.72	23.08	23.97	23.97	-
11.0	ELECTRICAL**	76.56	76.56	52.23	46.78	46.78	-
	TOTAL CONSTRUCTION COST / S.F.	\$145.93	\$146.46	\$133.61	\$123.20	\$106.18	

NOTE:

* Added Direct Digital Controls

** Added Class "A" Fire Alarm

**ARIZONA BOARD OF REGENTS
CONSTRUCTION COST CONTROL
& PROFESSIONAL FEE GUIDELINES**

SCG NO.: 00-028
Prepared by: G.AMARI
Checked by: L.SAYLOR

SERIES B-200
INTERIORS / BUILDING USE MATRIX

Date: 04/29/02

FLAGSTAFF							
ITEM NO.	DESCRIPTION	CLASSROOM LAB (TO 30) TYPE A B-210	CLASSROOM LAB (TO 30) TYPE B B-220	CLASSROOM LAB (TO 30) TYPE C B-221	HAZARDOUS MATERIAL STORAGE B-225	INDIVIDUAL STUDY/LAB (TO 30) TYPE A B-230	INDIVIDUAL STUDY/LAB (TO 30) TYPE B B-235
2.0	SUBSTRUCTURE	-	-	-	-	-	-
3.0	STRUCTURE	-	-	-	-	-	-
4.1	ENCLOSURE VERTICAL	-	-	-	-	-	-
4.2	ENCLOSURE HORIZONTAL	-	-	-	-	-	-
4.3	SUPPORT ITEMS	-	-	-	-	-	-
5.1	INTERNAL VERTICAL	9.60	9.60	11.20	11.20	10.86	10.86
5.2	INTERNAL HORIZONTAL	5.96	5.96	7.30	5.96	5.04	1.87
5.3	SPECIAL FINISHES	-	-	-	-	-	-
5.4	INTERIORS	40.54	40.54	40.54	-	37.84	37.84
6.0	BUILDING SPECIALTIES	1.90	2.13	2.67	-	1.75	2.05
7.0	EQUIPMENT	-	-	-	-	-	-
8.0	SPECIAL CONSTRUCTION	-	-	-	-	-	-
9.0	CONVEYING	-	-	-	-	-	-
10.1	PLUMBING & FIRE PROTECTION	31.59	16.10	14.41	31.59	30.59	16.10
10.2	HVAC	47.14	33.85	23.93	23.93	47.14	33.85
11.0	ELECTRICAL	51.94	39.27	42.02	42.02	51.94	39.27
	TOTAL CONSTRUCTION COST / S.F.	\$188.67	\$147.45	\$142.07	\$114.70	\$185.16	\$141.84

**ARIZONA BOARD OF REGENTS
CONSTRUCTION COST CONTROL
& PROFESSIONAL FEE GUIDELINES**

SCG NO.: 00-028
Prepared by: G.AMARI
Checked by: L.SAYLOR

SERIES B-200
INTERIORS / BUILDING USE MATRIX

Date: 04/29/02

FLAGSTAFF							
ITEM NO.	DESCRIPTION	INDIVIDUAL STUDY/RESEARCH LAB, SMALL TYPE A B-236	INDIVIDUAL STUDY/RESEARCH LAB, SMALL TYPE B B-237	RESEARCH LARGE TYPE A B-238	RESEARCH LARGE TYPE B B-239	RESEARCH MEDICAL LAB 6 PERSON B-240	
2.0	SUBSTRUCTURE	-	-	-	-	-	-
3.0	STRUCTURE	-	-	-	-	-	-
4.1	ENCLOSURE VERTICAL	-	-	-	-	-	-
4.2	ENCLOSURE HORIZONTAL	-	-	-	-	-	-
4.3	SUPPORT ITEMS	-	-	-	-	-	-
5.1	INTERNALS VERTICAL	15.53	15.53	5.95	5.95	11.62	-
5.2	INTERNALS HORIZONTAL	5.04	5.04	5.04	5.04	5.04	-
5.3	SPECIAL FINISHES	-	-	-	-	-	-
5.4	INTERIORS	18.92	18.92	13.27	13.27	18.22	-
6.0	BUILDING SPECIALTIES	3.37	3.37	0.70	0.70	3.21	-
7.0	EQUIPMENT	-	-	-	-	-	-
8.0	SPECIAL CONSTRUCTION	-	-	-	-	-	-
9.0	CONVEYING	-	-	-	-	-	-
10.1	PLUMBING & FIRE PROTECTION	30.59	16.12	25.70	15.99	40.23	-
10.2	HVAC	47.14	33.85	34.38	30.38	44.77	-
11.0	ELECTRICAL	54.25	41.42	42.90	42.90	47.98	-
TOTAL CONSTRUCTION COST / S.F.		\$174.84	\$134.25	\$127.94	\$114.23	\$171.07	

**ARIZONA BOARD OF REGENTS
CONSTRUCTION COST CONTROL
& PROFESSIONAL FEE GUIDELINES**

SCG NO.: 00-028
Prepared by: G.AMARI
Checked by: L.SAYLOR

**SERIES B-300
INTERIORS / BUILDING USE MATRIX**

Date: 04/29/02

FLAGSTAFF

ITEM NO.	DESCRIPTION	OFFICE (100-150 SF)	OFFICE (150+SF)	CONFERENCE ROOM (TO 25)	CONFERENCE ROOM (ADVANCED TV)	OPEN OFFICE AREA, MODULAR WORK STATION (100 SF/STA)	
		B-310	B-311	B-350	B-351	B-360	
2.0	SUBSTRUCTURE	-	-	-	-	-	-
3.0	STRUCTURE	-	-	-	-	-	-
4.1	ENCLOSURE VERTICAL	-	-	-	-	-	-
4.2	ENCLOSURE HORIZONTAL	-	-	-	-	-	-
4.3	SUPPORT ITEMS	-	-	-	-	-	-
5.1	INTERNALS VERTICAL	12.57	12.31	14.11	12.87	12.31	-
5.2	INTERNALS HORIZONTAL	7.30	7.30	7.30	7.30	7.30	-
5.3	SPECIAL FINISHES	-	-	-	-	-	-
5.4	INTERIORS	-	-	-	-	-	-
6.0	BUILDING SPECIALTIES	-	-	4.66	3.88	-	-
7.0	EQUIPMENT	-	-	-	-	-	-
8.0	SPECIAL CONSTRUCTION	-	-	-	-	-	-
9.0	CONVEYING	-	-	-	-	-	-
10.1	PLUMBING & FIRE PROTECTION	6.80	6.80	6.80	6.80	6.80	-
10.2	HVAC	17.91	17.91	25.54	27.48	17.91	-
11.0	ELECTRICAL	32.12	32.12	36.62	39.52	36.62	-
	TOTAL CONSTRUCTION COST / S.F.	\$76.70	\$76.44	\$95.03	\$97.85	\$80.94	

**ARIZONA BOARD OF REGENTS
CONSTRUCTION COST CONTROL
& PROFESSIONAL FEE GUIDELINES**

SCG NO.: 00-028
Prepared by: G.AMARI
Checked by: L.SAYLOR

**SERIES B-400
INTERIORS / BUILDING USE MATRIX**

Date: 04/29/02

FLAGSTAFF							
ITEM NO.	DESCRIPTION	READING/STUDY ROOM	COMPUTER COMMONS	STACKS	OPEN STACK READING ROOM	LIBRARY WORK ROOM	INDIVIDUAL STUDY ROOM
		B-410	B-410A	B-420	B-430	B-440	B-450
2.0	SUBSTRUCTURE	-	-	-	-	-	-
3.0	STRUCTURE	-	-	-	-	-	-
4.1	ENCLOSURE VERTICAL	-	-	-	-	-	-
4.2	ENCLOSURE HORIZONTAL	-	-	-	-	-	-
4.3	SUPPORT ITEMS	-	-	-	-	-	-
5.1	INTERNALS VERTICAL	6.25	6.25	5.48	4.79	11.23	15.79
5.2	INTERNALS HORIZONTAL	7.30	7.30	7.30	7.30	7.30	7.30
5.3	SPECIAL FINISHES	-	-	-	-	-	-
5.4	INTERIORS	-	-	21.14	11.16	13.78	9.93
6.0	BUILDING SPECIALTIES	-	4.47	2.56	-	2.88	3.39
7.0	EQUIPMENT	-	-	-	-	-	-
8.0	SPECIAL CONSTRUCTION	-	19.04	-	2.73	-	-
9.0	CONVEYING	-	-	-	-	-	-
10.1	PLUMBING & FIRE PROTECTION	1.94	4.94	7.63	1.94	6.06	8.07
10.2	HVAC	15.46	21.59	19.82	19.82	19.73	21.44
11.0	ELECTRICAL	31.66	70.49	30.76	30.76	30.68	32.12
	TOTAL CONSTRUCTION COST / S.F.	\$62.60	\$134.08	\$94.69	\$78.51	\$91.66	\$98.04

**ARIZONA BOARD OF REGENTS
CONSTRUCTION COST CONTROL
& PROFESSIONAL FEE GUIDELINES**

SCG NO.: 00-028
Prepared by: G.AMARI
Checked by: L.SAYLOR

SERIES B-400
INTERIORS / BUILDING USE MATRIX

Date: 04/29/02

FLAGSTAFF							
ITEM NO.	DESCRIPTION	ARCHIVE ARTIFACTS STORAGE 4000 SF	ARCHIVE ARTIFACTS EXHIBITION 2000 SF				
		B-460A	B-460B				
2.0	SUBSTRUCTURE	-	-	-	-	-	-
3.0	STRUCTURE	-	-	-	-	-	-
4.1	ENCLOSURE, VERTICAL	-	-	-	-	-	-
4.2	ENCLOSURE, HORIZONTAL	-	-	-	-	-	-
4.3	SUPPORT ITEMS	-	-	-	-	-	-
5.1	INTERNALS, VERTICAL	11.20	11.94	-	-	-	-
5.2	INTERNALS, HORIZONTAL	5.96	6.56	-	-	-	-
5.3	SPECIAL FINISHES	-	-	-	-	-	-
5.4	INTERIORS	19.27	26.97	-	-	-	-
6.0	BUILDING SPECIALTIES	2.08	0.86	-	-	-	-
7.0	EQUIPMENT	-	-	-	-	-	-
8.0	SPECIAL CONSTRUCTION	-	-	-	-	-	-
9.0	CONVEYING	-	-	-	-	-	-
10.1	PLUMBING & FIRE PROTECTION	18.56	21.82	-	-	-	-
10.2	HVAC	32.20	34.66	-	-	-	-
11.0	ELECTRICAL	40.48	45.16	-	-	-	-
	TOTAL CONSTRUCTION COST / S.F.	\$129.75	\$147.97				

**ARIZONA BOARD OF REGENTS
CONSTRUCTION COST CONTROL
& PROFESSIONAL FEE GUIDELINES**

SCG NO.: 00-028
Prepared by: G.AMARI
Checked by: L.SAYLOR

SERIES B-500
INTERIORS / BUILDING USE MATRIX

Date: 04/29/02

FLAGSTAFF							
ITEM NO.	DESCRIPTION	ATH/PHYS EDUC/REC (LOCKER/SHOWER) B-520	ATH/PHYS EDUC/REC (LARGE GYM) B-521	ATH/PHYS EDUC/REC (SMALL GYM) B-522	ATH/PHYS EDUC/REC (SPECIAL COURTS) B-523	ATH/PHYS EDUC/REC (SPECIAL SEATING) B-524	STUDIO AUDIO VISUAL TV B-530
2.0	SUBSTRUCTURE	-	-	-	-	-	-
3.0	STRUCTURE	-	-	-	-	-	-
4.1	ENCLOSURE VERTICAL	-	-	-	-	-	-
4.2	ENCLOSURE HORIZONTAL	-	-	-	-	-	-
4.3	SUPPORT ITEMS	-	-	-	-	-	-
5.1	INTERNALS VERTICAL	12.17	5.30	6.13	52.66	4.50	6.96
5.2	INTERNALS HORIZONTAL	9.56	3.18	3.18	13.94	3.52	6.61
5.3	SPECIAL FINISHES	30.61	21.31	11.15	-	-	0.90
5.4	INTERIORS	10.73	-	6.40	-	-	4.95
6.0	BUILDING SPECIALTIES	4.66	2.39	0.81	-	2.39	0.68
7.0	EQUIPMENT	-	-	-	-	-	-
8.0	SPECIAL CONSTRUCTION	-	-	-	-	20.89	-
9.0	CONVEYING	-	-	-	-	-	-
10.1	PLUMBING & FIRE PROTECTION	22.24	4.46	6.06	-	2.79	2.79
10.2	HVAC	12.54	8.24	8.24	15.93	7.84	16.01
11.0	ELECTRICAL	25.80	33.22	33.22	22.65	29.41	65.47
	TOTAL CONSTRUCTION COST / S.F.	\$128.31	\$78.10	\$75.19	\$105.18	\$71.34	\$104.37

**ARIZONA BOARD OF REGENTS
CONSTRUCTION COST CONTROL
& PROFESSIONAL FEE GUIDELINES**

SCG NO.: 00-028
Prepared by: G.AMARI
Checked by: L.SAYLOR

**SERIES B-500
INTERIORS / BUILDING USE MATRIX**

Date: 04/29/02

FLAGSTAFF

ITEM NO.	DESCRIPTION	CLINIC EXAM ROOM NON-HEALTH	ANIMAL QUARTERS (RESEARCH MED & BIO)	ANIMAL QUARTERS (RESEARCH AGRICULTURAL)	GREENHOUSE (PROPAGATION)	GREENHOUSE TESTING	CLEANROOM (CLASS 100) 2700 SF
		B-540	B-570	B-571	B-580	B-581	B-590
2.0	SUBSTRUCTURE	-	-	-	-	-	-
3.0	STRUCTURE	-	-	-	-	-	-
4.1	ENCLOSURE VERTICAL	-	-	-	-	-	-
4.2	ENCLOSURE HORIZONTAL	-	-	-	-	-	-
4.3	SUPPORT ITEMS	-	-	-	-	-	-
5.1	INTERNALS VERTICAL	12.31	9.28	9.28	14.18	14.18	70.97
5.2	INTERNALS HORIZONTAL	7.30	16.07	16.07	8.07	8.07	50.22
5.3	SPECIAL FINISHES	-	-	-	-	-	-
5.4	INTERIORS	13.48	-	-	3.17	3.17	120.02
6.0	BUILDING SPECIALTIES	2.45	-	-	-	-	-
7.0	EQUIPMENT	-	-	-	-	-	-
8.0	SPECIAL CONSTRUCTION	-	0.24	0.24	13.46	13.46	14.64
9.0	CONVEYING	-	-	-	-	-	-
10.1	PLUMBING & FIRE PROTECTION	2.79	19.55	19.55	7.02	9.77	40.51
10.2	HVAC	17.28	35.74	15.19	8.16	10.30	50.44
11.0	ELECTRICAL	30.68	47.45	46.55	23.45	23.45	46.63
	TOTAL CONSTRUCTION COST / S.F.	\$86.29	\$128.33	\$106.88	\$77.51	\$82.40	\$393.43

**ARIZONA BOARD OF REGENTS
CONSTRUCTION COST CONTROL
& PROFESSIONAL FEE GUIDELINES**

SCG NO.: 00-028
Prepared by: G.AMARI
Checked by: L.SAYLOR

SERIES B-500
INTERIORS / BUILDING USE MATRIX

Date: 04/29/02

FLAGSTAFF

ITEM NO.	DESCRIPTION	CLEANROOM (CLASS 1000 SF) 27,000 SF					
		B-591					
2.0	SUBSTRUCTURE	-	-	-	-	-	-
3.0	STRUCTURE	-	-	-	-	-	-
4.1	ENCLOSURE VERTICAL	-	-	-	-	-	-
4.2	ENCLOSURE HORIZONTAL	-	-	-	-	-	-
4.3	SUPPORT ITEMS	-	-	-	-	-	-
5.1	INTERNALS VERTICAL	72.91	-	-	-	-	-
5.2	INTERNALS HORIZONTAL	51.58	-	-	-	-	-
5.3	SPECIAL FINISHES	-	-	-	-	-	-
5.4	INTERIORS	93.95	-	-	-	-	-
6.0	BUILDING SPECIALTIES	-	-	-	-	-	-
7.0	EQUIPMENT	-	-	-	-	-	-
8.0	SPECIAL CONSTRUCTION	15.04	-	-	-	-	-
9.0	CONVEYING	-	-	-	-	-	-
10.1	PLUMBING & FIRE PROTECTION	41.62	-	-	-	-	-
10.2	HVAC	28.62	-	-	-	-	-
11.0	ELECTRICAL	49.90	-	-	-	-	-
	TOTAL CONSTRUCTION COST / S.F.	\$353.62	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

**ARIZONA BOARD OF REGENTS
CONSTRUCTION COST CONTROL
& PROFESSIONAL FEE GUIDELINES**

SCG NO.: 98-53N
Prepared by: G.AMARI
Checked by: L.SAYLOR

SERIES B-600
INTERIORS / BUILDING USE MATRIX

Date: 04/29/02

FLAGSTAFF							
ITEM NO.	DESCRIPTION	THEATER (HOUSE SIDE)	THEATER (STAGE & BACK, PERFORMING)	THEATER (STAGE & BACK, MUSICAL)	THEATER MULTI-MEDIA (STAGE &BACK)	SPECIALIZED MUSEUM SPACE	FOOD FACILITY PREP/SERVE
		B-610	B-611	B-612	B-613	B-620	B-630
2.0	SUBSTRUCTURE	-	-	-	-	-	-
3.0	STRUCTURE*	-	-	-	-	-	-
4.1	ENCLOSURE VERTICAL	-	-	-	-	-	-
4.2	ENCLOSURE HORIZONTAL**	-	-	-	-	-	-
4.3	SUPPORT ITEMS	-	-	-	-	-	-
5.1	INTERNALS VERTICAL	12.21	9.28	10.44	10.44	12.20	7.30
5.2	INTERNALS HORIZONTAL	16.14	4.75	3.39	7.47	7.15	5.97
5.3	SPECIAL FINISHES	7.05	4.63	6.94	4.63	23.71	16.67
5.4	INTERIORS	-	-	0.91	4.68	2.34	0.68
6.0	BUILDING SPECIALTIES	21.08	0.69	0.34	2.57	0.19	0.19
7.0	EQUIPMENT	-	57.75	52.66	57.04	-	64.74
8.0	SPECIAL CONSTRUCTION	4.95	-	-	-	-	-
9.0	CONVEYING	-	4.95	-	-	-	-
10.1	PLUMBING & FIRE PROTECTION	3.55	6.50	5.65	15.36	29.73	30.57
10.2	HVAC	20.94	15.38	13.38	30.67	16.97	16.35
11.0	ELECTRICAL	34.56	56.91	49.49	66.08	41.22	33.54
	TOTAL CONSTRUCTION COST / S.F.	\$120.48	\$160.84	\$143.20	\$198.94	\$133.51	\$176.01

**ARIZONA BOARD OF REGENTS
CONSTRUCTION COST CONTROL
& PROFESSIONAL FEE GUIDELINES**

SCG NO.: 00-028
Prepared by: G.AMARI
Checked by: L.SAYLOR

**SERIES B-600
INTERIORS / BUILDING USE MATRIX**

Date: 04/29/02

FLAGSTAFF							
ITEM NO.	DESCRIPTION	FOOD FACILITY DINING	CONCESSIONAIRE FAST FOOD	LOUNGE, LOBBY WAITING	BOOK STORE SHOPS	LARGE MEETING CONF. BALL ROOM	
		B-631	B-632	B-650	B-660	B-660	
2.0	SUBSTRUCTURE	-	-	-	-	-	-
3.0	STRUCTURE	-	-	-	-	-	-
4.1	ENCLOSURE VERTICAL	-	-	-	-	-	-
4.2	ENCLOSURE HORIZONTAL	-	-	-	-	-	-
4.3	SUPPORT ITEMS	-	-	-	-	-	-
5.1	INTERNALS VERTICAL	7.30	7.95	10.38	8.16	15.82	-
5.2	INTERNALS HORIZONTAL	5.42	5.42	8.26	9.01	13.94	-
5.3	SPECIAL FINISHES	16.67	15.06	18.02	-	18.16	-
5.4	INTERIORS	0.68	9.27	-	1.97	-	-
6.0	BUILDING SPECIALTIES	0.19	0.20	-	-	6.66	-
7.0	EQUIPMENT	-	-	-	-	-	-
8.0	SPECIAL CONSTRUCTION	-	-	-	-	-	-
9.0	CONVEYING	-	-	-	-	-	-
10.1	PLUMBING & FIRE PROTECTION	12.25	16.14	2.79	11.99	3.15	-
10.2	HVAC	10.86	13.19	12.88	13.47	18.39	-
11.0	ELECTRICAL	37.77	35.37	36.44	34.13	41.58	-
TOTAL CONSTRUCTION COST / S.F.		\$91.14	\$102.60	\$88.77	\$78.73	\$117.70	

**ARIZONA BOARD OF REGENTS
CONSTRUCTION COST CONTROL
& PROFESSIONAL FEE GUIDELINES**

SCG NO.: 00-028
Prepared by: G.AMARI
Checked by: L.SAYLOR

SERIES B-700
INTERIORS / BUILDING USE MATRIX

Date: 04/29/02

FLAGSTAFF							
ITEM NO.	DESCRIPTION	DATA PROCESSING ROOM	SHOP MAINTENANCE FACILITIES & VEHICLES	WAREHOUSE	VEHICLE STORAGE (ENCLOSED NAU ONLY)		
		B-710	B-720	B-730	B-740		
2.0	SUBSTRUCTURE	-	-	-	-	-	-
3.0	STRUCTURE	-	-	-	-	-	-
4.1	ENCLOSURE VERTICAL	-	-	-	-	-	-
4.2	ENCLOSURE HORIZONTAL	-	-	-	-	-	-
4.3	SUPPORT ITEMS	-	-	-	-	-	-
5.1	INTERNALS VERTICAL	15.00	10.54	2.48	5.25	-	-
5.2	INTERNALS HORIZONTAL	3.18	0.34	0.34	0.34	-	-
5.3	SPECIAL FINISHES	-	-	-	-	-	-
5.4	INTERIORS	-	6.90	-	-	-	-
6.0	BUILDING SPECIALTIES	0.45	0.35	0.09	-	-	-
7.0	EQUIPMENT	-	-	-	-	-	-
8.0	SPECIAL CONSTRUCTION	21.48	5.81	2.10	-	-	-
9.0	CONVEYING	-	-	-	-	-	-
10.1	PLUMBING & FIRE PROTECTION	25.53	18.45	4.11	4.11	-	-
10.2	HVAC	34.40	8.04	8.04	8.04	-	-
11.0	ELECTRICAL	34.74	29.69	7.33	7.33	-	-
	TOTAL CONSTRUCTION COST / S.F.	\$134.78	\$80.12	\$24.49	\$25.07		

**ARIZONA BOARD OF REGENTS
CONSTRUCTION COST CONTROL
& PROFESSIONAL FEE GUIDELINES**

SCG NO.: 00-028
Prepared by: G.AMARI
Checked by: L.SAYLOR

**SERIES B-800
INTERIORS / BUILDING USE MATRIX**

Date: 04/29/02

FLAGSTAFF

ITEM NO.	DESCRIPTION	PATIENT ROOM & BATH	NURSE STATION	EMERGENCY ROOM	TREATMENT	MEDICAL LAB	WAITING
		B-810	B-830	B-840	B-850	B-860.	B-880
2.0	SUBSTRUCTURE	-	-	-	-	-	-
3.0	STRUCTURE	-	-	-	-	-	-
4.1	ENCLOSURE VERTICAL	-	-	-	-	-	-
4.2	ENCLOSURE HORIZONTAL	-	-	-	-	-	-
4.3	SUPPORT ITEMS	-	-	-	-	-	-
5.1	INTERNALS VERTICAL	13.75	13.43	14.61	13.43	14.99	11.55
5.2	INTERNALS HORIZONTAL	6.30	6.30	6.30	6.30	5.79	7.23
5.3	SPECIAL FINISHES	19.13	-	-	-	-	-
5.4	INTERIORS	4.15	49.58	22.80	21.48	77.33	-
6.0	BUILDING SPECIALTIES	2.88	4.13	3.85	6.61	6.61	-
7.0	EQUIPMENT	5.08	-	-	-	-	-
8.0	SPECIAL CONSTRUCTION	-	-	-	-	-	-
9.0	CONVEYING	-	-	-	-	-	-
10.1	PLUMBING & FIRE PROTECTION	57.93	23.44	36.71	36.71	27.52	3.32
10.2	HVAC	20.55	9.56	26.49	26.49	48.13	9.14
11.0	ELECTRICAL	52.61	53.64	52.80	50.19	50.19	33.00
TOTAL CONSTRUCTION COST / S.F.		\$182.38	\$160.08	\$163.56	\$161.21	\$230.56	\$64.24

**ARIZONA BOARD OF REGENTS
CONSTRUCTION COST CONTROL
& PROFESSIONAL FEE GUIDELINES**

SCG NO.: 00-028
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**SERIES B-800
INTERIORS / BUILDING USE MATRIX**

Date: 04/29/02

FLAGSTAFF

ITEM NO.	DESCRIPTION	X-RAY RADIOLOGY					
		B-890					
2.0	SUBSTRUCTURE	-	-	-	-	-	-
3.0	STRUCTURE	-	-	-	-	-	-
4.1	ENCLOSURE VERTICAL	-	-	-	-	-	-
4.2	ENCLOSURE HORIZONTAL	-	-	-	-	-	-
4.3	SUPPORT ITEMS	-	-	-	-	-	-
5.1	INTERNALS VERTICAL	17.19	-	-	-	-	-
5.2	INTERNALS HORIZONTAL	6.30	-	-	-	-	-
5.3	SPECIAL FINISHES	-	-	-	-	-	-
5.4	INTERIORS	19.09	-	-	-	-	-
6.0	BUILDING SPECIALTIES	-	-	-	-	-	-
7.0	EQUIPMENT	-	-	-	-	-	-
8.0	SPECIAL CONSTRUCTION	8.94	-	-	-	-	-
9.0	CONVEYING	-	-	-	-	-	-
10.1	PLUMBING & FIRE PROTECTION	22.42	-	-	-	-	-
10.2	HVAC	34.72	-	-	-	-	-
11.0	ELECTRICAL	52.80	-	-	-	-	-
TOTAL CONSTRUCTION COST / S.F.		\$161.46					

**ARIZONA BOARD OF REGENTS
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SCG NO.: 00-028
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Checked by: L.SAYLOR

**SERIES B-900
INTERIORS / BUILDING USE MATRIX**

Date: 04/29/02

FLAGSTAFF

ITEM NO.	DESCRIPTION	RESIDENCE HALL (W/COMMON BATH)	RESIDENCE HALL (W/PRIVATE BATH)	RESIDENCE HALL (2 ROOMS W/COMMON BATH)	APARTMENT (W/COOKING FACILITIES)		
		B-910	B-919	B-920	B-950		
2.0	SUBSTRUCTURE	-	-	-	-	-	-
3.0	STRUCTURE	-	-	-	-	-	-
4.1	ENCLOSURE VERTICAL	-	-	-	-	-	-
4.2	ENCLOSURE HORIZONTAL	-	-	-	-	-	-
4.3	SUPPORT ITEMS	-	-	-	-	-	-
5.1	INTERNALS VERTICAL	11.50	13.22	12.57	11.55	-	-
5.2	INTERNALS HORIZONTAL	5.04	5.46	5.46	5.46	-	-
5.3	SPECIAL FINISHES	2.48	1.65	1.65	1.65	-	-
5.4	INTERIORS	2.48	4.50	4.50	7.94	-	-
6.0	BUILDING SPECIALTIES	1.40	1.61	1.36	1.36	-	-
7.0	EQUIPMENT	0.43	-	-	5.73	-	-
8.0	SPECIAL CONSTRUCTION	-	-	-	-	-	-
9.0	CONVEYING	-	-	-	-	-	-
10.1	PLUMBING & FIRE PROTECTION	10.01	13.23	11.77	7.24	-	-
10.2	HVAC	8.64	8.64	7.66	6.60	-	-
11.0	ELECTRICAL	12.07	12.07	11.98	11.91	-	-
	TOTAL CONSTRUCTION COST / S.F.	\$54.05	\$60.38	\$56.95	\$59.44		

**ARIZONA BOARD OF REGENTS
CONSTRUCTION COST CONTROL
& PROFESSIONAL FEE GUIDELINES**

SCG NO.: 00-028
Prepared by: G.AMARI
Checked by: L.SAYLOR

**NON-ASSIGNABLE AREAS
INTERIORS / BUILDING USE MATRIX**

Date: 04/29/02

FLAGSTAFF							
ITEM NO.	DESCRIPTION	CIRCULATION	CUSTODIAL	MECHANICAL/ ELECTRICAL	PUBLIC TOILET ROOMS		
		B-WWW	B-XXX	B-YYY	B-ZZZ		
2.0	SUBSTRUCTURE	-	-	-	-	-	-
3.0	STRUCTURE	-	-	-	-	-	-
4.1	ENCLOSURE VERTICAL	-	-	-	-	-	-
4.2	ENCLOSURE HORIZONTAL	-	-	-	-	-	-
4.3	SUPPORT ITEMS	-	-	-	-	-	-
5.1	INTERNALS VERTICAL	8.15	8.62	6.68	12.91	-	-
5.2	INTERNALS HORIZONTAL	5.06	5.06	3.20	19.15	-	-
5.3	SPECIAL FINISHES	-	1.46	0.36	18.24	-	-
5.4	INTERIORS	-	6.51	-	-	-	-
6.0	BUILDING SPECIALTIES	3.98	1.62	-	10.93	-	-
7.0	EQUIPMENT	-	-	-	-	-	-
8.0	SPECIAL CONSTRUCTION	-	-	-	-	-	-
9.0	CONVEYING	-	-	-	-	-	-
10.1	PLUMBING & FIRE PROTECTION	3.30	40.55	6.33	100.30	-	-
10.2	HVAC	17.36	17.36	20.48	16.87	-	-
11.0	ELECTRICAL	39.64	33.96	33.96	33.96	-	-
TOTAL CONSTRUCTION COST / S.F.		\$77.49	\$115.14	\$71.01	\$212.36		