

1996 SURVEY OF SCIENTIFIC AND ENGINEERING RESEARCH FACILITIES AT UNIVERSITIES AND COLLEGES

NATIONAL SCIENCE FOUNDATION (NSF)
NATIONAL INSTITUTES OF HEALTH (NIH)

Acting out of concerns raised by the academic community, Congress directed the National Science Foundation (NSF) to collect and analyze data about research facilities at universities and colleges and to report to Congress every two years. This survey is in response to that requirement under authorization of the National Science Foundation Act of 1950, as amended.

The format of the survey has changed somewhat from the 1994 version, resulting in some additional pages, but in little additional burden to you, the respondent. The main topics in this year's survey are:

- amount of space in your institution;
- amount and condition of research space in your institution;
- costs of capital projects completed, begun, or planned;
- deferred capital projects; and
- miscellaneous topics.

We will use the information that you provide for a report that gives a broad, quantitative picture of

- the cost, availability, and condition of existing science and engineering (S&E) research facilities; and
- the current capital spending by universities and colleges, sources of funding, and plans for future repair/renovation and new construction of S&E research facilities.

The report is used by Congress, many higher education associations, and university and college administrators to help make policy decisions. Your participation in this survey is voluntary. **NSF and NIH do not use or allow other agencies to use the information from this survey to affect individual institutional funding, nor will detailed responses be used in any manner that would identify an individual institution's responses.**

The president or chancellor of your institution named the individual on the label below to coordinate data collection for this survey. Please correct any wrong information on the label.

Label

If someone other than the person listed above coordinates the data collection, please tell us whom we may call if we have questions about the information.

Name	Title/Department	Telephone no. and ext.
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Completing this survey requires an average of 24 hours. If you wish to comment on this burden, contact Herman Fleming, Reports Clearance Officer, NSF, at 703-306-1243, and the Office of Management and Budget, Paperwork Reduction Project (OMB Number 3145-0101), Washington, DC 20503.

Return the completed survey by **December 1, 1995**, to

The Gallup Organization
Attention: Dr. Jennifer Spielvogel
One Church Street, Suite 900
Rockville, MD 20850

If you have any questions or comments about the survey, contact Dr. Ann Lanier of NSF at 703-306-1774 or Dr. Jennifer Spielvogel of The Gallup Organization at 1-800-288-9439 (spieja@gallup.com).

GUIDELINES

Refer to these guidelines as you fill out the survey.

1. **About this survey—how to use the “Tips” box**

With each item in this survey, along with instructions for completing the item, you will find a “Tips” box containing additional information to help you complete the item correctly. The box also contains definitions of terms that appear in the item. Terms appearing in **boldface type** in the instructions are defined in the “Tips” box on that page.

2. **The definition of research**

In this survey, research is defined as all research activities of your institution that are budgeted and accounted for. Research can be funded by the institution itself, the Federal government, state governments, foundations, corporations, or other sources.

3. **What to include as research facilities**

In this survey, the term “research facilities” includes

- research laboratories;
- controlled-environment space, such as clean or white rooms;
- technical-support space, such as carpentry and machine shops;
- facilities for laboratory animals, such as animal production colonies, holding rooms, isolation and germ-free rooms;
- faculty or staff offices, to the extent that they are used for research;
- department libraries, to the extent that they are used for research;
- fixed (built-in) equipment, such as fume hoods and benches; and
- non-fixed equipment costing \$1 million or more.

It does not include

- facilities that have been designated as federally funded research and development centers (FFRDC);
- facilities that are used by faculty, but are not administered by the institution, such as research space at Veterans Administration or other non-university hospitals.

4. What fields to include as science and engineering (S&E) fields

Because every institution has its own way of classifying fields of study, for consistency, please use the *Cross Reference* chart (see page 24) to classify areas of study at your institution. The *Cross Reference* chart identifies the departments that are included within each of the S&E fields used in this survey. The *Cross Reference* chart is based on the classification of academic departments used by the National Center for Educational Statistics. If you are unable to separate data for academic departments, report the combined data under "Other Sciences, not elsewhere classified" and list the fields that those data represent.

For this survey, S&E fields include

- Engineering
- Physical Sciences
- Earth, Atmospheric, and Ocean Sciences (formerly Environmental Sciences)
- Mathematics
- Computer Sciences
- Agricultural Sciences
- Biological Sciences
- Medical Sciences
- Psychology
- Social Sciences
- Other Sciences, not elsewhere classified

They do not include

- law, business administration/management (except economics), humanities, history, the arts, or education (except educational psychology).

5. The definition of net assignable square feet (NASF)

In this survey, NASF is defined as the sum of all areas (in square feet) on all floors of a building assigned to, or available to be assigned to, an occupant for specific use, such as instruction or research. NASF should be measured from the inside faces of walls. Refer to pages 95–96 in Appendix 2 of *Postsecondary Education Facilities Inventory and Classification Manual*, U.S. Department of Education, Office of Educational Research and Improvement, NCES 92-165 (or to the 1988 NACUBO *Taxonomy of Functions*, or to the 1972 WICHE *Program Classification Structure*).

6. How to calculate space and cost

Space in NASF

For space used for both S&E research and other purposes: *Prorate* the NASF to reflect the proportion of use for S&E research activity. For example, if a room or building is used for S&E research only during the summer months (one-fourth of the year), then count 25% of the NASF as S&E research space.

For space that is shared by S&E fields: Prorate the NASF to reflect the proportion of use by each field. For example, if a room or building is used equally for research activity in Computer Sciences and Mathematics, count 50% of the NASF as research space for Computer Sciences and 50% for Mathematics.

Cost of repair/renovation and new construction

What to include under “completion costs”: Several survey items ask you to report completion costs for repair/renovation and new construction projects. When you report completion costs for projects on S&E research space, include costs for

- planning;
- site preparation; and
- repair/renovation or new construction of
 - the research space itself;
 - fixed equipment;
 - non-fixed equipment costing \$1 million or more; and
 - building infrastructure, such as plumbing, lighting, air exchange, and safety systems in the building and within five feet of the building foundation.

For projects involving both S&E research space and space used for other purposes: Prorate the cost of repair/renovation and new construction projects to reflect the proportion of the space that is used for S&E research. For example, you might construct a new Biological Sciences building at a cost of \$8 million. Half of the space in the new building will be used for biological research and the other half will be used for class instruction. In this case, the prorated cost of construction for S&E research facilities that you should report would be \$4 million, or half of the total cost.

For multi-year projects: Allocate the entire project completion cost to the fiscal year in which the project began or is expected to begin. Consider the start-date for a project to be the date on which repair/renovation or new construction actually began or is expected to begin.

AMOUNT OF SPACE IN YOUR INSTITUTION

Item 1a. Instructional and research space

To complete Item 1a, do the following:

- ❶ In Column 1 of the table on the facing page, fill in the current amount of net assignable square feet (NASF) devoted to instruction and **research** for each field listed.
- ❷ Near the bottom of Column 1, fill in the current total NASF devoted to instruction and research for
 - science and engineering (S&E) fields (TOTAL #1),
 - non-science fields (TOTAL #2), and
 - all academic fields (TOTAL #3).
- ❸ In Column 2, fill in the current amount of **research space** (NASF devoted to research only) for each S&E field listed.
- ❹ Near the bottom of Column 2, fill in the total NASF devoted to research in all S&E fields.

Note for institutions using a facilities inventory system based on NCES, NACUBO, or WICHE classifications:

For Column 1 ("Instructional and research NASF"), add the space that is assigned to functional category 1 (Instruction) and category 2 (Research). For Column 2 ("Research NASF"), use only the space that is assigned to functional category 2 (Research). Please refer to pages 95–96 in Appendix 2 of *Postsecondary Education Facilities Inventory and Classification Manual*, U.S. Department of Education, Office of Educational Research and Improvement, NCES 92-165 (or to the 1988 NACUBO *Taxonomy of Functions*, or to the 1972 WICHE *Program Classification Structure*).

Tips for completing Item 1a

- Include space leased by your institution.
- Estimate if exact figures are not available.
- If space is used for more than one purpose, prorate the NASF to reflect the proportion of use for the activity the item is asking about. (For an example, see page 3.)
- If space is shared by S&E fields, prorate the NASF to reflect the proportion of use by each field. (For an example, see page 3.)
- Note that the disciplinary field listed as "Environmental Sciences" in prior years' surveys is now listed as "Earth, Atmospheric, and Ocean Sciences."
- For help in classifying your programs, refer to the *Cross Reference* chart on page 24.
- Use these definitions for bolded items:

NASF: Is the sum of all areas (in square feet) on all floors of a building assigned to, or available to be assigned to, an occupant for specific use, such as instruction or research. NASF should be measured from the inside faces of walls.

research: Refers to all research activities of an institution that are budgeted and accounted for. Research can be funded by the institution itself, the Federal government, state governments, foundations, corporations, or other sources.

research space: Refers to the NASF of space in facilities within which research activities take place. These facilities may include the following (to the extent that they are used for research): research laboratories, controlled-environment space, technical-support space, facilities for laboratory animals, faculty or staff offices, department libraries, fixed equipment (such as fume hoods and benches), and non-fixed equipment costing \$1 million or more.

Table for Item 1a. Instructional and research space

Field	Column 1	Column 2
	Instructional and research NASF	Research NASF
SCIENCE AND ENGINEERING (S&E) FIELDS		
Engineering		
Physical Sciences		
Earth, Atmospheric, and Ocean Sciences (formerly Environmental Sciences)		
Mathematics		
Computer Sciences		
Agricultural Sciences		
Biological Sciences Other than medical school		
Biological Sciences Medical school		
Medical Sciences Other than medical school		
Medical Sciences Medical school		
Psychology		
Social Sciences		
Other Sciences, not elsewhere classified List them:		
TOTAL #1: ALL S&E FIELDS		
TOTAL #2: ALL NON-SCIENCE FIELDS [for example, law, business administration/management (except economics), humanities, history, the arts, or education (except educational psychology)]		
TOTAL #3: GRAND TOTAL		

Item 1b. Leased research space

Look at the total research space for all S&E fields (TOTAL #1) in the table above. How much of that space is leased?

_____ NASF of leased research space

AMOUNT AND CONDITION OF RESEARCH SPACE

Item 2. Current amount of research space, by field

Item 2 asks you to rate the amount of science and engineering (S&E) research space available at your institution. For each field, you will choose one of the following three categories:

- A Adequate amount of space:** sufficient to support all the needs of your current S&E research program commitments in the field
- B Inadequate amount of space:** not sufficient to support the needs of your current S&E research program commitments in the field; or non-existent but needed
- NA** Not applicable or no space needed in the field

To complete Item 2, do the following:

- 1 For each field listed on the table on the facing page, circle the letter of the category in Column 1 that best describes the amount of space available for your current S&E research program commitments in that field.
- 2 For each field for which you circled **B** (inadequate amount), estimate and record in Column 2 the additional NASF or percent more space that is needed.

Example 1: The Engineering department's research space is overcrowded to the extent that efficiency of work on an existing grant has been affected. In your answer to Item 2, you should consider the additional space you need to support work on this already awarded grant.

Example 2: The Biology department has made offers to three new faculty needed to support an existing program in molecular biology. In your answer to Item 2, you should consider the space needed to accommodate these new colleagues (even though they are not currently on campus) because it is needed to fulfill already existing program commitments and because offers have been made.

Tips for completing Item 2

Use these definitions for bolded items:

research program commitments: Refers to all research and development activities of an institution that are budgeted, approved, and funded. Research program commitments include

- current *faculty and staff* or those to whom offers have been made;
- *grants* awarded, whether or not research has actually begun; and
- *programs* which have been approved.

They do *not* include

- potential staff without offers,
- grants applied for but not awarded, and
- programs designed but not yet approved.

research space: Refers to the NASF of space in facilities within which research activities take place. These facilities may include the following (to the extent that they are used for research): research laboratories, controlled-environment space, technical-support space, facilities for laboratory animals, faculty or staff offices, department libraries, fixed equipment (such as fume hoods and benches), and non-fixed equipment costing \$1 million or more.

Table for Item 2. Current amount of research space, by field

Key:

A = Adequate amount of space: *sufficient to support all the needs of your current S&E research program commitments in the field*

B = Inadequate amount of space: *not sufficient to support the needs of your current S&E research program commitments in the field; or non-existent but needed*

NA = Not applicable or no space needed in the field

Field	Column 1			Column 2	
	Adequacy or inadequacy of amount of S&E research space			Additional space needed for current S&E research program commitments	
	For each field, circle the appropriate code in one of the columns below.			For each field, you may choose to enter <i>either</i> NASF <i>or</i> percent more space needed. (Enter a figure in <i>one</i> of the columns below for each field.)	
	Adequate	Inadequate	Not Applicable	Additional NASF needed	Percent more space needed
Engineering	A	B	NA		
Physical Sciences	A	B	NA		
Earth, Atmospheric, and Ocean Sciences (formerly Environmental Sciences)	A	B	NA		
Mathematics	A	B	NA		
Computer Sciences	A	B	NA		
Agricultural Sciences	A	B	NA		
Biological Sciences Other than medical school	A	B	NA		
Biological Sciences Medical school	A	B	NA		
Medical Sciences Other than medical school	A	B	NA		
Medical Sciences Medical school	A	B	NA		
Psychology	A	B	NA		
Social Sciences	A	B	NA		
Other Sciences, not elsewhere classified List them:	A	B	NA		

Item 3. Current condition of research space, by field

To complete Item 3, do the following:

- ① For each field listed on the table on the facing page, fill in the percent of research space that falls into each category below:
 - A Suitable for the most scientifically competitive research in the field
 - B Effective for most levels of research in the field, but may need limited repair/renovation
 - C Requires **major renovation** or replacement to be used effectively
 - NA Not applicable or no research space in that field
- ② For each field for which you reported space in category C, record in Column 2 the number of NASF or percent of that space that is funded and scheduled to undergo major renovation or replacement in your FY 1996 or FY 1997.

Tips for completing Item 3

➤ Consider only space supporting your *current* S&E research program commitments.

➤ Use these definitions for bolded items:

major renovation: Refers to an extensive repair project that results in facilities that are equivalent, or nearly equivalent, to new facilities in their ability to support S&E research.

research space: Refers to the NASF of space in facilities within which research activities take place. These facilities may include the following (to the extent that they are used for research): research laboratories, controlled-environment space, technical-support space, facilities for laboratory animals, faculty or staff offices, department libraries, fixed equipment (such as fume hoods and benches), and non-fixed equipment costing \$1 million or more.

Table for Item 3. Current condition of research space, by field

Key:

- A =** Suitable for the most scientifically competitive research in the field
- B =** Effective for most levels of research in the field, but may need limited repair/renovation
(Includes categories B and C from 1994 survey)
- C =** Requires major renovation or replacement to be used effectively
(Includes categories D and E from 1994 survey)
- NA =** Not applicable or no research space in this field

Field	Column 1					Column 2	
	Percent of research space according to condition					Amount of space in category C that is funded and scheduled to undergo major renovation or replacement in your FY 1996 or FY 1997	
	A	B	C	Total	NA	NASF	Percent of space
Engineering				100%			
Physical Sciences				100%			
Earth, Atmospheric, and Ocean Sciences (formerly Environmental Sciences)				100%			
Mathematics				100%			
Computer Sciences				100%			
Agricultural Sciences				100%			
Biological Sciences Other than medical school				100%			
Biological Sciences Medical school				100%			
Medical Sciences Other than medical school				100%			
Medical Sciences Medical school				100%			
Psychology				100%			
Social Sciences				100%			
Other Sciences, not elsewhere classified List them:				100%			

COSTS OF CAPITAL PROJECTS COMPLETED, BEGUN, OR PLANNED

Item 4a. Research facilities projects over \$100,000: your FY 1994 and FY 1995

This item asks you to report the completion costs (planning, site preparation, construction, **fixed equipment**, non-fixed equipment costing \$1 million or more, **building infrastructure**) and net assignable square feet (NASF) involved in **repair/renovation** and **new construction** of science and engineering (S&E) research facilities.

To complete *Item 4a*, do the following:

- ① In Columns 1 and 3 of the table on the facing page,
 - for each field listed, fill in the completion costs for repair/renovation and new construction projects over \$100,000, and
 - in the row marked TOTAL, fill in the total completion costs for repair/renovation and new construction.

- ② In Columns 2 and 4 of the table on the facing page,
 - for each field listed, fill in the estimated NASF involved in repair/renovation and new construction projects over \$100,000, and
 - in the row marked TOTAL, fill in the estimated total NASF for repair/renovation and new construction.

Tips for completing Item 4a

- Consider only projects that began during your FY 1994 or FY 1995. (Consider the start-date for a project to be the date on which repair/renovation or new construction actually began.)
- If space is shared by S&E fields, prorate the NASF and cost to reflect the proportion of use by each field. (For an example, see page 3.)
- Consider only projects whose prorated cost in a given field is over \$100,000. (All the dollar figures in Column 1 or Column 3 of the table on the facing page should be *over \$100,000*.)
- Use these definitions for bolded items:

building infrastructure: Includes systems that exist in the building and within five feet of the building foundation, such as plumbing, lighting, air exchange, and safety systems.

fixed equipment: Refers to equipment that is built into facilities, such as fume hoods and lab benches.

NASF: Is the sum of all areas (in square feet) on all floors of a building assigned to, or available to be assigned to, an occupant for specific use, such as instruction or research. NASF should be measured from the inside faces of walls.

new construction: Refers to additions to an existing building or construction of a new building.

repair/renovation: Refers to the fixing up of facilities in deteriorated condition, capital improvements on facilities, conversion of facilities, etc.

Table for Item 4a. Research facilities projects over \$100,000: your FY 1994 and FY 1995

Field	REPAIR/RENOVATION over \$100,000 begun during your FY 1994 or FY 1995		NEW CONSTRUCTION over \$100,000 begun during your FY 1994 or FY 1995	
	Column 1 Cost	Column 2 NASF	Column 3 Cost	Column 4 NASF
Engineering				
Physical Sciences				
Earth, Atmospheric, and Ocean Sciences (formerly Environmental Sciences)				
Mathematics				
Computer Sciences				
Agricultural Sciences				
Biological Sciences Other than medical school				
Biological Sciences Medical school				
Medical Sciences Other than medical school				
Medical Sciences Medical school				
Psychology				
Social Sciences				
Other Sciences, not elsewhere classified List them:				
TOTAL				

Item 4b. Research facilities projects between \$5,000 and \$100,000: your FY 1994 and FY 1995

To complete Item 4b, do the following:

In the blank below, fill in the total dollar amount for completion costs of **repair/renovation** projects between \$5,000 and \$100,000 begun in your FY 1994 and FY 1995.

Total for repair/renovation projects (costing between \$5,000 and \$100,000 each) of your science and engineering (S&E) research facilities \$ _____

Tips for completing Item 4b

- Consider only projects that began during your FY 1994 or FY 1995. (Consider the start-date for a project to be the date on which repair/renovation or new construction actually began.)
- Include projects to repair/renovate **fixed equipment**, non-fixed equipment costing \$1 million or more, and **building infrastructure**.
- Exclude projects whose prorated cost is less than \$5,000 or more than \$100,000.
- Use these definitions for bolded items:

building infrastructure: Includes systems that exist in the building and within five feet of the building foundation, such as plumbing, lighting, air exchange, and safety systems.

fixed equipment: Refers to equipment that is built into facilities, such as fume hoods and lab benches.

repair/renovation: Refers to the fixing up of facilities in deteriorated condition, capital improvements on facilities, conversion of facilities, etc.

Go to the next page.

Item 5. Sources of funding for research facilities projects: your FY 1994 and FY 1995

To complete Item 5, do the following:

- ① In the row marked TOTAL on the table on the facing page, at the bottom of Columns 1 and 2, copy the cost totals for your science and engineering (S&E) research facilities projects from Item 4a, Columns 1 and 3:
 - **repair/renovation** projects costing over \$100,000, and
 - **new construction** projects costing over \$100,000.
- ② Fill in the dollar amounts of funding from each source listed.

Tips for completing Item 5

- Consider only projects that began during your FY 1994 or FY 1995. (Consider the start-date for a project to be the date on which repair/renovation or new construction actually began.)
- Note that "Institutional funds" include operating funds, endowments, indirect costs recovered from federal grants and/or contracts, indirect costs recovered from other sources, etc.
- Use these definitions for bolded items:
 - new construction:** Refers to additions to an existing building or construction of a new building.
 - repair/renovation:** Refers to the fixing up of facilities in deteriorated condition, capital improvements on facilities, conversion of facilities, etc.

Table for Item 5. Sources of funding for research facilities projects: your FY 1994 and FY 1995

	Column 1 <hr/> Dollar amount for REPAIR/RENOVATION projects costing over \$100,000	Column 2 <hr/> Dollar amount for NEW CONSTRUCTION projects costing over \$100,000
Federal government		
State or local government		
Private donations		
Institutional funds (Operating funds, endowments, indirect costs recovered from federal grants and/or contracts, indirect costs recovered from other sources, etc.)		
Tax-exempt bonds		
Other debt financing		
Other sources List them:		
TOTAL		

Item 6. Planned research facilities projects over \$100,000 scheduled to begin in your FY 1996 and FY 1997

To complete Item 6, do the following:

- ① In Columns 1 and 3 of the table on the facing page,
 - for each field listed, fill in the completion costs for projects over \$100,000 (planning, site preparation, construction, **fixed equipment**, non-fixed equipment costing \$1 million or more, **building infrastructure**) for **planned projects (both repair/renovation and new construction)**, and
 - in the row marked TOTAL #1, fill in the total completion costs for all science and engineering (S&E) fields.
- ② In Columns 2 and 4,
 - for each field listed, estimate the net assignable square feet (NASF) involved in those projects (*Note: be sure to include here any space that you reported in Column 2 of the table for Item 3*), and
 - in the row marked TOTAL #1, fill in the estimated NASF for all S&E fields.
- ③ Near the bottom of the table, in the row marked TOTAL #2, enter the estimated completion costs for planned capital projects to extend, repair, or renovate **central campus infrastructure**.
- ④ Add the figures in the row marked TOTAL #1 to those in the row marked TOTAL #2. Record the total figures in the row marked TOTAL #3.

Tips for completing Item 6

- Consider only projects scheduled to begin during your FY 1996 or FY 1997.
- If space is shared by S&E fields, prorate the NASF and cost to reflect the proportion of use by each field. (For an example, see page 3.)
- Include only projects whose prorated cost in a given field is over \$100,000. (All the dollar figures in Column 1 or Column 3 of the table on the facing page should be *over \$100,000*.)
- Estimate if exact figures are not available.
- Use these definitions for bolded items:

building infrastructure: Includes systems that exist in the building and within five feet of the building foundation, such as plumbing, lighting, air exchange, and safety systems.

central campus infrastructure: Refers primarily to systems that exist between the buildings of a campus (excluding the area within five feet of any individual building foundation) and to the nonarchitectural elements of campus design (central wiring for telecommunications systems, storage/disposal facilities, electrical wiring between buildings, central heating and air exchange systems, drains and sewers, roadways, walkways, parking systems, etc.)

fixed equipment: Refers to equipment that is built into facilities, such as fume hoods and lab benches.

NASF: Is the sum of all areas (in square feet) on all floors of a building assigned to, or available to be assigned to, an occupant for specific use, such as instruction or research. NASF should be measured from the inside faces of walls.

new construction: Refers to additions to an existing building or construction of a new building.

planned project: Refers to a project that is funded and scheduled but on which construction has not yet begun.

repair/renovation: Refers to the fixing up of facilities in deteriorated condition, capital improvements on facilities, conversion of facilities, etc.

Table for Item 6. Planned research facilities projects over \$100,000 scheduled to begin in your FY 1996 and FY 1997

Field	REPAIR/RENOVATION over \$100,000 scheduled to begin in your FY 1996 or FY 1997		NEW CONSTRUCTION over \$100,000 scheduled to begin in your FY 1996 or FY 1997	
	Column 1	Column 2	Column 3	Column 4
	Expected Cost	Estimated NASF	Expected Cost	Estimated NASF
Engineering				
Physical Sciences				
Earth, Atmospheric, and Ocean Sciences (formerly Environmental Sciences)				
Mathematics				
Computer Sciences				
Agricultural Sciences				
Biological Sciences Other than medical school				
Biological Sciences Medical school				
Medical Sciences Other than medical school				
Medical Sciences Medical school				
Psychology				
Social Sciences				
Other Sciences, not elsewhere classified List them:				
TOTAL #1: ALL S&E FIELDS				
TOTAL #2: CENTRAL CAMPUS INFRASTRUCTURE (Includes telecommunications, electrical systems, plumbing systems, steam and chilled water lines, hazardous materials systems, etc.)				
TOTAL #3: GRAND TOTAL				

DEFERRED CAPITAL PROJECTS

Item 7. Costs for repair/renovation and new construction of research space needed but not funded

To complete Item 7, do the following:

- 1 Read the definition in the "Tips" box to the right for **deferred project**. According to this definition, does your institution have any deferred projects for **repair/renovation or new construction** of your science and engineering (S&E) research facilities?

- Yes. Go to step 2.
- No. Go to Item 8 (see page 20).

- 2 Read the definition in the "Tips" box to the right for **institutional plan**. Then,

- for deferred projects that are *part of an institutional plan*, enter the estimated completion costs (planning, site preparation, construction, **fixed equipment**, non-fixed equipment costing \$1 million or more, **building infrastructure**) in Columns 1 and 2 of the table on the facing page; and
- for deferred projects that are *not* part of an institutional plan, enter the estimated completion costs in Columns 3 and 4.

- 3 Record the totals for these estimates in the row marked **TOTAL #1**.

- 4 Near the bottom of the table, in the row marked **TOTAL #2**, enter the estimated completion costs for deferred capital projects to extend, repair, or renovate **central campus infrastructure**—both those that are, and those that are not, part of an institutional plan.

- 5 Add the figures in the row marked **TOTAL #1** to those in the row marked **TOTAL #2**. Record the total figures in the row marked **TOTAL #3**.

Tips for completing Item 7

- If space is shared by S&E fields, prorate the cost to reflect the proportion of use by each field. (For an example, see page 3.)

- For help in classifying your programs, refer to the *Cross Reference* chart on page 24.

- Use these definitions for bolded items:

building infrastructure: Includes systems that exist in the building and within five feet of the building foundation, such as plumbing, lighting, air exchange, and safety systems.

central campus infrastructure: Refers primarily to systems that exist between the buildings of a campus (excluding the area within five feet of any individual building foundation) and to the nonarchitectural elements of campus design (central wiring for telecommunications systems, storage/disposal facilities, electrical wiring between buildings, central heating and air exchange systems, drains and sewers, roadways, walkways, parking systems, etc.)

deferred project: Refers to a repair/renovation or new construction project which meets all of the following criteria:

- is necessary to meet your current S&E research program commitments,
- is not scheduled for your FY 1996 or FY 1997,
- does not have funding, *and*
- is neither for the purpose of developing new programs nor for expanding faculty beyond what is required to fulfill current S&E research program commitments.

fixed equipment: Refers to equipment that is built into facilities, such as fume hoods and lab benches.

institutional plan: Refers to an institution's approved plan, including goals, strategies, steps, and budgets, for fulfilling the institution's mission during a specific time period.

new construction: Refers to additions to an existing building or construction of a new building.

repair/renovation: Refers to the fixing up of facilities in deteriorated condition, capital improvements on facilities, conversion of facilities, etc.

Table for Item 7. Costs for repair/renovation and new construction of research space needed but not funded

Note: If you cannot provide cost estimates, you may instead record estimated NASF for deferred projects (prorate if necessary). If you choose to do this and are recording NASF rather than dollars in the table below, check (✓) here:

Field	Estimated cost for deferred projects needed for current S&E research program commitments			
	Needs INCLUDED in an institutional plan		Needs NOT INCLUDED in an institutional plan	
	Column 1	Column 2	Column 3	Column 4
	Repair/renovation costs	New construction costs	Repair/renovation costs	New construction costs
Engineering				
Physical Sciences				
Earth, Atmospheric, and Ocean Sciences (formerly Environmental Sciences)				
Mathematics				
Computer Sciences				
Agricultural Sciences				
Biological Sciences Other than medical school				
Biological Sciences Medical school				
Medical Sciences Other than medical school				
Medical Sciences Medical school				
Psychology				
Social Sciences				
Other Sciences, not elsewhere classified List them:				
TOTAL #1: ALL S&E FIELDS				
TOTAL #2: CENTRAL CAMPUS INFRASTRUCTURE (Includes telecommu- nications, electrical systems, plumbing systems, steam and chilled water lines, hazardous materials systems, etc.)				
TOTAL #3: GRAND TOTAL				

MISCELLANEOUS ITEMS

Item 8. Facilities for laboratory animals

To complete Item 8, answer the following:

- ❶ Does your institution have facilities for laboratory animals?
- No. Go to Item 9 on the next page.
- Yes. Go to step ❷.
- ❷ Below, fill in the amounts of your animal housing NASF and animal laboratory NASF. Add the two figures to arrive at your total animal research NASF.

	Animal housing NASF	_____
+	Animal laboratory NASF	_____
=	Total animal research NASF	_____

- ❸ Fill in the amounts of your total animal research NASF that
- fully meets government regulations _____ NASF
 - needs limited repair/renovation to meet government regulations _____ NASF
 - needs major repair/renovation or replacement to meet government regulations _____ NASF

The total of the three categories above should equal the total animal research NASF in ❷.

- ❹ Fill in the costs and amounts of NASF for animal facility improvements involving
- repair/renovation over \$100,000 scheduled to begin in your FY 1996 or FY 1997
Cost _____ NASF _____
 - new construction over \$100,000 scheduled to begin in your FY 1996 or FY 1997
Cost _____ NASF _____

Note: Be sure to also include in your answer to Item 6 on page 17 any projects you include in your answer to ❹ above.

Tips for completing Item 8

- Include as laboratory animal facilities both departmental and central facilities that are subject to government and state policies and regulations concerning humane care and use of laboratory animals.
- Do not include in your lab animal facilities space:
 - agricultural field buildings sheltering animals that do not directly support research or that are not subject to government regulations concerning humane care and use of laboratory animals; or
 - areas for treatment of animals that are veterinary patients.
- Use these definitions for bolded items:

animal housing NASF: Refers to all general animal housing (for example, cage rooms, stalls, wards, isolation rooms) and maintenance areas (for example, feed storage rooms, cage-washing rooms, shops, storage), if these areas directly support research. (Animal housing NASF are Codes 570 and 575 in the *Postsecondary Education Facilities Inventory and Classification Manual*.)

animal laboratory NASF: Refers to all animal laboratory space used exclusively for research activities, such as bench space, animal production colonies, holding rooms, germ-free rooms, surgical facilities and recovery rooms.

total animal research NASF: Refers to the combined amount of animal laboratory and animal housing NASF. (Total animal research NASF is equivalent to the term "Research NASF" in Item #10 of the 1994 survey.)

Item 9. Limit on tax-exempt bonds

To complete Item 9, answer the following questions:

① Is your institution a private college or university?

- No. Go to Item 10 on the next page.
- Yes. Go to step ②.

② Federal tax reform legislation established a limit on tax-exempt bonds of \$150 million per private college or university.

Has your institution reached the limit on tax-exempt bonds?

- Yes.
- No, but we expect to within the next two fiscal years.
- No, and we do not expect to within the next two fiscal years.

Item 10. Additional comments

This is an optional, open-ended question designed with two purposes in mind. It allows you to

- give us information which numerical data cannot capture, and
- help us identify new areas of concern relating to science and engineering (S&E) research facilities. Such discoveries may, in future surveys, warrant further quantitative investigation.

To complete Item 10, write any additional comments you may have in the space below:

Item 11. Feedback

We appreciate the time you have taken to fill out the 1996 survey.

How many person-hours were required to complete this form? _____

Return the survey by *December 1, 1995*, to

*The Gallup Organization
Attention: Dr. Jennifer Spielvogel
One Church Street, Suite 900
Rockville, MD 20850*

**CROSS REFERENCE BETWEEN NSF FIELD CATEGORIES AND
THE NCES CLASSIFICATION OF ACADEMIC DEPARTMENTS**

Use this chart to identify the departments that are included within each of the science and engineering (S&E) fields used in this survey.

ENGINEERING

- 101 Aerospace Engineering
 - 14.02 Aerospace, aeronautical, and astronautical engineering
- 102 Agricultural Engineering
 - 14.03 Agricultural engineering
- 103 Biomedical Engineering
 - 14.05 Bioengineering and biomedical engineering
- 104 Chemical Engineering
 - 03.0509 Wood sciences
 - 14.07 Chemical engineering
- 105 Civil Engineering
 - 04.02 Architecture
 - 14.04 Architectural engineering
 - 14.08 Civil engineering
 - 14.14 Environmental health engineering
- 106 Electrical Engineering
 - 14.09 Computer engineering
 - 14.10 Electrical, electronics, and communications engineering
 - 14.1002 Microelectronic engineering
- 107 Engineering Science
 - 14.12 Engineering physics
 - 14.13 Engineering science
- 108 Industrial Engineering/Management Science
 - 14.17 Industrial engineering
 - 14.27 Systems engineering
 - 30.06 Systems science
- 109 Mechanical Engineering
 - 14.11 Engineering mechanics
 - 14.19 Mechanical engineering
- 110 Metallurgical and Materials Engineering
 - 14.06 Ceramic engineering
 - 14.18 Materials engineering
 - 14.20 Metallurgical engineering
 - 40.0701 Metallurgy
- 111 Mining Engineering
 - 14.15 Geological engineering
 - 14.16 Geophysical engineering
 - 14.21 Mining and mineral engineering
- 112 Nuclear Engineering
 - 14.23 Nuclear engineering
- 113 Petroleum Engineering
 - 14.25 Petroleum engineering
- 114 Engineering, not elsewhere classified
 - 14.01 Engineering, general
 - 14.22 Naval architecture and marine engineering
 - 14.24 Ocean engineering
 - 14.28 Textile engineering
 - 14.99 Engineering, other
 - 19.09 Textiles and clothing (excluding 19.0902, Fashion Design)
 - 30.03 Engineering and other fields

PHYSICAL SCIENCES

- 201 Astronomy
 - 40.02 Astronomy
 - 40.03 Astrophysics
 - 40.09 Planetary science
- 202 Chemistry
 - 40.05 Chemistry
- 203 Physics
 - 40.08 Physics
- 204 Physical Sciences, not elsewhere classified
 - 40.01 Physical sciences, general
 - 40.0799 Miscellaneous physical sciences, other
 - 40.099 Physical sciences, other

EARTH, ATMOSPHERIC, AND OCEAN SCIENCES

- 301 Atmospheric Sciences
 - 40.4 Atmospheric sciences and meteorology
- 302 Geosciences
 - 40.06 Geological and related sciences
 - 40.0703 Earth and planetary sciences
- 303 Ocean Sciences
 - 26.0607 Marine/aquatic biology
 - 40.0702 Oceanography
- 304 Earth, Atmospheric, and Ocean Sciences, N.E.C.

MATHEMATICS

- 402 Mathematics and Applied Mathematics
 - 06.1302 Operations research (quantitative methods)
 - 27.01 Mathematics, general
 - 27.03 Applied mathematics
 - 27.04 Pure mathematics
 - 27.99 Mathematics, other
 - 30.08 Mathematics and computer science
- 403 Statistics
 - 27.02 Actuarial sciences
 - 27.05 Statistics

COMPUTER SCIENCES

- 401 Computer Sciences
 - 06.12 Management information systems
 - 11 Computer and information sciences, general
 - 30.09 Imaging science

AGRICULTURAL SCIENCES (SEE ALSO 102 AND 901)

- 501 Agricultural Sciences
 - 02.01 Agricultural sciences, general
 - 02.02 Animal sciences
 - 02.03 Food sciences
 - 02.04 Plant sciences
 - 02.05 Soil sciences
 - 02.99 Agricultural sciences, other
 - 03.01 Renewable natural resources, general

- 03.03 Fishing and fisheries
- 03.05 Forestry and related sciences
- 03.06 Wildlife management
- 03.99 Renewable natural resources, other
- 31.04 Water resources

BIOLOGICAL SCIENCES

- 601 Anatomy
 - 18.0201 Clinical anatomy
 - 26.0601 Anatomy
- 602 Biochemistry
 - 18.0202 Clinical biochemistry
 - 26.02 Biochemistry and biophysics
- 603 Biology
 - 26.01 Biology, general
 - 26.0604 Embryology
- 604 Biometry and epidemiology
 - 18.2202 Epidemiology
 - 26.0602 Biometrics and biostatistics
- 605 Biophysics
- 606 Botany
 - 26.03 Botany (excluding 26.0302, Bacteriology; see 611)
- 607 Cell Biology
 - 26.04 Cell and molecular biology
 - 26.0606 Histology
- 608 Ecology
 - 26.0603 Ecology
- 609 Entomology and Parasitology
 - 26.0610 Parasitology
 - 26.07102 Entomology
- 610 Genetics
 - 26.0703 Genetics, human and animal
- 611 Microbiology, Immunology, and Virology
 - 18.0203 Clinical microbiology
 - 18.1002 Allergies and endomology
 - 18.1009 Immunology
 - 26.0302 Bacteriology
 - 26.05 Microbiology
- 612 Nutrition
 - 19.05 Food sciences and human nutrition
 - 20.0108 Food and nutrition
 - 26.0609 Nutritional sciences
- 613 Pathology
 - 18.0204 Clinical pathology
 - 18.1018 Pathology
 - 26.0704 Pathology, human and animal
- 614 Pharmacology
 - 18.0206 Clinical toxicology
 - 26.0612 Toxicology
 - 26.0705 Pharmacology, human and animal
 - 42.14 Psychopharmacology
- 615 Physiology
 - 18.0205 Physiology
 - 26.0706 Physiology, human and animal
- 616 Zoology
 - 26.0701 Zoology
 - 26.0799 Zoology, other
- 617 Biosciences, not elsewhere classified
 - 26.0699 Miscellaneous specialized areas, life sciences, other
 - 26.99 Life sciences, other

MEDICAL SCIENCES (see also 103)

- 701 Anesthesiology
 - 18.1003 Anesthesiology
- 702 Cardiology
- 703 Cancer Research/Oncology
- 704 Endocrinology
 - 26.0605 Endocrinology
- 705 Gastroenterology
- 706 Hematology
 - 18.08 Hematology
- 707 Neurology
 - 18.1024 Neurology
 - 26.0608 Neurosciences
- 708 Obstetrics and Gynecology
 - 18.1013 Obstetrics and gynecology
- 709 Ophthalmology
 - 18.1014 Ophthalmology
 - 18.12 Optometry
- 710 Otorhinolaryngology
 - 18.1017 Otorhinolaryngology/otolaryngology
- 711 Pediatrics
 - 18.1019 Pediatrics
 - 20.0102 Child development
- 712 Preventive Medicine and Community Health
 - 18.1007 Family practice
 - 18.1022 Preventive medicine
- 713 Psychiatry
 - 18.1023 Psychiatry
 - 18.1106 Psychiatry/mental health
- 714 Pulmonary Disease
- 715 Radiology
 - 18.1012 Nuclear medicine
 - 18.1025 Radiology
 - 26.0611 Radiobiology
- 716 Surgery
 - 18.1004 Colon and rectal surgery
 - 18.1011 Neurological surgery
 - 18.1016 Orthopedic
 - 18.1021 Plastic surgery
 - 18.1026 Surgery
 - 18.1027 Thoracic surgery
- 717 Clinical Medicine, not elsewhere classified
 - 18.0299 Basic clinical health sciences, other
 - 18.1001 Medicine, general
 - 18.1005 Dermatology
 - 18.1008 Geriatrics
 - 18.1010 Internal medicine
 - 18.1020 Physical medicine and rehabilitation
 - 18.1028 Urology
 - 18.1099 Medicine, other
 - 18.13 Osteopathic medicine
 - 18.15 Podiatry
 - 30.01 Biological and physical sciences
- 718 Dental Sciences
 - 18.04 Dentistry
 - 18.1015 Orthodontic surgery
- 719 Nursing
 - 18.11 Nursing (excluding 18.1106, Psychiatry/mental health; see 713)

- 720 Pharmaceutical Sciences
 - 18.14 Pharmacy
- 721 Veterinary Sciences
 - 18.24 Veterinary medicine
- 722 Health Related, not elsewhere classified
 - 17.0807 Occupational therapy
 - 17.0813 Physical therapy
 - 17.0899 Rehabilitation services, other
 - 17.99 Allied health, other
 - 18.07 Health sciences administration
 - 18.09 Medical laboratory
 - 18.22 Public health
 - 18.99 Health sciences, other
- 723 Speech Pathology and Audiology
 - 18.01 Audiology and speech pathology

PSYCHOLOGY

- 801 Psychology
 - 13.08 School psychology (not including Educational Psychology)
 - 17.0801 Art therapy
 - 42 Psychology (including Educational Psychology)

SOCIAL SCIENCES

- 901 Agricultural Economics
 - 01.0102 Agricultural business and management
 - 01.0103 Agricultural economics
- 902 Anthropology (Cultural and Social)
 - 45.02 Anthropology
 - 45.03 Archeology
- 903 Economics (except Agricultural)
 - 06.05 Business Economics
 - 45.06 Economics
- 904 Geography
 - 45.07 Geography
- 905 History and philosophy of science
- 906 Linguistics
 - 23.06 Linguistics
 - 42.12 Psycholinguistics
- 907 Political Science
 - 44.01 Public affairs, general
 - 44.03 International public service
 - 44.04 Public administration
 - 44.05 Public policy studies
 - 44.99 Public affairs, other
 - 45.09 International affairs
 - 45.10 Political science and government
- 908 Sociology
 - 45.05 Demography
 - 45.11 Sociology
- 909 Sociology and Anthropology
- 910 Social Sciences, not elsewhere classified
 - 04.03 City, community, and regional planning
 - 05 Area and ethnic studies
 - 06.06 Human resources development
 - 06.15 Organizational behavior
 - 31.03 Parks and recreational management
 - 43.01 Criminal justice
 - 44.02 Community services
 - 44.07 Social work
 - 45.01 Social sciences, general
 - 45.04 Criminology
 - 45.12 Urban studies
 - 45.99 Social sciences, other