



InfoBrief

Science and Engineering Research Space at Academic Institutions Totaled 240 Million Square Feet in FY 2023

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The nation's research-performing universities and colleges reported 240.2 million net assignable square feet (NASF) of science and engineering (S&E) research space in FY 2023 ([table 1](#)), an increase of 4 million NASF from FY 2021. Research space is a key component in the infrastructure that enabled U.S. colleges and universities to conduct \$102 billion in S&E research in FY 2023.¹ The reported increase in FY 2023 research space was the third lowest since FY 1990 ([figure 1](#)), according to the biennial Survey of Science and Engineering Research Facilities, conducted by the National Center for Science and Engineering Statistics (NCSES) within the U.S. National Science Foundation (see "[Data Sources and Availability](#)" for definitions of research space and NASF).²

Table 1

Science and engineering research space in academic institutions, by field and medical school space: FYs 2013–23

(Net assignable square feet in millions)

Field	FY 2013	FY 2015	FY 2017	FY 2019	FY 2021	FY 2023
All research space	211.8	214.5	221.2	226.9	236.1	240.2
Agricultural sciences	30.5	28.3	29.0	28.4	32.4	31.5
Biological and biomedical sciences	57.2	55.9	57.7	58.3	60.0	61.2
Computer and information sciences	4.3	4.3	4.2	4.6	4.6	5.0
Engineering	33.4	34.2	35.2	38.3	40.5	42.0
Geosciences, atmospheric sciences, and ocean sciences	7.8	8.1	8.5	8.6	9.0	9.2
Health sciences	38.0	39.2	39.8	41.1	40.3	40.0
Mathematics and statistics	1.7	1.8	1.8	1.8	1.8	1.9
Natural resources and conservation	na	3.5	4.3	4.7	4.9	5.1
Physical sciences	22.9	22.7	23.2	23.5	23.9	24.7
Psychology	5.5	5.5	5.6	5.9	5.8	6.1
Social sciences	5.7	6.0	6.1	6.4	6.7	6.7
Other fields of S&E	4.8	4.9	5.8	5.3	6.2	6.8
Medical school space ^a	48.6	48.6	47.5	49.7	51.5	52.2

na = not applicable; see notes below.

S&E = science and engineering.

^a Medical school space is listed separately and is also included in individual field totals.

Note(s):

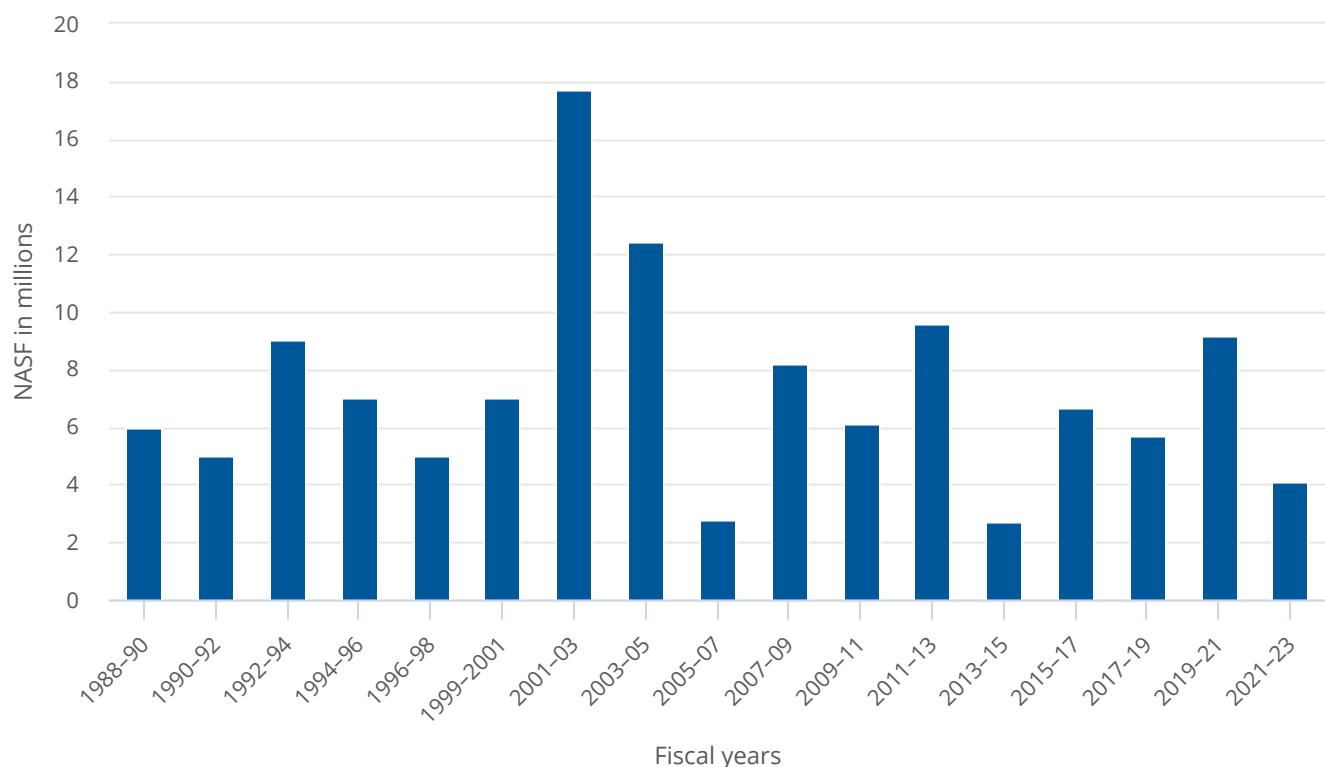
In FY 2015, "Agricultural sciences and natural resources sciences" was split into "Agricultural sciences" and "Natural resources and conservation." Prior to FY 2015, data for "Natural resources and conservation" are included in "Agricultural sciences." Details may not add to totals due to rounding.

Source(s):

National Center for Science and Engineering Statistics, Survey of Science and Engineering Research Facilities.

Figure 1

Science and engineering research space in academic institutions, change over 2-year period: FYs 1988–2023



NASF = net assignable square feet.

Note(s):

The biennial survey cycle ran on even years from FYs 1988–98 and on odd years from FYs 1999–2023.

Source(s):

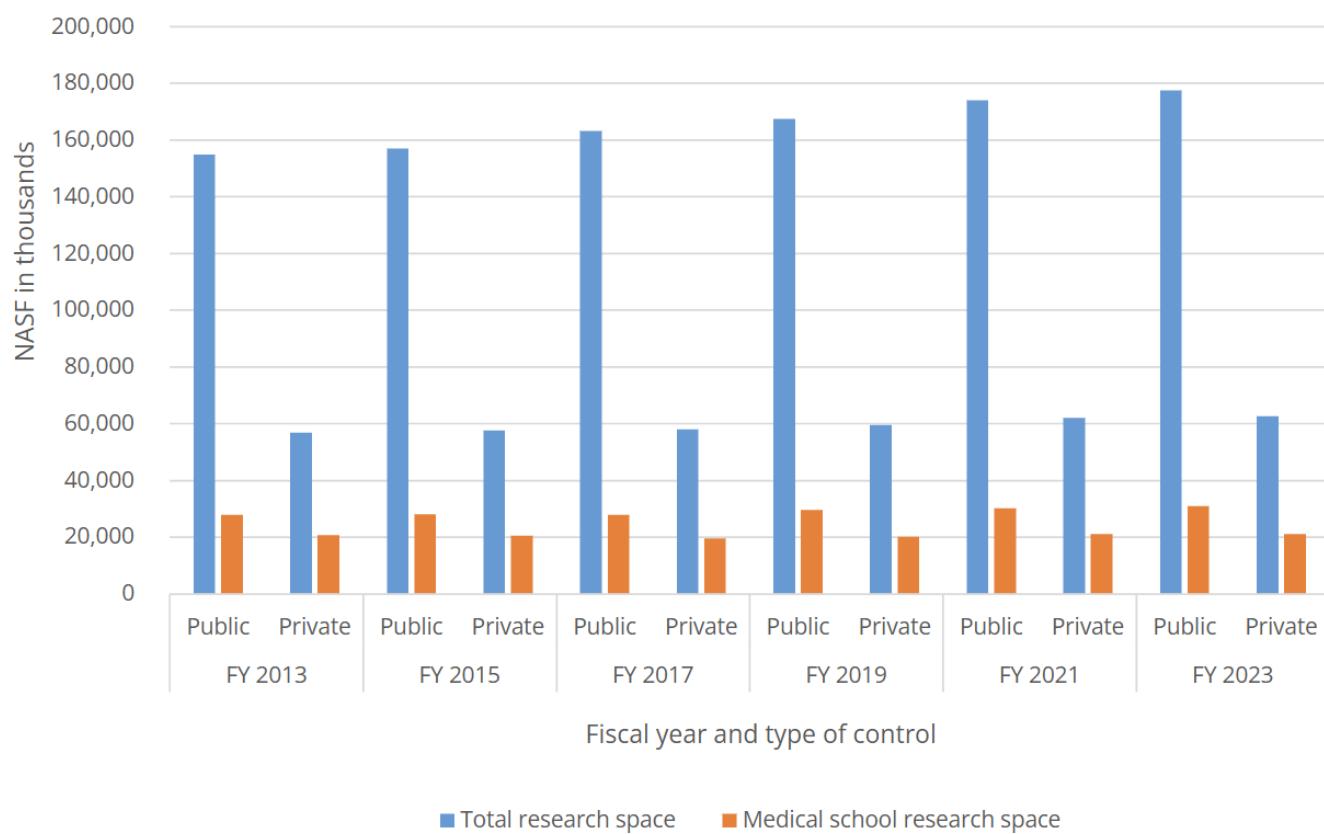
National Center for Science and Engineering Statistics, Survey of Science and Engineering Research Facilities.

Five fields accounted for 83% of total S&E research space in FY 2023. Biological and biomedical sciences accounted for the largest share of all S&E research space in FY 2023 with 25% of the total. The next four largest fields were engineering (17%), health sciences (17%), agricultural sciences (13%), and physical sciences (10%). No other field accounted for more than 4% of total S&E research space. The remaining fields collectively accounted for 17% of total S&E research space and added 1.8 million NASF between FY 2021 and FY 2023.

S&E research space at public colleges and universities (177.5 million NASF) comprised 74% of the national total, growing by 15% (22.5 million NASF) from FY 2013 to FY 2023 ([figure 2](#)). Private institutions (62.7 million NASF) added 5.9 million NASF during the same period, an increase of 10%. Research space within medical schools reached 52.2 million NASF in FY 2023 and accounted for 22% of total S&E research space at academic institutions ([table 1](#)). Sixty percent of medical school research space is located at public institutions. Total medical school research space increased by almost 700 thousand NASF from FY 2021 to FY 2023, which was the smallest change since FY 2017. Total medical school research space at academic institutions has increased by 3.6 million NASF (7%) since FY 2013, although 91% of that growth (3.2 million NASF) occurred at public institutions.

Figure 2

Science and engineering research space in academic institutions, by control and medical school space: FYs 2013–23



NASF = net assignable square feet.

Note(s):

Details may not add to totals due to rounding.

Source(s):

National Center for Science and Engineering Statistics, Survey of Science and Engineering Research Facilities.

New Construction of Research Space

New research space is added each year through new construction projects, the repurposing of existing space, and occasional acquisitions. Similarly, some space is withdrawn from use through decommissioning and repurposing. As part of this process, academic institutions broke ground on 5.5 million NASF of new S&E research space construction projects in FYs 2022–23 ([table 2](#)), costing almost \$7.3 billion.³ Although some of the new construction was completed within this

time frame, some projects extended beyond FY 2023, so that research space was not yet in use. Projects designed for health sciences (1.3 million NASF) and engineering (1.3 million NASF) research accounted for 47% of new research space construction that started in FYs 2022–23. Over a quarter of the NASF of projects were for new research space in biological and biomedical sciences (16%) and physical sciences (11%).

Table 2

New construction of science and engineering research space in academic institutions, by field, medical school space, and time of construction: FYs 2012–25

(Net assignable square feet in millions)

Field	Started in FY 2012 or FY 2013	Started in FY 2014 or FY 2015	Started in FY 2016 or FY 2017	Started in FY 2018 or FY 2019	Started in FY 2020 or FY 2021	Started in FY 2022 or FY 2023	Planned to start in FY 2024 or FY 2025
All research space	6.6	5.1	6.7	5.6	4.0	5.5	12.9
Agricultural sciences	0.4	0.4	0.2	0.6	0.5	0.5	1.7
Biological and biomedical sciences	2.0	1.5	1.9	1.0	1.0	0.9	3.1
Computer and information sciences	0.2	0.1	0.3	0.2	0.2	0.5	0.5
Engineering	1.4	0.9	1.4	1.5	1.0	1.3	2.0
Geosciences, atmospheric sciences, and ocean sciences	0.2	0.2	0.1	0.1	0.1	0.2	0.3
Health sciences	1.6	1.0	1.4	1.3	0.6	1.3	3.7
Mathematics and statistics	*	*	*	*	0.1	*	0.3
Natural resources and conservation	na	*	0.1	*	0.1	*	0.1
Physical sciences	0.6	0.7	0.6	0.5	0.3	0.6	0.5
Psychology	*	0.1	0.1	*	*	*	0.1
Social sciences	0.1	*	0.2	*	0.1	0.1	0.1
Other fields of S&E	0.1	0.2	0.3	0.2	0.1	0.2	0.3
Medical school space ^a	1.3	0.8	0.9	0.9	0.5	1.2	3.3

* = value > 0 but < 50,000 net assignable square feet. na = not applicable; see notes below.

S&E = science and engineering.

^a Medical school space is listed separately and is also included in individual field totals.

Note(s):

In FY 2015, "Agricultural sciences and natural resources sciences" was split into "Agricultural sciences" and "Natural resources and conservation." Prior to FY 2015, data for "Natural resources and conservation" are included in "Agricultural sciences." Details may not add to totals due to rounding.

Source(s):

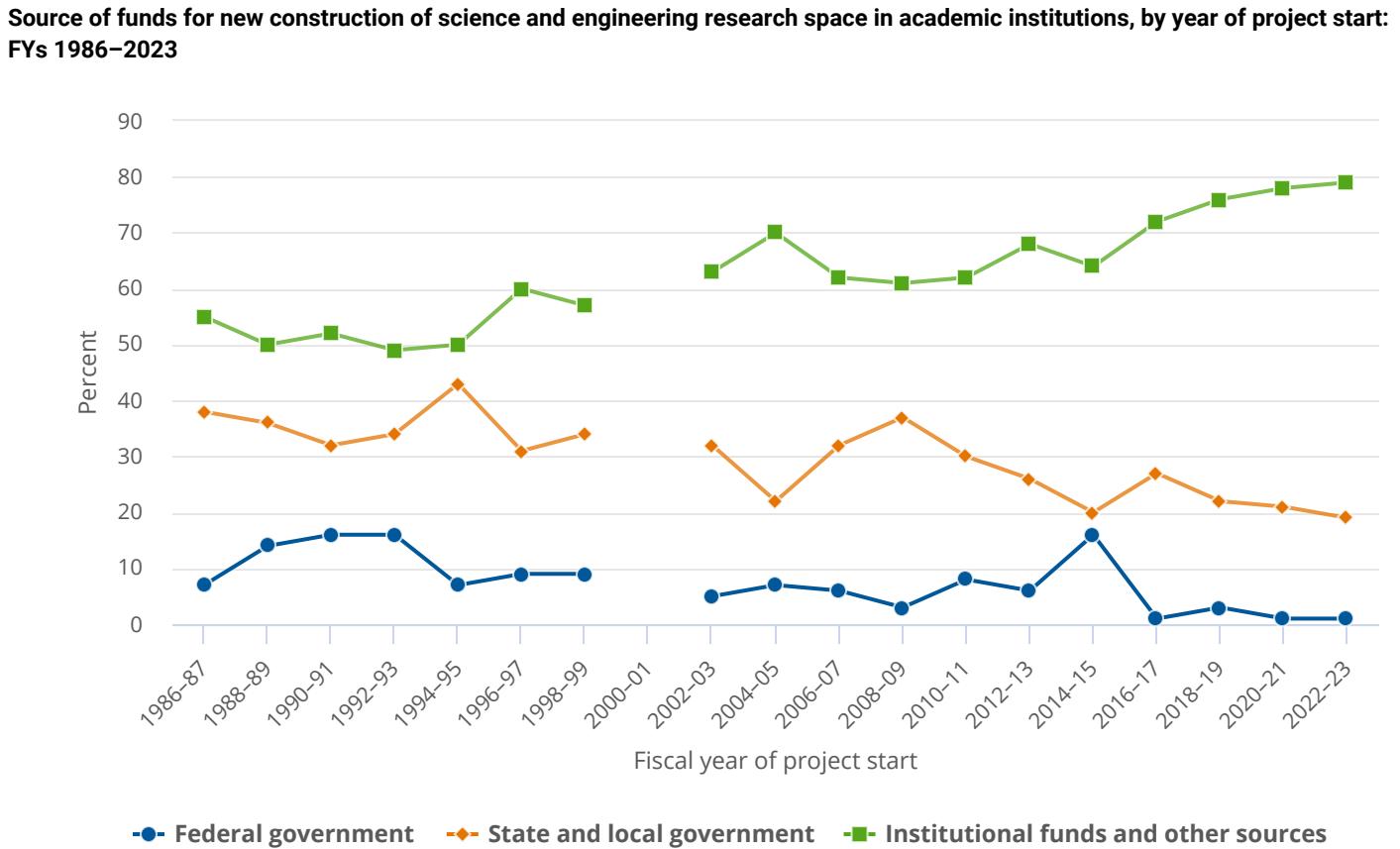
National Center for Science and Engineering Statistics, Survey of Science and Engineering Research Facilities.

U.S. universities and colleges reported that they planned to start 12.9 million NASF of new S&E research space construction in FY 2024 or FY 2025, with projected costs of \$17.4 billion. The planned NASF total is the highest since FYs 2008–09 (13.4 million NASF). From FYs 2012–13 to FYs 2022–23, total planned new construction was between 8.4 million NASF and 10.6 million NASF for each biennial period.⁴ Because institutions' budgets and priorities may change unexpectedly, not all planned projects are started during the projected time frame.

Most support for new construction of research space has been funded from institutional funds and other sources, which include operating funds, endowments, private donations, tax-exempt bonds and other debt financing, and indirect costs recovered from federal and nonfederal sources ([Figure 3](#)). From FYs 1986–87 to FYs 2010–11, state and local governments funded 30%–43% of new research construction, except for FYs 2004–05 when the share was 22%. State and local government funding has been at or near historical lows since FYs 2014–15, supporting from 19% to 27% of new

research construction costs. Federal government sources generally have provided a much lower proportion, under 10% for all years since FYs 1992–93, except for FYs 2014–15 (16%),⁵ and declining to 3% or less since FYs 2016–17. Conversely, institutional and other funding for new research space construction has remained historically high, reaching 79% in FYs 2022–23.

Figure 3



Note(s):

Details may not add to totals due to rounding. Institutional funds and other sources include an institution's operating funds, endowments, private donations, tax-exempt bonds and other debt financing, and indirect costs recovered from federal and nonfederal sources. The question on construction costs was not asked for FYs 2000–01; therefore, no data are reported here. Only construction projects costing over \$250,000 for a single field were reported for FYs 2002–23; construction projects costing over \$100,000 were reported in previous cycles.

Source(s):

National Center for Science and Engineering Statistics, Survey of Science and Engineering Research Facilities.

Repair and Renovation

Academic institutions expended \$6.6 billion on major repairs and renovations of S&E research space that started in FY 2022 or FY 2023 (table 3). Costs for research space improvements exceeded \$1 billion in biological and biomedical sciences (\$1.9 billion), health sciences (\$1.3 billion), engineering (\$1.0 billion), and physical sciences (\$1.0 billion). Combined, these four fields accounted for 81% of all research space repair and renovation costs. Five additional fields had research space improvement costs exceeding \$100 million: agricultural sciences (\$253 million); social sciences (\$224 million); psychology (\$191 million); geosciences, atmospheric sciences, and ocean sciences (\$175 million); and computer and information sciences (\$147 million).

Table 3**Costs for repair and renovation of science and engineering research space in academic institutions, by field and time of repair and renovation: FYs 2022–25**

(Costs in millions of dollars)

Field	Started in FY 2022 or FY 2023	Planned to start in FY 2024 or FY 2025	Deferred projects	
			Included in institutional plan	Not included in institutional plan
All research space	6,555.6	7,565.1	9,389.5	5,228.4
Agricultural sciences	252.9	545.3	532.6	201.1
Biological and biomedical sciences	1,937.8	2,308.1	2,279.4	1,177.9
Computer and information sciences	146.9	493.4	89.4	65.7
Engineering	1,040.2	932.9	2,011.8	1,112.7
Geosciences, atmospheric sciences, and ocean sciences	175.3	150.2	366.5	303.4
Health sciences	1,326.3	1,535.1	1,716.4	937.1
Mathematics and statistics	56.3	55.7	46.5	18.7
Natural resources and conservation	79.9	93.4	179.5	198.2
Physical sciences	1,026.3	966.0	1,328.7	673.3
Psychology	191.0	95.6	318.2	138.7
Social sciences	224.1	208.1	422.5	211.9
Other fields of S&E	98.5	181.2	98.1	189.7
Medical school space ^a	1,669.0	2,026.6	2,066.7	1,157.0

S&E = science and engineering.

^a Medical school space is listed separately and is also included in individual field totals.**Note(s):**

Deferred projects are those that (1) are not funded and (2) are not scheduled for FY 2024 or FY 2025. Details may not add to totals due to rounding.

Source(s):

National Center for Science and Engineering Statistics, Survey of Science and Engineering Research Facilities, FY 2023.

Institutions anticipated \$7.6 billion in costs for planned repairs and renovations with start dates in FY 2024 or FY 2025. They expected to spend more than \$2.3 billion improving research space in biological and biomedical sciences and \$1.5 billion for improvements in health sciences research space. Research space in physical sciences (\$966 million) and engineering (\$933 million) is also slated for major repairs and renovations. In addition, institutions reported \$9.4 billion in deferred repair and renovation projects included in their institutional plans, as well as \$5.2 billion not included in their institutional plans. These deferred projects were not funded and not scheduled to begin before FY 2026.

Research Space at the Largest Institutions

Of the 602 institutions surveyed, the top 30 institutions ranked by total S&E research NASF accounted for 34% of all research space in FY 2023 ([table 4](#)). This is in line with the share for the top 30 (although not necessarily the same 30 institutions) reported in recent years. In FY 2023, the top 30 institutions accounted for 54% of all research space in agricultural sciences. They also comprised a large percentage of total academic S&E research space in natural resources and conservation (40%), health sciences (36%), engineering (35%), and social sciences (35%). These institutions accounted for less than 30% of the nation's S&E research space in the six other major fields: mathematics and statistics (27%); biological and biomedical sciences (27%); physical sciences (27%); geosciences, atmospheric sciences, and ocean sciences (25%); psychology (23%); and computer and information sciences (21%).⁶

Table 4**Thirty institutions reporting the most FY 2023 science and engineering research space in all fields: FYs 2019 to 2023**

(Net assignable square feet in thousands)

Institution	Rank	FY 2019	FY 2021	FY 2023
All institutions	-	226,922	236,097	240,156
Leading 30 institutions for FY 2023	-	78,997	81,976	81,803
U. Georgia	1	3,945	3,969	3,978
U. Florida ^a	2	4,253	4,901	3,884
U. Minnesota, Twin Cities	3	3,763	3,712	3,765
Johns Hopkins U.	4	2,978	3,443	3,704
U. Illinois, Urbana-Champaign	5	3,080	3,166	3,312
Texas A&M U., College Station and Health Science Center	6	3,101	3,320	3,293
U. California, Davis	7	3,089	3,108	3,244
U. Wisconsin-Madison	8	3,111	3,272	3,240
Ohio State U.	9	3,015	3,067	3,079
U. California, Los Angeles	10	2,918	2,860	2,877
North Carolina State U.	11	2,575	2,745	2,764
U. California, Berkeley	12	2,408	2,398	2,708
Georgia Institute of Technology	13	2,830	2,687	2,704
U. California, San Diego	14	2,951	2,895	2,659
Michigan State U.	15	2,814	2,678	2,620
Pennsylvania State U., University Park and Hershey Medical Center	16	2,420	2,444	2,611
Yale U.	17	2,447	2,523	2,590
Harvard U.	18	2,416	2,520	2,548
Northwestern U.	19	1,173	2,471	2,479
U. Kentucky	20	2,700	2,707	2,477
Purdue U., West Lafayette	21	1,567	2,204	2,355
U. Nebraska, Lincoln and Medical Center ^b	22	na	na	2,283
Mississippi State U.	23	2,177	2,191	2,251
U. Washington, Seattle	24	2,135	2,142	2,246
Washington State U.	25	2,259	2,332	2,174
Columbia U. in the City of New York	26	2,006	2,070	2,066
U. Michigan, Ann Arbor	27	1,905	1,882	2,054
Cornell U.	28	1,994	2,117	1,956
U. California, San Francisco	29	1,898	1,861	1,947
U. Pennsylvania	30	1,869	1,867	1,935

na = not applicable; institution did not exist or did not exist as a separate entity.

^a The University of Florida improved their space accounting systems, which contributed to their lower total research space in FY 2023.^b Beginning in FY 2023, the University of Nebraska Lincoln and University of Nebraska Medical Center campuses reported together. Prior to FY 2023, these campuses reported separately.**Note(s):**

The leading 30 institutions reflect the totals for FY 2023. Some institutions may not have been in the top 30 prior to FY 2023. Details may not add to totals due to rounding.

Source(s):

National Center for Science and Engineering Statistics, Survey of Science and Engineering Research Facilities.

Data Sources and Availability

The data presented in this InfoBrief were obtained from the Survey of Science and Engineering Research Facilities, conducted by NCSES within the U.S. National Science Foundation. The survey is a census of 602 colleges and universities that expended at least \$1 million in S&E research and development funds in FY 2022. The response rate for this survey was 96%. For more details see the [survey description](#).

The full set of data tables and technical notes are available in *Science and Engineering Research Facilities: Fiscal Year 2023* at <https://ncses.nsf.gov/surveys/science-engineering-research-facilities/2023#data>. Data for the survey are also available in the NCSES data tools (<https://ncsesdata.nsf.gov/home/>). Please contact the Survey Manager for more information.

NCSES has reviewed this product for unauthorized disclosure of confidential information and approved its release (NCSES-DRN24-061).

Definitions

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

Research space is the NASF of space in buildings within which research activities take place. Research facilities are located within buildings. A building is a roofed structure for permanent or temporary shelter of persons, animals, plants, materials, or equipment. Structures should be included if they are (1) attached to a foundation, (2) roofed, (3) serviced by a utility, exclusive of lighting, and (4) a source of significant maintenance and repair activities.

Notes

- 1 For details on academic research and development (R&D) expenditures see the Higher Education Research and Development (HERD) Survey data tables and InfoBriefs at <https://ncses.nsf.gov/surveys/higher-education-research-development>. The HERD Survey collects data for S&E and non-S&E R&D fields.
- 2 During each cycle, some universities improve their space accounting systems through new software systems, better coding, or advanced space surveys. This occasionally results in substantial changes, both higher and lower, of research space totals at individual universities. This occurred in FY 2023, most notably with the University of Florida, which reported a decrease of 1 million total NASF from FY 2021. Around 1 million NASF of the decrease was in agricultural sciences and 300 thousand NASF in health sciences research space. The University of Florida also purchased Scripps Research Institute in Jupiter Florida on 1 April 2022, which contributed to almost 500 thousand more NASF of research space in the field of biological and biomedical sciences at the university.
- 3 Data on costs for new construction of S&E research space are available in data tables 12 through 17 in the [full set of data tables](#).
- 4 Academic institutions reported planned new S&E research space construction in previous surveys for the following 2-year periods: 2008–09 (13.4 million NASF), 2010–11 (10.2 million NASF), 2012–13 (8.4 million NASF), 2014–15 (8.8 million NASF), 2016–17 (9.6 million NASF), 2018–19 (9.4 million NASF), 2020–21 (10.1 million NASF), and 2022–23 (10.6 million NASF). Data are available for costs of planned new construction projects for each biennial period in data tables from 2001 to 2021 at <https://www.nsf.gov/statistics/srvyfacilities-legacy/>.
- 5 The federal government provided 16% of the anticipated completion costs for new S&E research space construction in FYs 2014–15. Although the \$905 million of federal support was the highest total since data collection began in FYs 1986–87, over 60% of that funding was for the Facility for Rare Isotope Beams at Michigan State University. The facility was completed in 2022.
- 6 Data on institutional rankings by field are available in data table 3 in the [full set of data tables](#).

Suggested Citation

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