94

6 Burns Street,
Forest Hills 75, N.Y.

June 30, 1956

Dean X
School of Architecture
X University

Dear Dean X:

Mr. Fuller would be very pleased to accept an invitation from the X University School of Architecture to conduct a project.

The dates that are available are from _____ through _____.

In answering your inquiries about Mr. Fuller's possible visit to X University, we would like to review the work, problems, philosophy and strategy of Mr. Fuller: - the nineteen year Dymaxion phase initiated by him in 1927; the Fuller Research Foundation, incorporated in Delaware in 1946; and the recent ten year series of Fuller Projects at universities and colleges, inaugurated in June 1946.

Mr. Fuller visits universities and colleges only when the invitation to do so originates spontaneously from within the respective institutions. He has never suggested such visits. He requires this spontaneity not only of university invitations, but also of any and all acquirers of his developments, e.g., the Ford Motor Company, the United States Marine Corps, the U.S. Air Force, and others who have sought him out and asked for his help. He in no way sought them.

Mr. Fuller accepts university and college invitations only on the basis that he be allowed to continue on campus his exploratory development of synergetic-energetic geometry and its applications to industry by a discipline which he invented and named "Comprehensive, Anticipatory Design Science", all of which continuity he initiated in 1927 and all of which initiative he has since maintained.

He also requires assurance that the university or college will waive all "shop-rights" claims to any inventions which he may disclose or bring into visible development while fulfilling his engagement. This agreement is necessary in order to protect his interests and prerogatives and to guarantee the integrity of his personal control of his continuing search.

During his visit Mr. Fuller makes formally available for class time his mornings from 9 to 12, or his afternoons from 2 to 5, five days a week Monday through Friday. However, he often meets voluntarily with the students and faculty during other hours of the day, evenings, or weekends. He requires that he be left free in the formulation of his program and the conduct of his classes, within the formal time and calendar schedules elected by the universities as stated above.

He is always willing to give two public lectures on behalf of the university. However, any requests for his appearance on programs outside of the department of the university where he is lecturing must be referred to him directly as sole arbiter of the acceptance and its terms. His general policy, when he can afford the time or money, is to contribute his effort and exploratory-credit-momentum to whatever enhancement it might bring the respective universities' community, professional and national prestige.

He reserves all publishing rights (written, tape-recorded, transcribed, photographed, filmed, televised, or in any way recorded) of his public or private lectures, developmental programs and their products.

As a result of his vigorously maintained integrity of control, Mr. Fuller has shown that during his university and college engagements that he and those associated with him can within days demonstrate unique, unprecedented - yet efficient - physical, working solutions for hitherto stubborn contemporary problems of industrial society by conducting a design-science enterprise and applying thereto his comprehensive and minimum family of Industrial Logistics Principles which includes the disciplines of synergetic-energetic geometry and his Airocean World's economic geography, and his energetic environment valving. (See R.B. Fuller's essay "Designing a New Industry", 1946.)

Within the short university visits he develops "true" - i.e. operative - generalized prototype structures, actually suitable, with a few special modifications, for advanced industrial mass-reproduction and distribution.

The projects include complete documentation in tape recordings, diary, strategy arguments, drawings, mathematical formulae, and a detailed report which includes actual cost accounting, purchase specifications and latest industrial product and service sources. The project's public relations members have tasks designed to educate the neighboring students, the university in general and the public at large regarding specific, unique facts characterizing the undertaking. Mr. Fuller makes available to them his wide acquaintance and growing credit within the publishing world. (See "Dymaxion Index - 1927-1956".)

In order that the students may be properly oriented historically, economically, technically and psychologically, Mr. Fuller must give approximately fifty hours of lectures and experimental demonstrations during a four week project (See "Universal Requirements of a Scientific Dwelling Advantage" by R.B. Fuller, 1927.)

But a project resulting in a new, mass needed, desirable and producible prototype for world-around industry is predicated upon much more than lectures (See "The Comprehensive Designer" by R.B. Fuller, 1950.) Mr. Fuller and those working with him each dedicate a minimum of fifty to one hundred hours every week throughout an undertaking. The result is a high-speed integration of talent, techniques, and latest developments in nation-wide resources - all brought to focus in a new industrially reproducible prototype of Mr. Fuller's latest invention disclosure at the respective universities.

As Mr. Fuller's design decisions are unprecedented they require mathematical calculations, fortifying tests, and highly specialized advice by university and industrial authorities.

Long distance telephoning, telegraphing, and air express are essential tools. For example, at the North Carolina State College Fuller Project, January 1954, the telephone communication costs bettered $300, but brought industry participation in materials donated and usually air delivered, valued at $6,000 for this one project. Technical representatives of Bakelite Company and Container Corporation of America joined Mr. Fuller's staff in attending the project. Colonel H. C. Lane, Head, Aviation logistics and Materiel Branch, Headquarters, United States Marine Corps, was official observer for the Department of Defense.

In order that the students of a COMPREHENSIVE, ANTICIPATORY DESIGN-SCIENCE ENTERPRISE may operate as an immediately effective team, Mr. Fuller requires that the students at outset elect from their group a coordinator and an assistant coordinator, and arrange the themselves progressively and interchangeably into the following "aircraft industry" functions:

mathematics
drafting
purchasing
accounting
materials handling
stress engineering
production engineering
expediting
sub-assembly and general assembly installations
packaging
contiguous chemical, stress and methods experiments
secretary of the enterprise
treasurer of the enterprise
internal public relations
external public relations

Superficial misconception is readily developed in respect to Mr. Fuller's unprecedented projects. This is born of his effort to give the student the maximum opportunity in direct realistic challenges. It must be remembered that his university project Geodesic domes - sometimes of 1200 sq. ft. clearspan floor space, and proof against maximum hostile environment behaviors - are, for instance, manufactured and erected within one week at a university only because Mr. Fuller has an experience-fertilized and a philosophy-gestated thirty-year backlog of hitherto unpublished, progressively evoluting, teleologic design inventions in his mental inventory as solutions for a wide family of previously unconquered socio-economic problems. He can therefore make extemporaneous exposure of both his comprehensive and detailed problem statement and design-science strategy in respect to his mentally inventoried and as yet unheralded complex inventions as appropriate to the occasion. He always designs his university and other projects comprehensively and thus eliminates any chance of decision-vacillating delays in fulfillment of his tightly designed commitments within the exquisitely short periods available to the solutions - usually one week to six weeks, with two weeks or more preferable.

It is to be noted that in assigning the students their departmentalized aircraft industry functions for the high-speed teleologic realization of a project, that Mr. Fuller very specifically calls to the students' attentions that there is no "design" department, and those who will go to the drawing boards will do so only in order to document the comprehensive and detailed complex design invention which Mr. Fuller gives them. The satisfactory freshness of his design to them lies only in the fact that this particular unique integration of principles and evoluting industrial resources has never before been physically visualized and realized.

It is also Mr. Fuller's invariable practice to include in his briefing of the students an outline history and contemporary review of patent law developments and the unique relationship of the Letters Patent to the effective functioning of the individual within the complexities of world integrating industrial economics. The Letters Patent constitute the only means of balancing the time and experience invested by the individual on his own initiative on behalf of the commonwealth.

Mr. Fuller then informs the students of his personal proprietorship of a number of patents and also of his common law rights and protection in relation to his developing inventions, and in relation to any of his inventions which he may disclose to the students in connection with the solution of the problem which he is about to present and solve for them. He then asks them to affirm to him their intention to respect his rights and to protect him when he makes invention disclosure to them so that he may feel free to admit them to a true industrial frontier prototype birth, gestatively timed to that moment in history. So far the students have always confirmed their willingness to respect and protect his inventions and the whole procedure is usually tape-recorded. If they are not willing, Mr. Fuller would have to present a non-invention-containing, and therefore vitiated, problem.

Inasmuch as Mr. Fuller has no interest whatsoever in routinely repetitive curricula, there would be no problem and he would have to leave the school or return to a program consisting only of exploratory lecturing.

It is reasonable to suppose that many of the students might wish to take later professional advantage of the specific technical knowledge they gain while studying with Mr. Fuller, by applying that knowledge to their own special design and production of modified versions of his patented Geodesic structures. Mr. Fuller therefore promises his students that when one of them who has completed one of his seminars in a satisfactory manner, makes specific application to him that he will grant the student - or former student - a special license to produce one Geodesic or Octetruss structure at a time, which license is non-transferable, but is renewable in each specific instance, so long as the work performed under the license by each of the individuals comes up to standards of performance maintained by Mr. Fuller and of which he is to be the sole judge.

This license taking may be likened to the process of obtaining a building permit from a building authority. It requires payment to Mr. Fuller of a nominal royalty fee, appropriate to the scale of economic advantage attained by the Geodesic or Octetruss undertaking over conventional methods.

The magnitude of a university undertaking - where a university wishes specifically that Mr. Fuller's visit shall eventuate in an industrial prototyping - depends upon the amount of time and money which a university decides to commit; otherwise the decision rests entirely with Mr. Fuller and whether he wishes to invest his own funds for that purpose. The record of the past nine years during which Mr. Fuller has been conducting such prototyping at the universities shows that $2,000 is the desirable minimum which should be budgeted for communication, overhead, materials, tooling, etc. Projects have been successfully developed on a lower budget, however.

When a university decides to pay the cash expenses of the production prototype, the prototype model itself, but not its reproduction rights, belongs to and remains at the university.

It is a basic condition of his problem disclosures at the universities - to which he calls every participant's advanced attention - that the reproduction rights always remain the exclusive property of Mr. Fuller.

When Mr. Fuller pays the cash expenses of the prototype, the model as well as the reproduction rights belong exclusively to him and he may move the model or the university may require that he move it from the campus.

In order to demonstrate the evolutionary significance of Mr. Fuller's work, the following resume is given of the growing acceptance by society of his individual efforts:

Twenty-nine years ago Mr. Fuller adopted certain self-discovered principles for integrating the effectiveness of high-priority science, technology and industry in solution of the shelter economics of an Airocean World.

After nineteen years of full scale experiments and publication of their results, Mr. Fuller's principles won tentative academic support ten years ago.

This led in 1952 to the initial full scale acceptance of Mr. Fuller and his principles by industry as represented by the Ford Motor Company for whom - on their spontaneous initiative and invitation - he produced their Rotunda's clearspan Geodesic dome at Dearborn, Michigan. This dome was produced with 1/29th the structural weight, 1/4th the dollars, and 1/10th the time investment of best previous engineering solutions for equivalent problems.

Though the United States Government as represented by the Air Force manifested interest seven years ago in Mr. Fuller's principles as applied to structures, when General Grandison Gardner invited Mr. Fuller to install one of his Geodesic domes in the Pentagon Garden in February 1949 (which Mr. Fuller installed in four hours by himself with the partial aid of one passer-by); though the Navy Department manifested interest in his work five years ago in 1951 when they invited him to furnish a proposal for a Geodesic Arctic maintenance hangar; and though a Department of Defense agency four years ago in 1952 asked Mr. Fuller to submit a design for a rigid plastic dome to enclose radar equipment - it was not until the economic validity of these principles had been dramatically demonstrated by Mr. Fuller in the successful completion of the Ford Rotunda Dome in May 1953, that the United States Government and its Department of Defense representatives - despite their earlier competent conceptioning of the Geodesic structures' logistic potentials - could hope to enlist budgetary procurement of Geodesic structures by the due process of democratic government authority.

In October 1953, Major - now Lt. Colonel - W. L. Woodruff, U.S. Marine Corps, telegraphed and wrote Mr. Fuller at Princeton University asking for an appointment for Colonel H. C. Lane, Head, Logistics and Materiel Branch, Division of Aviation, Headquarters, U.S. Marine Corps, and in January 1954 Colonel Lane and Major Woodruff sought out Mr. Fuller at Raleigh, North Carolina, and asked him to apply his patented principles and inventions to the solution of Marine Corps problems. (See (1) preliminary "Informal Report on a Study of Requirements and Design of Shelters of Marine Aviation Advanced Bases", February 1954; (2) interim report "U.S. Marine Corps Light-Weight Shelter Study", August 1954; and (3) "Final Report: A Study of Shelter Logistics for Marine Corps Aviation", June 1955.)

As of the summer of 1955, Mr. Fuller and his associates in his company Geodesics, Inc. and his company Synergetics, Inc., and his associates of the Fuller Research Foundation, had demonstrated Geodesic structures providing such spectacular advantages that the Marine Corps Final Report on evaluation of Geodesic structures concluded that this "is the first major basic improvement in mobile military shelters in the past 2600 years". (See enclosed reprint Army-Navy-Air Force JOURNAL, July 2, 1955, and Navy TIMES, July 9, 1955.)

As of the summer of 1956, Mr. Fuller and his companies have realized the following:

(1) Geodesic structures as the U.S. Air Force's controlled environments guarding the physics of our northernmost continental perimeter's early warning radar system - called the DEW Line;

(2) Geodesic structures as the controlled environments of certain of the International Geophysical Year's South Polar activities;

(3) Geodesic structures as the controlled environments guarding the hot-front mechanics of the U.S. Marine Corps Aviation's half-way-around-the-world "contacts" should a retaliatory offensive be triggered;

(4) Geodesic structures as the controlled environments of our "hottest" cold war frontier outposts in Afghanistan and Turkey as the U.S. Commerce and State Departments' battle for the spontaneous self-enrollment in democracy of the world's next two billion customers.

It is the expressed opinion of those versed in industrial and government research and development projects that in order for an industrial corporation or a government agency to achieve results equivalent to those accomplished by Mr. Fuller in his university conducted design-science enterprises, such corporation or government agency would at minimum have to budget a year's time and $250,000 for any one of Fuller's university Projects.

Explanation is that the flexibility of initiative in "random element" operations such as those of Mr. Fuller need not pay the price of "cautious responsibility" imposed by the checks and balances of large organizations.

In 1934, Walter Chrysler pointed out that Fuller, as sole authority in his project, developed what he, Fuller, wished to develop, and not a bureaucratic compromise of the design itself. Walter Chrysler said that what he had wanted to develop was what Fuller succeeded in developing, to wit, the Dymaxion Transport - whereas what Walter Chrysler got from his corporation's development of the same initial objective as Fuller's, was the hodge-podge Chrysler 1934 "Airflow".

Chrysler, after careful survey in 1934 of three of Fuller's Dymaxion 4-D (Four Dimensional) Transports also stated that they would have cost the Chrysler Corporation or any other large automobile manufacturer, three times as much in dollars and would have required six times longer to develop.

Colonel Lane said that the ratios of cost, time, and technical advantages accruing to Mr. Fuller's individual developments are even more favorable in the case of their comparison to prototype and development work when conducted by government agencies, and also when compared to the work as conducted by large private corporations.

Quite obviously the economic, technical and educational advantages accruing to the Fuller projects at universities are not alone because of the fact that he operates as an individual. It is clear that as an individual he could develop a fiasco in equally swift order, had he not a unique resource of profitable experience in such undertakings. Prime constitutes of the advantages realized to date at Fuller conducted university and college projects are the following:

(1) Mr. Fuller's third-of-a-century prototyping experience

(2) dedicated student hours

(3) access to general university facilities

(4) rapid access to industrial support within the larger pattern of Mr. Fuller's personal friends and industrial acquaintances and his working associates outside of any one university

(5) a travelling office comprising unique technical files and special tools

(6) maintenance of long distance liaison with other Fuller Research Foundation branches in the USA and other countries

(7) maintenance of liaison with other continuing Fuller university projects. For example, four Tulane University students flew from New Orleans, La., to Raleigh, North Carolina, in a special plane for a day's cross-fertilization with Fuller project students of North Carolina State College concerning polyester fiberglass production methods. (Such information was not available as student experience at any university in the country at that time except in Fuller projects.)

(8) maintenance of liaison with swiftly developing technical and scientific resources of Mr. Fuller's two research and development companies: Geodesics, Inc., which provides modification of off-the-shelf Geodesic and Octet Truss structures for government agencies, and Synergetics, Inc. which provides the same for commercial and private uses.

As a result of experience to date it is evident:

(1) that the time Mr. Fuller puts in at any one university in one month is so concentrated that it is the equivalent in hours to full term course, and therefore the students' schedules should at year's outset be arranged to reduce conflicts with his visits.

(2) that the aftermath of a project be anticipated and the desire of many of the students to continue study be provided for in the regular curricula.

If any of the students or faculty who participated in one of Mr. Fuller's university projects wishes to carry on further research in any of the exploratory strategies initiated by Mr. Fuller, such as synergetic-energetic geometry, or experimental Geodesic, Discontinuous Compression Continuous Tension, or Octetruss structures, or Dymaxion topological transformation cartography, or teleologic design process measurement and charting, etc., etc., he, or they, may do so under the auspices of the Fuller Research Foundation which was established for this and other purposes. If the activity is to be carried on by a well qualified individual or group, a branch of the Fuller Research Foundation may be established in his, or their, locality - and possibly at or within the university - by special arrangement with Mr. Fuller. Such branches of the F.R.F. receive basic data files and are periodically informed of any important developments taking place in any other branches, or at Mr. Fuller's university projects, or within the increasing activities of Geodesics, Inc. and Synergetics, Inc.

Because of constantly changing world around resource conditions and changing scientific and technical relationships, the backlog of Mr. Fuller's "desirable" developments as matched with the unpredictable spontaneous invitation "opportunities" of Mr. Fuller's controlled experimentation, it is difficult to determine in advance which specific projects will have priority of development at the respective universities.

Mr. Fuller spends on an average - out of his own pocket - a gross minimum of $35,000 per year in continuing and expanding his search under field conditions. He has been "at home" less than six months in the last four years. The continuation of his work under the increasingly arduous schedule requires the following gross fees from a university or college (which fees do not include whatever funds the university or college may wish to budget for materials and other project expenses):

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|---|---|
| one day | $ 500. |
| one week | 1,100. |
| two weeks | 1,800. |
| three weeks | 2.500. |
| four weeks | 3,000. |
| five weeks | 3,600. |
| six weeks | 4,250. |

To the above must be added his travel expenses computed at ten cents a mile from New York or last headquarters.

Net of this letter dollar-wise is that Mr. Fuller's fees are graduated relative to length of visits; the amount a university wishes to invest in a project is optional; and industry participation is unpredictable but tending to increase.

In some instances when Mr. Fuller is invited to speak or to conduct a project, it may be that the financial ability of those asking will not permit payment of his total prorated overhead. His acceptance of an invitation under these special circumstances must of economic necessity represent a direct gift from him to the participants of such occasion in the amount of whatever portion of his overhead cost the sponsors are unable to underwrite. In these instances we request that the institution make payment in full for his basic cost charge and we then issue Mr. Fuller's check of donation of the net amount which he is giving, made payable to that institution.

Faithfully yours,

John Dixon
Assistant to Buckminster Fuller

Enclosures