draft

THE DESIGN FOR SIMON FRASER UNIVERSITY

AND THE PROBLEMS ACCOMPANYING EXCELLENCE

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I have tried in this study to deal with all aspects of Simon Fraser University (SFU) that had architectural consequences. Educational philosophy, institutional history, and biography need to be considered to an unusual extent for an architectural history because they had highly significant architectural consequences. SFU was intended to offer alternatives, and it did. Most small colleges start by attempting to meet the minimal requirements of accreditation as quickly as possible. From the start SFU intended to be a full-scale university which set standards rather than followed them.

While trying to attract a professor to SFU, Chancellor Gordon M. Shrum wrote, "...we are starting a large university from scratch. This has seldom, if ever, been attempted in Canada before." [Letter to B. N. Brockhouse, Jan. 22, 1964; Shrum Papers.] The creation of SFU thus provided an opportunity for an educational experiment and for an architectural experiment, and even though it is one of Canada's newest universities, it has been repeatedly named by MacLean's magazine as Canada's best university. SFU's architecture and site have been major factors in attracting faculty and students. Much of the educational
philosophy reflected in the architecture has continued to prove its effectiveness.

In its Progress Report dated February 15, 1966, Erickson/Massey wrote "we have attempted in this Report to explain why the University is the way it is...." I have attempted to do the same thing even more fully. In the same report, they wrote "excellence cannot be achieved without difficulty but it has been our experience that the problems accompanying excellence which at the time seem large are soon forgotten, whereas standards are enduring." [Progress Report, Section B-3, p. 1.] I have also tried to show what is excellent about SFU and why it is excellent and how it could be still become as excellent as it was intended to be.

This is also a book about the turmoil in education in the 1960s. This period marked the end of unquestioned authority--not the end of authority, but the end of its right not to be questioned. An integral part of the history of the creation of SFU is that architects and faculty were treated like students and that students were treated like children. Problems were solved by getting rid of the people who caused them, and this included the architects. It was the end of the way thing had been up until that time, and SFU provides an usually extreme and well documented example of which indicated a great deal about what education and architectural design were like before and after this major change in relationships between administrators and everyone else.
I have limited this study to the period from 1963 to 1969—from the competition for the design of SFU that resulted in the design of Erickson and Massey being chosen to the end of Erickson/Massey's direct involvement in the design. Afterwards, buildings began to be added which partly or wholly ignored the plan "adopted" to construct the university. About two-thirds of it was constructed closely following the winning design, and the remaining third, the residential, area had largely never been completed, but still could be. To encourage its completion has been one of my principal reasons for attempting to explain the importance of the concepts and the excellence of what was accomplished.

Acknowledgements: A comprehensive study of the Erickson/Massey design of SFU would not be possible without the nearly complete records which have been preserved in three archives. Nearly all of the approximately 700 surviving original design drawings by Erickson/Massey are in the Architectural Archives of the Canadian Centre for Architecture (CCA). Robert Desaulnier, Head Archivist, and Mourade Dieye Gueye, Processing Archivist, have provided access to this material and arranged for photography.

Nearly all of the correspondence between architects is in the Erickson Papers at the Canadian Architectural Archives in the University Library at the University of Calgary (CAA). This collection also contains an essentially complete set of blueprints of working drawings by all five of the prize-winning
firms. This correspondence and the approximately 1,400 drawings relating to SFU have been essential for determining why the buildings were designed as they were and the credit which belongs to all five firms. Linda Fraser's complete cooperation and her carefully compiled finding aids helped immensely to locate relevant material within the 20,000 drawings and 55 meters of files relating to over 200 projects by Erickson/Massey and Erickson prior to 1976.

The records of SFU are also readily accessible in its University Archives in Burnaby, and these include Board Minutes, the first Chancellor's Papers (Gordon M. Shrum), an extensive collection of photographs of buildings under construction, original drawings by the firms of Harrison and Kiss, and manuscript material from the firm of Rhone & Iredale. Access to these records was provided by Frances Fournier and Enid Britt.

A comprehensive set of blueprints of SFU buildings as completed are in SFU's Facilities Management. Since this set includes drawings for all post-1969 buildings as well as the earlier buildings, it is the best single source for architectural information on the final form of all buildings on the campus. This information was made available to me by Lou Caruso and James Atamanchuk.

In most cases I have been able to base this book on primary sources created at the time the buildings were being designed and constructed. There have been questions, though, which only the architects themselves could answer, and I have had the full
cooperation of at least one principal from each of the five firms which worked together in the first phase of the design and construction: Arthur Erickson, Geoffrey Massey, Randle Iredale, Zoltan Kiss, Robert F. Harrison, and Duncan McNab. I have also interviewed two architects who helped to prepare the prize-winning design by Erickson and Massey and who helped to prepare working drawings for Erickson/Massey: Ron Bain and Ken Burroughs.

Although the first Chancellor, Gordon M. Shrum, died in 1985, he was interviewed about SFU before his death for an oral autobiography, and a complete transcript of the interviews exists in the SFU Archives. His son, Gordon B. Shrum, was a member of the law firm which provided legal opinions to SFU during the period of initial construction, and he provided information which helped to me understand the immense influence Shrum had on all aspects of the university which he initially created single-handedly. Gordon B. Shrum also contributed to the CCA two copies of the extremely rare Assessors Report so that all ten of the top prize-winning designs could be included in the exhibition and represented in the CCA's collection. Shrum's daughter, Laurna Jane (Mrs. Ian) Strang, had files on SFU which she contributed to the SFU archives, and these filled a crucial gap in its records.

I am also grateful to other individuals who allowed me to interview them: Leslie R. Peterson, the Minister of Education at the time SFU was created; Herbert L. McDonald, the photographer who documented Phase I construction and who arranged for me to
interview Peterson; Doris (Mrs. Duncan) McNab, who was one of SFU's first students; and Roger Ward, SFU's present Vice-President for Finance and Administration.

I am also especially grateful to Rhodri Windsor-Liscombe for suggesting to Nicholas Olsberg that I should write this book and for answering numerous questions about architecture in Vancouver. I am grateful to Nicholas for urging me to prepare an exhibition and catalogue and to Phyllis Lambert for approving the proposal and for suggesting that its scope be expanded. Helen Malkin coordinated the exhibition, and Dina Coppola provided valued assistance. Christine Dufresne coordinated the production of the catalogue.

The documentation of SFU is so complete during its first seven years that one of the major difficulties was in going through it all and selecting what most deserved to be discussed. It includes a large number of articles written about the university, a tremendous amount written by and about Erickson, and innumerable clippings on SFU as well as all the manuscript material. I found over 2,000 pages of information which I felt needed to be carefully read, and I also made notes on thousands of additional pages.

Initially, I proposed covering only Phase I of SFU's design (1963-1965) in a catalogue with about 100 pages of typed text, but the material is so good and so complete that I decided I wanted to show how so much excellence was accomplished and why more was not accomplished when it easily could have been.
ABBREVIATIONS


Board Minutes--Minutes of the Board of Governors, Simon Fraser University (SFU Archives, fonds 33-1)

BSC Minutes--Minutes of the Buildings and Site Committee, SFU (appended to the Board Minutes)

CAA--Canadian Architectural Archives, Library, University of Calgary, Calgary

CCA--Canadian Centre for Architecture/Centre Canadien d'Architecture, Montreal/Montréal

Development Plan--Erickson/Massey, Simon Fraser University Development Plan (Sept. 1963)


Shrum Papers--Papers of Chancellor Gordon M. Shrum, SFU Archives

SFU--Simon Fraser University, Burnaby

Sun--Vancouver Sun (newspaper)

UBC--University of British Columbia, Vancouver
In 1945-1946 attendance in British Columbia Schools was 114,590, and by 1963 it had tripled to 348,472. [Rhodri Windsor Liscombe, *New Spirit: Modern Architecture in Vancouver, 1938-1963* (Montréal and Vancouver, 1997), 75.] In the 1960s the need for new institutions of higher learning also tripled. Everyone involved in education knew that a greater number of students would need to receive higher education, but with so great a demand for new elementary and secondary schools, the expansion of college facilities was put off as long as possible. Consequently, everything about SFU (fig. 1A) required last minute decisions.

By 1965, when SFU opened, Canada was building two new universities a year. In the previous seven years, college enrolment had almost doubled, and in the following ten years it would more than double again. In 1965 Canada's 41 existing colleges and universities and the new institutions being created were costing about $350 million annually to construct. [Time (Apr. 23, 1965), 66.] The $18 million spent to create SFU from 1963-1965 was a small part of the entire amount being spent, but SFU was not just another university.
1. The Need For Another University

In 1962 John B. Macdonald (fig. 1B), the new President of the University of British Columbia (UBC), learned that the increasingly large number of students who were qualified to attend college could not be accommodated at the only university in the province. He wrote a book entitled *Higher Education in British Columbia and a Plan for the Future*, and in it he demonstrated through convincing statistics that the problem was urgent and that it could only be solved by the creation of additional institutions of higher education. [Macdonald became President of UBC in July 1962. He had previously been at the Forsyth Dental Laboratory of Harvard University (Stainsby, "Instant University," *Saturday Night* 79 (Mar. 1964), 17). He showed that too many students would soon love too far from UBC to commute to it and that colleges would need to be built near new centers of population. [It was taken for granted that most students in BC would need to commute, and in 1963 Gordon M. Shrum noted that 75 percent of all families in BC had incomes of less than $5,000 a year and could not afford to pay for dormitory accommodations. He noted that "...they produce at least their fair share of the top students in our schools." (Statement prepared for the Chronicle, Alumni Association of UBC, May 8, 1963).] Macdonald argued that the best solution for the immediate future was to create a new college in the vicinity of Burnaby, the center of the most rapidly expanding population in the province. He showed that this new college needed to open in
two years.

The Macdonald Report was published on January 28, 1963, and as Macdonald indicates, his recommendations were based very substantially on a number of thorough reports which had been previously prepared by the faculty of UBC. [The title page of the Macdonald Report is dated 1962, and the preface is dated December 1962. The book production took longer than expected, and the actual date of publication is noted in Stainsby, "Instant University," 17.] Prior to his arrival in July 1962, the Deputy President of UBC, G. C. Andrews, initiated the research and arranged for R. J. Baker (fig. 1C) to study the alternatives for the UBC Senate. Baker was later responsible for the chapter in the Macdonald Report entitled "Kinds of Educational Institutions Required," and he also had a key role in the creation of SFU as its Academic Planner [Macdonald Report, 47-56. R. J. Baker, "Simon Fraser University: the Beginnings" (typescript, SFU Archives), 2, 12, and 13; written to commemorate the 20th anniversary of SFU and published in the Sun, Sept. 7, 1985. The date of Macdonald’s arrival is from the Business and Financial Chronicle (Dec. 1965), 26.] The UBC Faculty Association has also set up a committee to study the needs of higher education in the province, and when Macdonald arrived he immediately held a retreat at Pinewoods, Manning Park, to plan the full-scale study.

Macdonald concluded that a new four-year college was required immediately to serve the western Lower Fraser Valley, an area which had the second largest population in the province and
which was just beyond a realistic commuting distance (fig. 1D). He wrote, "this institution, and this institution alone, can most effectively alleviate the demand for undergraduate education at the Point Grey Campus [of UBC]. If a suitable location can be selected, this institution could command a freshman enrolment of 2,000 in 1965 and reach an enrolment of about 7,000 in the four year program by 1971." [Macdonald Report, 64-65.]

One of the key documents Macdonald relied upon was completed shortly before he became President: Walter G. Hardwick's "Possible Location of Colleges in British Columbia." [Mimeographed "Report to the University Senate Committee on University Academic Organization," June 1962.] Hardwick was a geographer at UBC, and as Macdonald noted, this report formed the basis for the chapter entitled "Locations for Colleges in British Columbia." [Macdonald Report, 57-76. Some of the maps in the Macdonald report are taken directly from Hardwick's study, and they were prepared by senior cartography students in UBC's Department of Geography (ibid., 108).] Macdonald argued that for this new college to be most readily accessible, it "should be located on the new Trans-Canada Freeway near the Stormont Interchange," but he noted that "several desirable sites containing over 250 acres exist in this area including... municipally owned land on Burnaby Mountain." [Macdonald Report, 65-66.] He was referring to a site on the side of the mountain and not the top or to the entire mountain.

Although Macdonald drew upon the work of many people, he had
to select from it what could be combined into workable and acceptable plan. He largely wrote the persuasive arguments in the book for both immediate and long-range needs. To do so he personally had to evaluate a large number of recently published studies of American education and to travel extensively throughout the province to interview school administrators, teachers, trustees, and other. [Since Macdonald was the author of the report, some people assumed that he had done nearly all of the work on it, something he did not claim at all. For example, Shrum incorrectly referred to Macdonald as "a one-man commission on higher education" (Autobiography, 98).]

Macdonald recommended that the recently created Victoria College, a four-year branch of UBC, be made autonomous, that several two-year colleges be created in other locations, and that UBC develop a graduate program capable of serving the needs of the entire province and particularly its rapidly growing needs for teachers and scientists. [Macdonald Report, 75-76.]

One of the most important parts of the Macdonald Report and the one most necessary to ensure quick action on it was the section with detailed estimates of what all of his recommendations would cost. He estimated that to build the most essential facilities for 2,400 students at the new four-year college in Burnaby could be expected to cost approximately $4 million dollars and that to house 7,000 students would cost an additional $5 million. He determined these amounts by using
space requirements for departments at UBC with the courses most in demand by undergraduates, and he multiplied the number of square feet by $20, the current average for permanent construction. He emphasized that every new college should also try to offer as much that was unique as possible and that each one ought to be autonomous to pursue excellence in as many ways as possible. [Macdonald Report, 102, 93, 22-23, and 104-105]

The Macdonald Report represented a radically different approach from that of the previous President of UBC, Norman MacKenzie, who had "thought more in terms of centralization and enlarging U. B. C. Dr. Macdonald re-examined the whole matter and, after a very intensive study crowded into some six months, he came forward with his report recommending decentralization." [Gordon M. Shrum to Donald Stainby, Dec. 18, 1963. Shrum Papers.]

2. Reaction to the Macdonald Report

The Macdonald Report was so convincing that Leslie R. Peterson, the Minister of Education, had enabling legislation prepared immediately, but he said, "we wanted to do a little more than was in the report." [Interview, Jun. 19, 1997.] A revised "Universities Act" was passed on March 27, 1963, two months after the legislature received the Macdonald Report. Peterson had favored the decentralization of higher education since 1956, but he had encountered opposition previously. [Stainsby, "Instant
University," 17.) UBC had "liked the territory it had occupied." [Peterson interview, Jun. 19, 1997.]

Nearly all of Macdonald's recommendations were included in the revised act, but there were some important differences. The most important was that he had recommended the creation of additional colleges, and Peterson decided that three universities were needed rather than one: UBC, the University of Victoria, and Simon Fraser University [Stainsby, "Instant University," 17. In addition to these three public universities, a new private university, Notre Dame, was created in 1963 at Nelson]. In other words, all three public universities would have graduate as well as undergraduate instruction.

Macdonald had not intended for the new institutions to compete with UBC, but instead to supply UBC with more graduate students. A province with fewer than two million people obviously could not support more than one medical school and law school, but it would now support graduate instruction at the master's level in many other subjects. UBC continued to provide most professional schools, but increasingly the other universities established graduate programs which strove not only to equal UBC, but to surpass it.

The adverse affects on UBC quickly became evident as available funding began to be divided three ways. "...President Macdonald declared that unless his university got more money he would call a moratorium on all new building and limit enrolment." [Peter Sypnowich, "the Man Who Made a University," Canadian
Peterson said that "he thought it might be a good idea for [the] University of B. C. to call a temporary halt to all new buildings" until the impact of the new universities could be assessed. Instead of carrying out his threat, Macdonald associated UBC with the two new universities in a joint campaign to raise funds privately for capital improvement. [Macdonald resigned in June 1967 (UBC Reports, v. 13, no. 6).]

The name Fraser University was also suggested by Peterson. [Statement by Shrum, May 8, 1963, for the Chronicle. Peterson confirmed in an interview that he had recommended "Fraser University," but that an objection had been raised to the initials. Fraser was an Indian trader and like most had less than sterling reputation, but he is credited with the 1808 discovery of the Fraser River--on which innumerable Indians already lived.] Since the new university was intended to serve the entire Lower Fraser Valley, the name is more appropriate than the University of Burnaby, the municipality which gave the land and which hoped for the honor.

By the provisions of the Universities Act, each of the three universities was to have a chancellor, president, and board to be elected within the university community. However, since SFU did not exist, the Lieutenant-Governor in Council was authorized to appoint a Chancellor and Board to serve initially. The position of chancellor was a largely ceremonial position, and while previously, the chancellor had served by law as chairman of the
board, boards were given the authority to elect their own chancellor—but SFU would not have a board for another six months.

3. Shrum

Within a week of the passage of the Universities Act, Premier W. A. C. Bennett telephoned Gordon M. Shrum (fig. 3) and asked him to be the first Chancellor of SFU and to do what he thought was necessary. Shrum was a former physics professor, and he was widely regarded—and particularly by Bennett—as the province's "Man Who Gets Things Done." [Sypnowich, "University," 2. MacLean's magazine stated later that "the story of Simon Fraser University is, up to a point, the story of Dr. Gordon Shrum...." [John Ruddy, "Mountain-Top Radical," MacLean's (Jun. 4, 1966), 39.] Shrum wrote in April 1963 that

...the Premier gave me only two instructions when he telephoned and asked me to undertake the job. First, I was to get on with it as rapidly as possible and, second, there were to be no huts. I saw him briefly on April 4th and he asked me to be prepared to register students in '64. I told him that most of my friends think '65 is an impossible target date. We don't even have a site yet. [Shrum to Norman (Larry) MacKenzie, former President of UBC, Apr. 9, 1963. Shrum Papers. Cf. Autobiography, 97.]

In 1983 Shrum recollected how he had reacted to the offer and why
he had decided to accept it:

He said "you know, Dr. Shrum, you heard about this Macdonald Report.... I'm going to accept that report exactly what they recommended" and he said "I want you to build that university. In order to do that you'll be Chancellor right away. I'll make you Chancellor...."

Boy, I was so excited about this. Who wouldn't be, to be asked to build a university by a man who didn't know what he was asking you to do? But he was going to give you the whole works, that was obvious. I had already had this with Hydro and knew what I could get from him.... I thought he might change his mind. Somebody would say that was a stupid thing to give that to Shrum. He's the last man. I'll bet you there were a lot of people around the city who said he'd build nothing but 3 or 4 huts put together and so on. That's all you'll have. You'll never have anything that looks like a university. He won't know anything about aesthetics. It will be just an engineering school or something. I'm sure there were lots of people who thought that. I said, "well you know Mr. Premier... if you want it by September 1965 I haven't any time to think whether I should take it or not. I'll tell you right now I'll take [it] and I'll get on with it right away. [Interview by Clive Cocking, 1983. Typescript,
Shrum said he was determined to show "those bastards downtown that he was the right man for the job" and that it would not only be done on time but would be done right. Shrum was not even officially appointed Chancellor by the Lieutenant-Governor in Council (as the act required) until May 8, but Bennett had wanted him to get to work immediately, and Shrum would have anyway. [The Deputy Provincial Secretary prepared a notification of the appointment on May 13 indicating that it was signed on May 9 by Peterson. Shrum Papers.]

Since no board or president was appointed until October 8, Shrum served for six months not only as the Chancellor of SFU, but also as the board and as the president. He was SFU. The architectural consequences of this were that Shrum selected the site and approved the architects, and for the first six months of the design process, he was the sole client. On May 29, Shrum wrote, "I have a great number of ideas about things that can be done when one is starting from scratch with no Board of Governors, no Senate, and no Faculty to inhibit one’s thinking and planning." [Shrum to Robert T. McKenzie, May 29, 1963. Shrum Papers.]

Shrum believed that Bennett, who was not a university graduate, did not know that it was the president who was responsible for running the university on a day-to-day basis. [Autobiography, 97.] Erickson said about Shrum, "it wouldn’t
have mattered what his mandate was."

Actually, both Bennett and Shrum made good use of one another. Bennett wanted Shrum to remain in the full-time job he had already given him and to take on still more. Peterson said, "...the Government had the mandate to build the University.... If there was anyone that was violating law, it would be the Government rather than Shrum. He had our instructions to do what he did." Peterson told Shrum, "look, Gordon, we've made you Chancellor, and we won't appoint a Board or Senate to get in your way until the job is complete...." He said, "I don't recall a single problem in our dealings with Gordon Shrum.... He was a sound person." [Peterson interview, Jun. 19, 1997.]

Shrum's overwhelming self-confidence took time to build. In his Autobiography, he said he was born on a farm in Ontario in 1896 and lived there in such isolation that he had never been 60 miles away to Toronto until he was 18. He knew he did not want to be a farmer, and he thought the only option he had was to become a grade school teacher, which one of his grandmothers urged him to become. His grades were poor, but he managed to get accepted to the University of Toronto, where a dynamic professor of physics, John Cunningham McLennah, recognized his abilities and put him to work as his assistant. Shrum said, "...the experience changed my life completely." [Autobiography, 14.]

In his third year of college, he enlisted along with most of
his friends to serve in the First World War. He spent more than a year in combat in France and was awarded the Military Medal for bravery in action. He qualified for officer's training, but returned as a corporal because he did not want to leave his friends.

After the war, his maturity had increased so much that he worked extremely hard in his last year and received a graduate fellowship. He had done nothing to make him think he was capable of outstanding accomplishments, but McLennah believed he could, and he tried to live up to his mentor's expectations and managed to succeed in being the second person to liquify helium, something which had been accomplished in 1908, but which no one had been able to replicate. He also discovered that oxygen was the element which caused the green line in the spectrum of the Aurora Borealis, something many scientists had tried unsuccessfully to discover. When his first paper was accepted for publication in a British scientific journal, he fulfilled McLennah's requirement for a Ph. D.

Shrum suddenly had options he never imagined would be available to him. Yale and UBC both offered him jobs, and he chose UBC to be part of a newly developing institution. In 1924 he arrived in Vancouver the same week UBC moved to its first permanent home, the spectacular site on Point Grey with its 300-foot cliffs rising above the Strait of Georgia.

Shrum taught physics at UBC for nearly four decades and spent his entire academic career there. He was a popular physics
teacher but, by his own admission, "not a popular colonel." [Autobiography, 55.] Randle Iredale said Shrum "had a loving mixture of vinegar and sugar." [Interview, Jun. 18, 1997.] Shrum was two very different people: Professor Shrum and Colonel Shrum.

Erickson had Shrum both as a professor and as a colonel, and he said Shrum was unintentionally amusing as a teacher because his experiments "never worked--never worked." Shrum said he made mistakes on purpose to get his classes to pay attention [Erickson interview, Jun. 13, 1997. Shrum, Autobiography, 51.] While Professor Shrum tried to win attention, Colonel Shrum demanded it. As head of the Officer Training Corp, Shrum "used to strike terror in all of us." Erickson called him "an absolute tyrant," but "absolutely fair." [Shrum, Autobiography (preface), xiii.] Harrison said Shrum "was kind of scary to work for," but also called him completely fair. [Interview, Jun. 17, 1997.]

At UBC Shrum quickly made a reputation for himself as someone who could be relied upon to get things done. He served actively on as many as 30 committees at the same time (including the building committee), and he also held numerous positions with major responsibilities. He was Head of the Department of Physics from 1938 until his retirement in 1961. He was commanding officer of the Training Corps at UBC from 1937-1946 and during the Second World War had as many as 1,800 officers in the program. Among his other major positions were Director of the University Extension from 1937-1953 Dean of Graduate Studies from
1956-1961, and Director of the National Research Council from
1943-1949 and from 1950-1956. [G. M. Volkoff, "Gordon Merritt
Shrum, 1896-1985," Proceedings of the Royal Society of Canada,
a copy of this obituary.] The President of UBC, MacKenzie,
called Shrum his "chief expediter" and credited him
appropriately. Shrum said, "I wanted to get credit for whatever
I did. It was the fuel which kept me going." [Autobiography,
64, 58.]

When the Second World War ended, returning veteran wanted to
attend UBC in far larger numbers than could be accommodated. As
Director of Housing, Shrum decided that military housing which
was no longer needed should be pressed into service, and without
waiting for approval, he moved over 300 military buildings to the
UBC campus. He said, "...there was a lot of red tape involved,
so I just took them." [Autobiography, 65. He "even floated over
an entire airforce base from Vancouver island." (Sypnowich,
"University," 2.) In some countries he would have been court
marshalled, but in Canada he became legendary. Shrum also said,
"I worked on my own because any kind of committee would only
have slowed things up." [ibid., 66. Eventually, the national
government gave permission, but long after the work was
completed.] UBC was able to house more than twice as many
students in 1945 as it could in 1944 solely because of Shrum's
initiative. Peterson said, "...those of us who were veterans on
the campus had a very high regard for Shrum.... he was
notorious--well known to all of us because without any real authority..., he brought those huts onto the campus, but in a very efficient way they accommodated thousands of veterans who would not otherwise have been able to be at UBC." [Interview, Jun. 19, 1997. Also noted in Stainsby, "Instant University," 17.]

The wooden huts were still needed as residences and classrooms in 1963, and this is what Premier Bennett did not want. What he did want was Shrum's initiative and drive. Shrum had already been a great help to Bennett on two previous occasions, and as Iredale said, Shrum "was always a man to throw into a breech" [Interview, Jun. 18, 1997].

Bennett was premier from 1952-1972 and was head of the Social Credit Party. He was conservative except in business. Iredale said "Bennett was a strong free-enterpriser, but also a very pragmatic politician." [Interview, Jun. 18, 1997.]

Regardless of his firm convictions and public statements, Bennett considered economics to transcend politics.

Although largely self-educated, Bennett saw university education as a potentially good investment, particularly when it turned out applied scientists. He told Shrum, "if I could be certain that I was getting dollar value for every dollar spent on the university, the universities would not have cause for complaining about the money they need...." [Bridge (publication of the SFU Alumni Association), v. 1, no. 4 (Apr. 1969), 3.]

Shrum considered Bennett a genius and did not consider himself
one. Erickson said "everyone voted for Bennett, but no one would admit it." [Interview.]

Bennett owned a successful hardware business, and one of his special areas of expertise was creative financing. In 1958 he proclaimed that the province was debt free, but his opponents soon revealed that all he had done was make public commissions responsible for their own debts and had managed to pay off old bonds by borrowing enough money through a new bond issue at a higher rate of interest. Although the increase in the rate was slight, the amount of controversy was enormous. To quiet his critics, Bennett appointed a three-member royal commission to make recommendations on what to do about the publicly owned BC Power Commission (which he had refinanced) and the privately owned BC Electric Company. His Attorney General recommended Shrum as a physicist, as apolitical, and as a person of unquestioned integrity. [Shrum wrote, "...I have never belonged nor contributed to any political party" (Shrum to Mrs. R. W. Wellwood, Aug. 16, 1965. Shrum Papers.) Shrum got a favorable report prepared in several months and with the advice of his boyhood friend Lester Pearson, he managed to enable both sides to claim victory. [Autobiography, 77.]

Bennett was so pleased he asked Shrum to be chairman of the newly created BC Energy Board, which was to oversee the production of both public and private power. Shrum accepted and continued to work at UBC, but in 1961 had to accept mandatory retirement at age 65. In the meanwhile Bennett pushed to have
more and larger hydroelectric dams to develop the interior of the province. Since the province's principal source of wealth is its natural resources, Bennett devoted a great deal of his attention to how best to exploit them, and with Shrum's help he succeeded to an unparalleled degree. [These resources and the history of their development are discussed in Herbert L. McDonald's British Columbia: Challenge in Abundance (n. p., 1966). At the time BC had a population of 1.9 million living in an area of 366,255 square miles (p. 6), and most of it lived near Vancouver.]

Bennett was also very seriously interested in education in order to produce more scientists to find ways to exploit these resources. Shrum provided expert advice in both of these fields of paramount importance.

One of Bennett's campaign promised had been that he would not take over the private BC Electric Company. However, Shrum convinced Bennett that the only way sufficiently large and inexpensive sources of hydroelectric power could be built was through bond issues, which would enable money to be borrowed for the construction at a low enough rate to ensure the feasibility of what Bennett wanted most. Shrum said, "I told him I was absolutely convinced that there was no other solution." Two months after Shrum retired from UBC, Bennett called him and said "...I want you on Monday morning to go and take over the operation of BC Electric.... You have a free hand. You just take it over." [Autobiography, 81-82.]

Bennett's party controlled the legislature and passed the
necessary act on the day that the former Chairman of BC Electric, Dal (Albert E.) Grauer was buried. Grauer had also been Chancellor of UBC, and President MacKenzie tried to get him to let Shrum continue to work past the mandatory retirement age, and Grauer "had refused" (ibid., 82-83). Within a few months, Shrum had Grauer’s job and his office, and he kept his portrait hanging there and from time to time posed in front of it.

Vancouver was small enough in the 1960s that everyone knew just about every else. Grauer was one of Erickson’s first clients. Shrum was Erickson/Massey client at SFU and was Erickson’s client for Robson Square, the Provincial Government Offices and Law Courts constructed in downtown, and although Shrum knew Erickson, he did not select him for either project. Shrum had hired Iredale to design a carport for him.

Bennett made Shrum Co-Chairman of the newly created BC Hydro and Power authority and put him in charge of the $800 million Peace River Dam, which was eventually finished on time and within budget. [Shrum was Co-Chairman with separate responsibilities from 1962-1969 and Chairman from 1969-1972 (Volkoff, "Shrum," 159).] When something else needed to be constructed and it involved education too, Bennett turned to dynamic Professor Shrum as the ideal person for the job. Shrum was sitting in his office at the top of the curtain-wall skyscraper Grauer had built when Bennett called and said he could also have a free hand in creating a new university.

When Bennett promised a free hand, he meant it. Shrum wrote
that in his first ten years at BC Hydro, he received six letters
from Bennett, and four of them were identical requests to keep
costs down. One of Bennett's eccentricities is that he tried to
put as little in writing as possible, and he would not even allow
his secretary to respond to letters from voters to ensure that as
few statements as possible would come back to haunt him. Shrum
kept Bennett informed, but saw him only once or twice a year.
Shrum concluded, "he apparently trusts me and leaves me alone to
get on with the job. For this I am most grateful." [Shrum to

Shrum later recollected that "I had warned Premier Bennett
when I accepted the assignment that I would make mistakes but
they would all be new mistakes, not the same old ones made at
UBC." [Autobiography, 105.] At the time SFU was under
construction, he wrote, "...I have tried to avoid some of the
mistakes I helped to make at U. B. C." (Shrum to Mrs. R. W.
Wellwood, Aug. 16, 1965. Shrum Papers.)

4. Site Selection

Shrum knew the Macdonald Report stated that the new
university needed to be located in or near Burnaby, but he
purposely misled several cities and towns into thinking that he
was seriously considering them. He convinced Burnaby also that
the university would be offered to the place which offered the
most land, free water and sewer connections, and even access
roads. Shrum said,
the search involved a lot of poker playing with nearby municipalities. Burnaby, Surrey, Coquitlan, Delta—all of them wanted the university.... Burnaby jumped in first and offered me three choices... [including] one on Burnaby Mountain.... I was not sure I could complete it on the mountain in that time: the area was all bush with no roads. But as a site for a university it would be breathtaking. In the bottom of my heart, I was taken by the opportunity for an old man to do something spectacular. [Autobiography, 99.]

Without asking the permission of the BC Hydro board or anyone else, Shrum borrowed a plane "at Hydro’s expense" in his usual imperious way and flew around the Fraser Valley to examine all the possible locations. He came back convinced that no other site compared to the top of Burnaby Mountain—-not even Grey Point.

The top of Burnaby Mountain (fig. 4A) had not been one of the sites preferred by Macdonald or Hardwick. Macdonald felt that the site needed to be alongside the freeway for easy access and as close as possible to the interchange at Burnaby, but he had mentioned the mountain as available. The top of the mountain is three miles away from the interchange, and the only road to the top was at the west end of the mountain while the interchange is to the south. Hardwick’s report, on which Macdonald had relied, specified a planned cemetery site on the south slope of Burnaby Mountain. [Hardwick, "Possible Location," 4-6.
Hardwick noted that the cemetery site belonged to Vancouver, but that Burnaby had gotten a court order to prevent its development as a cemetery. Shrum later publicly acknowledged "that Burnaby Mountain was less convenient than the other two sites both from the point of view of access and ease of building. But it was chosen...for its superb views down the length of the Vancouver's harbour and for its general surroundings" (fig. 4A). [Stainsby, "Instant University," 17] In fact, there was inadequate data available about snowfall and bedrock, and there was not even an access road suitable for use by large trucks. Risks were taken—the kinds of risks Erickson/Massey was later condemned for taking. On the other hand, sites are often chosen in the Vancouver area specifically because of the challenge they offer.

Shrum said that the district municipality of Burnaby initially offered him only 200 acres on the mountain. To allow for future expansion I felt the university would need about a thousand. When the municipality would not offer more, I told the press I was also very interested in Guilford and close to making a deal. Burnaby then offered another two hundred acres or so. this went on until they offered the twelve hundred acres on Burnaby Mountain that I wanted. [The final results of the bidding were Burnaby with 1,000 acres (and 200 from other sources), Langley with 800, Coquitlam and Langley with 600, and Delta with 400.
Gordon M. Shrum, "the Selection of a Site for Simon Fraser University," May 6, 1963. Typescript, SFU Archives, 3-1-0-86). Vancouver contributed 150 acres, and about two years later, the Provincial Government later traded Vancouver out of the 216 acre cemetery site (Sun, Sept. 8, 1965), and several private gifts were made of small sites on top of the mountain.]

Around the beginning of May, when Shrum told Bennett that he "did not want to select a location of which he did not approve," the Premier said "you know, that was my choice from the beginning, but you made me feel unsure about it because you kept saying you were interested in those other sites."

Shrum consulted Bennett on such major decisions and kept him informed, but it seems to have been entirely correct that "no instructions came from him [Bennett] at all." Shrum had to justify all requests for funds to Peterson, and he was careful to ensure that Bennett got to make all the most important announcements.

On May 8, Bennett announced that SFU would be built on a 1,168 acres site on Burnaby Mountain. The final total included 1,000 acres from Burnaby, 150 from Vancouver, and 18 acres from Webb and Knapp (Canady) Ltd. (a land development company). [Press release dated May 8, 1963. Shrum Papers.]

Shrum had his site on which "do something spectacular." In his report on selecting the location, he had listed as his first criterion that the site chosen must possess "environmental
factors that will enable the new university to attain the academic eminence required to attract both staff and students. The university campus and community must be a beautiful place with a distinctive character." He praised Burnaby Mountain's "unmatched and unobstructed view" and stated that "the only suitable land for the main buildings is on the top of the mountain" (that is, suitable on the basis of his first criterion). He concluded by quoting "the final paragraph from the excellent brief submitted by The Corporation of the District of Burnaby: "On this site and possibly only here could the university excel the Point Grey University Campus in natural amenity and have an immediate opportunity to achieve unique statue with a campus of unsurpassed grandeur, distinction and significance." Although UBC is on a 300-foot cliff, SFU is on a 1,300-foot mountain (figs. 4A-B). Shrum wrote "this will probably be the most spectacular site of any university on the continent." [Shrum to Robert T. McKenzie, May 17, 1963. Shrum Papers.]

Shrum said, "I always wanted the university on the mountain-top because I believe that students benefit from beautiful surroundings." [Rogatnick, "Criticism," Architectural Review 143 (Apr. 68), 264.] The architect R. J. Thom (who had participated in the design competition) wrote that "the separation of the university from the city is not usually desirable, but in this case there are some special redeeming factors. To begin with, is this very real experience for every student who climbs the
mountain from his mundane surroundings, to a place which in altitude, climate, architecture, and community is unique and elevating." [Canadian Forum (Jan. 1966), 224.] At the time SFU opened Erickson was asked, "Do you believe then, that the esthetic experience of being on a mountain has an effect on the learning process?" He replied, "most definitely!... A university is... the one place where truth is sought. The mountain is a perfect place for it." [A. L. Maier, "University on the Mountain: the Concept," Burnaby Courier [Sept. 2, 1965], 2].

Erickson also had mixed feelings about the site. He would have preferred an urban setting for a university, and he said, "my feeling was to make the university as urban as possible--in other words as crowded and constricted in space.... I saw it as a hilltown." [Interview, May, 7, 1996.] Massey went to "endless meetings" with officials of the Municipality of Burnaby trying to get a townsite developed as close as possible to the campus. [Interview, Jun. 28, 1997.]
B. DESIGN COMPETITION

5. Planning the Competition

On May 5, three days before the site was announced, Shrum told a conference on higher education meeting at New Westminster that a competition would be held to design SFU. A newspaper account of his speech provides important evidence of what the envisioned at the time. He said he hoped "that architects taking part in the contest will strive for originality so that the university will be come an architectural showpiece." He gave that example that "nobody goes to Mexico City without seeing the University of Mexico. I don't know if B. C. architects will be able to come up with anything as colorful, but they can try."

Shrum noted in another of the frequent speeches he was making at the time that he wanted SFU to have "large classes of 300 or 400 students, with the classes broken down into smaller sections for individual tutoring." His idea was that as many students as possible should get to hear the best lecturers as well as discuss ideas with faculty members who were better at research than lecturing. [He also said "one thing is certain, SFU will not have any army huts..." The article noted that UBC had never been able to get rid of its huts "because new buildings
have not kept up with enrolment" (Sun, Jul. 24, 1963). The combination of large lectures and tutorials had been previously used at UBC to some extent, but was not general as it was intended to be at SFU. [Baker, "Beginnings," 10] Consequently, at SFU very few spaces were designed to hold 30 or 40 students. Shrum was well aware that large classes were "anathema to many academic men," but he considered them preferable to maintaining a low student-faculty ratio "by recruiting mediocre teachers so that, as one university president has said, 'The teacher can communicate his mediocrity in an intimate environment'" [Stainsby, "Instant University," 18]. In 1966 Shrum stated, "...we want more and bigger ones. They work" (MacLean's (Jan. 4, 1966), 41] Shrum said, "we're facing a population explosion, a cost explosion and a knowledge explosion. Universities have to teach more students more things and they have to do it more efficiently." [Symnowich, "University," 4.]

Shrum had previously cleared the competition with Bennett. Early in May, he went to see the Premier and told him I want to have something really outstanding in the way of architecture and I'd like to have a competition for the design of the university." He looked at me rather seriously and said, "That'll cost money, wont it?" When I said that it would not cost a dollar, his eyes sparkled. I explained that we would have five winners: in addition to the prize for the overall design, the five top architects would each be assigned to build a
section of the university, thus being assured of commissions on at least a million-dollar project each. The idea will be to encourage architects to participate, by dividing up the project, to help to ensure that the university was completed on time. Bennett replied, "Fine, if it doesn’t cost anything, go ahead."

On May 8, when Bennett announced the site, he also got to make what was more or less the first public announcement of the competition. He stated that the competition would award five prizes of $5,000 each, but the announcement did not indicate that the prize was to be an advance against fees. Like Shrum, Bennett said, "'I call for the creation of a university that is practical in concept but imaginative in architectural design.'"

To plan the competition, Shrum contacted Warnett Kennedy, Executive Director of the Architectural Institute of British Columbia. Kennedy prepared most of the Conditions of Competition, and served as the Chairman of the Board of Assessors. [Kennedy had trained to become an architect at the Glasgow School of Architecture from 1930-1935, and he was Chief Designer for the Industry Sections of the Festival of Britain from 1950-1951 (Liscombe, New Spirit, 203). Afterwards, he went to Canada for a vacation and found it "wasn’t the glamorous place it has become," but he "fell in love with it--genuinely." He decided that Vancouver had the potential to become the "most aesthetically desirable city in the world" (interview, Jun. 20,
He served as Executive Director of the Institute from 1958-1967. Who selected which accessor is unknown except that Shrum almost certainly selected Williams, who he knew previously and who later had the most influence on him. The competition was limited to British Columbia architects, but the accessors were to be from throughout Canada and the United States.

Kennedy said that Shrum invited him to the BC Hydro Building, and when he entered his office, Shrum was looking at the window at Burnaby Mountain. "Then he started telling me what would be the ground rules for a university up on the hill. I said, 'I can't go along with than....' Eventually, he got the message that he could attend the panel making the decision, but he could not impose his point of view." Initially, Shrum was "hostile," but later during the judging, he was impressed that persons who knew more about architecture came to full agreement about what should be built and why. [Kennedy interview, Jun. 20, 1997.]

Iredale said, "Warnett Kennedy was feeling as professional advisor that Shrum had trampled on him because he didn't let him write a full program.... With no program it was really not a proper competition." [Interview, Jun. 18, 1997.] Shrum took for granted that SFU would be an improved version of UBC. When the competition was judged, the assessors had to evaluate educational philosophies as well as designs.

The Conditions referred to the Macdonald Report and used it as a basis for determining the most basic requirements to be
fulfilled, but there were some important differences. Macdonald had called for a college for 7,000 students; Shrum called for a university for 18,000 students.

The competition requirements were vague about what would be taught, about how much would be spent on the first phase, and even about the size of two of the nine or more buildings designs were requested for. In general, the "object of the competition" was directed towards the obtaining of conceptual ideas on layout of campus, exploitation of the natural advantages of the site, groupings and surroundings of buildings, creation of architectural spaces and expression, traffic and pedestrian movements, servicing, etc. In addition, the overall character should be such that it can be maintained as the university expands, over the years to its declared target of 18,000 students.

This calls for fluidity of imagination, rather than precise solutions. Contestants may have to make and state assumptions of their own before building up their architectural concepts but such assumptions would not conflict with the site data included in these conditions.

More specifically, each architect was expected to indicate the "form and architectural character... and their grouping and location" for the following buildings:

(1) library building ($1 million; 50,000 sq. ft.)
(2) administration building ($1 million; 55,000 sq. ft.)
(3) cafeteria, bookstore, etc ($0.7 million; 40,000 sq. ft.)
(4) auditorium
(5) classroom buildings, offices ($1.75 million; 80,000 sq. ft.)
(6) chemistry building ($1.2 million; 50,000 sq. ft.)
(7) physics laboratory ($1 million; 50,000 sq. ft.)
(8) biological sciences laboratory ($1 million; 55,000 sq. ft.)
(9) gymnasium--playing fields (no amount indicated, but the gym was to included a basketball court with room for 1,500 spectators, and the playing fields were for tennis, cricket, track, "etc."). [The total amounts indicated come to $7.85 million of the $15 million projected for a university with 18,000 students.]

The library and the gym are buildings of similar size, and Shrum intended to promote athletic excellence on a scale equivalent to research. So much emphasis on experimental education and sports alarmed Canadians who looked to England rather than the United States for academic precedents. [Sypnowich, "University," 2.]

Others were surprised to learn that Shrum planned immediately to have a theatre (auditorium) and wanted as soon as possible to emphasize art and music as well. He said, "in my opinion the arts faculty at SFU should compare favorably with any university in Canada in the scope and quality of its curriculum in the fine arts." [Stainsby, "Instant University," 16.] Being a scientist, he went out of his way to avoid criticism for
preferring the sciences to the exclusion of other subjects.

Although SFU would be a university and research centers were planned eventually, the initial emphasis would be on providing a well balanced offering for undergraduate instruction. He expected most students to come from the surrounding area, and he tried to provide what they would be most likely to request. He specifically did not want to create an institution like MIT where the sciences were principally emphasized, and he was realistic about what could not be done better than it was already being done at UBC.

Architects were to give general ideas for roads, landscaping, and outdoor sculpture. They were also required to indicate locations for the eventual placement of student residences (three dormitories, each to house 800 students), faculty housing, a president's residence, student union building, faculty club, and research institutions. Information was also included on site conditions as far as they were known at the time (with bedrock estimated at about 10 feet below the surface), expected weather conditions, access needed, and parking requirements. The conditions stated that "contestants should not attempt the plans of buildings."

UBC was, though, to provide the best indication of what each
building needed to contain. At the time of the competition, it had 13,000 students and so was midway in size between the two stages proposed. Shrum had a page of notes on what he would like to see:

There are some advantages in having the buildings connected by covered passageways so that wraps may be put in lockers on arrival and picked up again only on leaving.... The functions of the various buildings will not differ much from those at U. B. C.... High-rise buildings may be considered.... Architects should consider the desirability of having a focal point for campus life.... In the overall design of the exterior, every effort should be made to reduce maintenance costs. materials should be indicated.... The plateau on the top of the mountain has been suggested by the Engineering Consultants as the most suitable site for the main campus buildings. Other possibilities may be explored.... The judges will give due consideration to new and creative ideas. It is possible that none of the five overall plans which win the competition will be the one which is finally adopted.

[Most of what Shrum listed in single-spaced, typed page in the Conditions had been included in a three-page, double-spaced statement he had made on May 22, 1963. His "A Few Notes from the Chancellor" stated, though, that "high-rise buildings should be considered," rather than "may be considered." Shrum Papers.]
Each entry was limited to three drawings 30" X 40" overall. The first sheet was to be a site plan the same scale as the topographical map included and was to indicate which buildings were to be constructed for the first 7,000 students and which for all 18,000. The second sheet of drawings was to be an aerial perspective of the entire site with all buildings proposed, and the third sheet was to show sections, elevations, and perspective sketches. A written explanation could be included providing that it was limited to one legal-sized page.

Shrum later said that limiting the competition to three drawings was his idea to encourage young architects to enter as individuals whether they worked for firms or not. If models had been stipulated, the larger firms would have had a distinct advantage which he felt was unfair and would have limited the number of entries. "I decided this was not going to happen in our competition: ours was going to be for ideas."

[Autobiography, 101.] Shrum evidently prepared the "Notes for Premier Bennett" to make at the awards ceremony, and they included the statement that "this competition... was organized in such a way as to make it relatively easy for young architects to compete." [The statement is anonymous and is dated July 23. Shrum Papers.]

R. J. Baker later wrote that, Shrum must be given credit for the broad outlines of the academic planning at Simon Fraser. It was he who advocated a combination of large lectures and small
tutorials and saw that the architectural design suited that scheme.... He also insisted that in the first phase there be a gymnasium with a pool and a theatre.... Personally, I am quite sure that had the decision been left to the President--or indeed to me or to an academic committee--we would not have built a theatre and gymnasium in the first phase.... As on all major issues, he won--and I am very grateful he did.

[Baker, "Beginnings," 4.]

Shrum said later, "above all, I wanted an experimental university where no hard and fast rules inhibited faculty from modifying courses, pursuing interdisciplinary studies, or developing creative programs. I wanted SFU to be a place where new ideas would flourish and creative people would flock in."

[Autobiography, 110.]

6. The 5th Through the 2nd Place Entries

The Conditions of Competition had encouraged each architect "to make and state assumptions of their own before building up their architectural concepts," and the vagueness of the conditions was to some extent intentional. The statements of assumptions submitted together with the drawings of the five prize winners provide a good indication of how each firm approached the design process. [These statements were subsequently published in the Canadian Architect (Oct. 1963), 71-77, and are reproduced herein as Appendix I.] All of the
drawings submitted by the five prize winners and the five honorable mentions were published in the Report of the Board of Assessors: Simon Fraser Architectural Competition. [Of the 15 drawings submitted by the five prize winners, only two by Erickson and Massey are known to survive.]

A. Fifth Place
Duncan S. McNab and Associates indicated in its statement that it adopted the premise that the most efficient and economical operation of the university would be afforded by compact arrangement of the buildings in close proximity to the parking areas. The formation of the mountain’s crown with the two prominences separated by a small valley [fig. 4B] suggested two rings of building intersecting at the valley; the [smaller] west ring serving as the academic center and the [larger] east ring serving as residences, supporting buildings and future buildings.

The design (figs. 6A1-3) consists basically of an elliptical platform for the four principal buildings with the other buildings placed outside between a pair of irregular curvilinear roads which conform to the topography. The platform on the highest point of the building site was intended to remain unchanged as the university expanded. [The highest point on Burnaby Mountain is slightly over 1,300’, and the water tower was later placed there. Most architects who won awards utilized the
broader area to the west with elevations averaging about 1,220'.] It included a high-rise library, a ribbed dome for a "social building" (principally containing the auditorium specified, but also a cafeteria and student centre), a large gym with a central courtyard, and an administrative building built as a bridge over a reflection pool.

To the west of the platform, five clusters of highrises were to provide spaces for the classrooms and offices of the various academic disciplines (chemistry, physics, biology, and two clusters for the humanities). Terraced and landscaped parking was to be in between these clusters within a ring road, and this area was to be treated as a sculpture garden. McNab is also a sculptor, and his entire solution was sculptural with a conceptual resemblance to the Toronto City Hall. To the west, residences, research, and playing fields were also to be placed within a ring road. Parking was to consist of terraced concrete platforms (fig. 6A3; center section), an arrangement which would have reduced the area required for parking at least in half.

McNab’s firm had three principals (himself, Harry Lee, and David C. Logan) and altogether about 20 architects. It was one of the most successful in the province, and it had designed many of the new schools which had been needed in the past decade. The firm had wide experience in using concrete on a large scale, and poured concrete was to be used for the domed social building (fig. 6A3). Precast concrete panels were to be widely used and to have had exposed aggregate finishes.
McNab said, "having worked on a lot of schools and university buildings, the most important problem to me had been expansion--you know that each department has to be free to expand. So this design was based on a circular plan with specialized areas occurring around the plan.... All these things were free to expand without any encumbrance." The entries were limited to drawings, and models were expressly excluded, but three firms prepared study models, and the McNab firm could not resist including photographs of its model (fig. 6A3).

In preparing for the competition, "we approached it by letting some of the designers prepare schemes, and actually because I was the boss, we selected my scheme." Peter Bachelor prepared the site plan, and Harry Lee may have prepared the perspective. [Interview, Jun. 11, 1997.]

B. Fourth Place

Robert F. Harrison also adopted Shrum's suggestion of high-rises and used them most extensively of any of the top five submission (fig. 6B1-3). He utilized them to the extent that "the interior organization of their space requirements lent themselves to the form of planning." Overall, his solution was as rectilinear as McNab's was curvilinear. He made extensive use of split levels and terracing.

Harrison noted that "the natural depression determines the core with bus terminal facilities and automobile loading and unloading at this central location" (fig. 4B). He worked outward
from this center point as Erickson and Massey were also to do, but he bridged it with a broad plaza which is conceptually more like McNab's curvilinear platform (fig. 6B2).

To the east of this central arrival and departure point, Harrison placed a group of three high-rises. The tallest building was to be an adjacent administration building. To the east was a lower and more compact library tower, and to the south was a student union. [His drawing was reproduced backwards in the Accessors Report, but correctly in Canadian Architect. He planned to move the existing communication tower from the west to the east end of the site and to make it also an observation tower (fig. 6B2).]

On the west side of the center of the site were to be lower blocks for a group of classroom buildings with a large fine arts center beyond. Although the plan for these also is orthogonal, the arrangement of the buildings is asymmetrical to allow the park-like setting to interact with the plan to create spaces of varied sizes with varied approaches. Expansion was to be primarily to the east, where future colleges and research centers would be placed in clearings within the existing grove of trees.

The basic form of the buildings were Miesian, but spandrels formed strong cornice lines. The material to be used was "primarily precast concrete using exposed white quartz aggregates with spandrels a similar color in varying textures." The spandrels are similar in form to ones which had been used by Oscar Niemeyer at Brazília, the competition for which had been
held in 1956. Niemeyer had been influenced by Le Corbusier and in turn had influenced the design of university campuses in California.

Housing for students and faculty were to be placed at the perimeter of the site. Landscaped parking would have occupied much of the southern slope, and a public parking lot at the foot of the north slope was to be connected to the summit by a funicular railway. The gym and playing fields were placed farthest south.

Harrison said that he and one person assisting him with the preparation of his entry. "You read as much as you could. And it was a very, very unique site. We walked all over it and photographed it.... We made a site model of the site because of this saddle...; we thought [it] was very important. And then we just took the requirements and the program.... I didn’t go home very much." [Interview, Jun. 17, 1997.]

C. Third Place

Zoltan Kiss planned high rises in order to cover a minimum of the site and to reduce the distances between buildings to a minimum (fig. 6C1-3). He also felt that concentrating the initial development of the site would maximize "flexibility to adjust to educational advances" and to provide for "harmonious growth" beyond a relatively dense core. "Growth is visualized as a concentric pattern without a rigid perimeter"—that is, to extend outward any direction as necessary like most urban growth.
Kiss planned a "forum" or "plaza" as the "natural focus of the site and centre of campus life." This open space was to be located at the valley between the two peaks (fig. 4B and 6C2), and near this forum were to be four large and relatively low buildings: the library administration building, auditorium, and cafeteria (conceptually similar to Harrison's core in the same location).

To both the west of the center was to be a separate group of buildings for the sciences and to the east separate groups for the arts. "Each complex is planned around intimate courts defined by groups of low laboratory-lecture hall structures and tall conventional classroom blocks."

The highest point of the site was to have a tall communication tower, and nearby a large gymnasium was given the outline of a hyperbola. Beyond the gym were to be playing fields (fig. 6C2). Housing and parking were on the perimeter, and a funicular railway was also proposed.

Precast concrete was to be the principal exterior material. However, interiors were to utilize wood whenever possible.

Kiss said later that as an individual architect, he had been able to enter the competition only because drawings alone were required. To assist him, he hired Leo Ehling, who later managed the Erickson/Massey office for the SFU project.

D. Second Place

Rhone & Iredale (William R. Rhone and W. Randle Iredale)
proposed a solution which was significantly different from the other five prize winners. There were to be nine entirely separate and autonomous colleges, and the centre of the campus was to be largely left open as parkland (figs. 6D1-3). Their basic rationale was "because the eventual 18,000 enrollment envisaged for the Simon Fraser University represents a large and unwieldy body, equal to the combined enrollment of Cambridge, Harvard and Oxford, we chose to divide this campus into nine colleges." [Appendix I B.]

The basic idea was to provide for an operation similar to the colleges of Oxford and Cambridge, an idea which was being revived in California. [Iredale interview, Jun. 18, 1997.] Each of the nine colleges was to have 2,000 students, and "each college will contain all basic disciplines but will partially specialize." For example, the college with a "cyclotron will specialize in physics." Students were expected to take about two-thirds of their courses in their own college and about one-third in other colleges. In each college residents and student unions would be in the same buildings.

Three of the colleges were to be built initially, and others were to be added as enrolment increased in increments of 2,000 students. Each college was intended to be designed separately at the time it was needed, allowing for variety in their designs, but for the purposes of the competition, they are shown as being basically similar groups of buildings having Mansard roofs and arranged around central courtyards (fig. 6D2).
"The peaks of the mountain which form a crest running east and west, have been preserved as natural elements...." No other prize-winning entry left so much of the topography unaltered. One-way roads lead to the colleges and most parking was arranged along the widened edges of side roads to facilitate snow removal. This approach was intended to avoid unbroken expanses of parking lots.

Iredale said that he and Rhone had formed a partnership in 1959 to design the Channel 8 television transmitting station on Burnaby Mountain. They already knew the site well.

Rhone did the research and programming for the SFU competition. "The first thing of course was to come up with a concept for a university and one of my pet peeves was UBC, which kept sprawling. And I went to UBC and found it very alienating--such a large campus with so many people on it. I felt that the university would do better to run bulldozers through and to divide itself up into smaller units which would be understandable. At that time down in California, a lot of colleges were building these smaller campuses. I dug out all of that material... [and we] came up with this scheme of separate colleges." [Interview, Jun. 18, 1997.]

The two partners worked together on the design, and the first considerations were how the buildings would be arranged and constructed. Only after agreement had been reached was consideration given to how the buildings would look. Iredale said, "Bill was always wonderful at giving things form.... We
didn’t do any modeling at all.... Even in those early days, we ran design panels and had a collaborative approach to design. Now, as I remember, normally each partner would have his project, and the responsible partner had the final decision, but you collaborated in between to get as many ideas as you could. The partner would have a project manager and work closely with him and a team. But when I say design panel, the whole firm would come together Friday afternoon..." and would sometimes tear the scheme apart. "If they weren’t getting it, it probably wasn’t getable." [Ibid.] If colleagues could not be convinced, substantial redesign was necessary and another critique.

To help prepare its entry, Rhone & Iredale brought in the engineer Bogue Babicki, who was later a consultant on many buildings at SFU for Rhone & Iredale and for Erickson/Massey. As suggested in the Conditions of Competition, Babicki designed an 800-foot tower for communications and as a landmark, and he utilized tensegrity principles (with metal tubes held in compression by highly tensioned cables; fig. 6D1). Rhone & Iredale also brought in Rudy Kovac to prepare the competition drawings. He finished the drawings by lightly spattering them with ink from a toothbrush to give them "sparkle" and to create an effect similar to that later achieved with an airbrush (figs. 6D1-3).

7. How the Winning Entry Was Prepared

The ridge had suggested the basic alignment for all of the
top five designs, and all five designs had in some way bridged the valley between the two peaks (fig. 4B). All had specified concrete as the principal material. Nonetheless, the architectural character of all five designs was dramatically different, and even though it was the most unified design, the submission by Erickson and Massey showed by far the broadest range of influences (figs. 7A-C). The coherence of their design was not easily achieved.

Three factors primarily determined the planning concepts of the winning design: (1) The east-west axis of the site suggested a linear arrangement. (2) The need for expansion suggested extension from a linear core. (3) The mountain top could be most readily utilized by the extensive use of terracing. Once these three concepts were adopted, individual buildings could be designed and related to one another in a way which allowed the university to appear complete at each stage of development and to be expanded without disturbing the core. All of this is obvious only in retrospect. Although all of these ideas were utilized to varying extent by the other four prize winners, no one else combined the concepts into such a tightly integrated, but flexible design.

Arthur Erickson and Geoffrey Massey decided to prepare a design together. They had not yet formed a partnership, but they had worked together previously on the design of a number of housing projects. At the time Erickson was working primarily as Associate Professor of Architecture at UBC, and he said he
suggested a collaborative effort because he had "some very strong ideas about universities, and he [Massey] had a downtown office so that it began in that office with his personnel." [Interview, May 7, 1996.] Massey had previously hired Ken Burroughs, a former Erickson student, and they brought in Ron Bain, another Erickson student.

A. Educational Approach

Erickson said he was eager to submit an entry to the competition because he had been seriously interested in the architecture of universities for more than a decade. He said, of course my inspiration was Oxbridge--mainly Oxbridge because I’d done a history thesis at the [McGill University on New College, Oxford, and so I’d gone into it fairly thoroughly.... My thesis was really the history of the university, [and] ...when I was on my two and a half year trip... from Cairo through Bologna to Salamanca, I went to all the universities I’d read about, and I was as impressed with Al Azhar, which is the first university at Cairo, as with New College when I eventually got there.... I felt that in both of those there was an attitude about--a philosophy about education.... [Interview, May 7, 1996.]

The philosophy was the essential unity of knowledge as opposed to overspecialization in one or a few fields as was generally done in American universities. [Erickson made similar statements in
1975 (Erickson [1975], 34) and in 1995 (Arthur Erickson, "Daring to be Different," *Simon Fraser News* [Sept. 7, 1995], 4).

From 1955-1956 Erickson had taught at the University of Oregon, where a flexible, interdisciplinary approach was used to teach all of the visual arts together. Artists and architects were required to have adjacent workspaces. He considered the Oregon approach "the only intelligent teaching of architecture on the continent. It was very radical. It was based on Louis Sullivan's teaching and started by Wilcox, who had worked for Sullivan, and it went back to the Beaux-Arts system." Students were allowed to compete projects at their own pace and were questioned but not told what to do. The approach "rewarded initiative and required thinking." [Interview, Jun. 13, 1997.]

Erickson believes "knowledge is connecting." [Erickson (1985), 34.] He had long thought about the design of an ideal university, and the SFU competition requirements and site provided the opportunity for him to consider how architecture could facilitate education for both students and faculty. To him the SFU competition represented both an architectural problem and an education problem.

To encourage interaction and the exchange of ideas, Erickson and Massey decided that the buildings for each academic discipline would not be separate. They rejected "the American... departmentalization of university administration and curricula" which had been utilized by most Canadian universities, including McGill and UBC, both of which Erickson had attended. They wanted
to combine all of the disciplines into as few buildings as possible. In their competition statement, they wrote,

We replace the usual campus layout of separate buildings with a single complex built up from the differing necessary spaces.... The grouping of like types into building sections facilitates both interdepartmental time tabling and the extension of any section by any number of necessary units. Departments would exist as administrative units rather than building entities except where unique requirements would necessitate distinct accommodation.

Erickson later said that ignoring the artificial separation between departments "was one of the most sensible assumptions we made. We decided that there was something much more important and fundamental: the interaction that is part of the basic learning process, between faculty and students, and which takes place in various areas of the university. This concept made it easy for us to start planning...." [Canadian Architect (May 1964), 54.] Erickson and Massey said that as students and teachers themselves, they were "well acquainted with the artificial separation of disciplines in the American college, and simply because the boundaries of the various disciplines have changed so radically in the last twenty years and will change so much more it is obvious that one must allow above all for this kind of change to take place." [Quoted in R. J. Thom, "Academe on a Mountain Top: Two Comments," Canadian Forum (Jan. 1966), 224).
Putting all of the departments into one building as the
University of Pittsburgh or Hunter College would not ensure
greater interaction if the departments had distinct boundaries.]

Erickson and Massey wanted to encourage interdisciplinary
studies, for example, between biology and chemistry, but more
importantly they wanted to encourage students to know more about
all categories of knowledge, and they wanted to encourage faculty
members to be more like students. Erickson felt that separate
buildings for separate subjects "created mistaken intellectual
boundaries in the student's mind." [Erickson (1975), 134.] To
the extent possible he wanted to be entirely "'rid' of the
separate buildings which constrain the individual bodies of
knowledge...", and if the faculty had already existed this might
well not have been possible. He hoped that even while
specializing in one field, a student would want to learn more
about all "of the vast field of universal knowledge." [Maier,
"University," Burnaby Courier (Sept. 2, 1965), 2.] Everyone
needed to know more about everything to understand anything.

In addition to removing the physical barriers to acquiring
general knowledge, Erickson and Massey wanted to create spaces
where knowledge could be discussed and exchanged, where interests
and enthusiasm could be communicated, and where students and
faculty could interact in a less formal setting than the
classroom. Erickson said,

that as a student he gained more from teachers he was
able to know outside the classroom, and from the
stimulation of fellow students. I was convinced that there could be no external pressure applied effectively to the learning process, only one's own enthusiasm and curiosity could provide the driving force. Thus it seemed to me that the places in a university that were more important should be those that draw the student and faculty into this kind of response to one another. As at the best universities of the past these places had to be given great importance in the design. [R. J. Thom, "Architecture of the Indefinite," Canadian Architect (Feb. 1966), 45.]

Massey pointed out that "architects are all amateur sociologists...." Shrum said "we want all the students to feel they belong to the same institution." [Rogatnick, "Criticism," 264.]

The problem was how to achieve this goal without scattering the buildings to leave space in between for expansion. [Erickson said at the time of the competition, "we have kept away from the grand plan such as that used at UBC. There, buildings are spread far apart to allow for growth in the spaces" (Sun, Jul. 31, 1963). However, it should be noted that like many other campuses, UBC does have a linear mall intended to be kept open to unify the campus.]

B. Planning Concepts

Shrum had mentioned that he hoped for a campus which would

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be as impressive as the University of Mexico, and one of the first things Erickson did was to fly to Mexico City to see what had impressed Shrum so much. "Actually the proportions--the very low, long proportions... that occurred in may of the building of time..., I was very impressed by that." [Interview, Jun. 27, 1997.] He flew on to Oaxaca to see Monte Alban, and "the Axis came from Monte Alban...." [Interview, Apr. 13, 1997.] The central court of this Mayan site became the inspiration for a strong axis to take advantage of and to complete the ridge of Burnaby Mountain. The court also had its parallel in Shrum suggestion of a "focal point for campus life," and its roof was suggested by the requirement to provide covered spaces. [Interview, May 7, 1996.]

The Mall was not, however, the first part of SFU to be designed. As several other architects noted, the valley between two peaks needed to be dealt with, and the first design decision by Erickson and Massey was to bridge it with a building which would place student offices at the center of the campus and be usable as a covered passage way between buildings on each of the peaks (figs. 4B and 7B). Erickson said, "my feeling was that a lot of the difficulties between the administration and students would be solved if the students were in the centre and the administration was outside." [Interview, May 9, 1996.]

Next after the Transportation Center, the Quadrangle was placed on the highest point of the site, and the other main buildings were placed to either side of the axis which was
created (fig. 7B). The Quadrangle was originally intended entirely for faculty offices, and classrooms were to be adjacent with the sciences on the south side and the humanities on the north side. Continuing down the linear core, the "auditorium" was to be two adjacent theatres within a single structure. This structure was to be placed on the south side of the axis with the Library opposite on the north side, and the space in between, the Central Mall, was to be the "focal point of the campus." The uncovered part of the Mall was then to continue all the way to the west end of the site to connect student residences by covered walkways to the rest of the campus, and on the south side of this service core the gym was placed and on the north side a large student center was planned. The massive library and gym created an overall asymmetrical balance with a rhythm established by somewhat smaller buildings opposite them.

The Mall served the entire site in a similar way as a service core serves a single building, but it provided for analogous functions horizontally rather than vertically. As Erickson wrote later, "all buildings would plug into this service spine." [Simon Fraser News (Sept. 7, 1995), 4.]

The ridge itself suggested axially, but did not impose it. Some competition entries were careful to avoid axially. Erickson said that the need for a bridge between the two peaks suggested a megastructure. [Interview, Jun. 27, 1997]. The requirement of providing covered spaces between buildings provided a means to do so, but was not used similarly by any
other architect.

As a concept, axially had been so overused in the 19th Century that the reaction against it had been strong, but its usefulness for providing clarity in planning and coherence in design. A functional requirement until the 20th Century was that a public building should have a comprehensible plan. Although the use of axially is identified with Classical, Baroque, and Beaux Arts planning, it was used worldwide in projects as different from one another as Mayan sites, Egyptian temples, and Chinese palaces. It provided a new example of its usefulness by giving SFU a permanent core which could be readily expanded.

Erickson and Massey's design was a continuous set of interlocking structures straddling the ridge of the site. It consisted of "three distinct zones differing in character, facilities, and usage" (fig. 7B). The first zone was a "teaching research zone" with the Quad and classrooms. The second, central zone was to be "the campus heart," and its focal point was a space rather than a building, but with the library and theatres to either side. "This is the meeting place of the university...." The third zone was the student residential area with the adjacent recreational buildings, the gym and student center, conceived as an integral part of it. As R. J. Thom wrote about the clarity, "the master plan has been drawn almost as a diagram of the human path." [Canadian Architect (Feb. 1966), 46.]

All three zones of the campus were to be built on levels which corresponded to a vertical and horizontal grid and which
were connected throughout their length by largely continuous walkways. All buildings were to appear relatively low in height even though the library is seven stories tall (with three below the level of the Mall), and the Quad rises six stories above the Mall (including three stories below on its west front and an open story at the forth level serving primarily as a covered terrace; fig. 7A1). Most of the buildings actually do step down the hillside, and those which do not appear to do so. The Mall roof and the terraced playing fields contribute to the overall appearance of a horizontal composition and together with the use primarily of one material, create the impression of a single building, a megastructure, which becomes an integral part of the site. Although architects had been encouraged to consider high-rises for the site, Erickson and Massey felt that "tall buildings on a mountain top would look strangely diminutive. But by spreading the buildings out and cutting them into the hillside in terraces so that the university would hug the summit, building and mountain would appear to be part of each other." [Erickson (1975), 144]. Erickson later wrote that what principally distinguished the Modern architecture of the West Coast of North America from the East Coast was a different approach to the site: "Part of the form of the building either originates from or incorporates into it aspects of the site and therefore cannot be properly appreciated apart from site. Eastern architecture however, stems more from an urban tradition--quite apart from site." [Erickson to Liscombe, Jan. 5, 1979.] He also wrote that
sites are "the richest source of inspiration," but they inspired each architect in the competition differently. [Erickson (1975), 14.]

Erickson and Massey hoped to join the architecture and the site further by utilizing existing trees and grasses to give the appearance of a mountain meadow. In their competition statement, they wrote, "the site is not 'dressed up' by landscaping but rather its existing character enhanced." At the time of the opening, Erickson said that "the approach is one of the most dynamic aspects of architecture." [Burnaby Courier (Sept, 2, 1965), 10.] He was referring to the entire approach: driving up the mountain through the trees until the clearing opens and the building suddenly appears, walking up the flights of steps, passing through the Mall, entering the Quadrangle, and climbing the mound. He later realized that he had gotten the same sense of exhilaration from mountain climbing when he "broke through the forest" to the first meadows and the further excitement of climbing above the treeline and the final climax of standing on the summit" [Erickson (1975), 144.]. Although this is an afterthought, the effect is no less marked.

Terracing was an important design concept which was used for building, building sites, playing fields, and parking areas. Erickson said that in 1961, two years before the competition, he had travelled in Indonesia and Japan and been struck by the use of terracing for agriculture and particularly by the way that flooded rice fields in Bali appeared to be almost a continuous
body of water when seen from above, "...and that's where the image of the terracing came from." [Interview, Jun. 13, 1997.]

...SFU’s design was inspired by the Acropolis at Athens, the hill towns of Italy, and the Inca ruins at Machu Picchu, Peru. 'Our problem was how to build on top of a mountain,' Erickson said. 'We studied the ancient mountain-top sites and saw how they incorporated the mountain into the overall design.... We're doing this at SFU by terracing fields, parking lots, and the bases of buildings into the mountainside... When we want to expand we'll simply build on the parking lots, and carve out new lots lower down.'

[Danny Stoffman, "SFU Design Inspired by Acropolis, Inca Ruins," Sun, Jul. 23, 1964. Erickson later said he had not been to Machu Picchu, but had studied its terracing in photographs (interview, Jun. 27, 1997).] The terraced rows of buildings resembling steps is strikingly similar to the appearance of the buildings at Machu Picchu.

Erickson made this statement one year after the competition, and since no preparatory sketches or notes seem to have survived, what he said then is probably the most reliable indications of specific sources which influenced the design. It is difficult enough to remember what was done decades before, hard to remember what was said, and next to impossible to recollect what thought. In 1975 Erickson said of the terracing that "one visitor from
India saw its likeness to Fatehpur Sikri; another from Mexico saw in it Monte Alban; another compared it to the Acropolis at Pergamum. But although I had been to these places, I swear I didn't have them in mind." [Erickson (1975), 144.] In 1988 he said that the terracing at SFU had been "suggested by Fatehpur Sikri in India, Monte Alban in Mexico and the water-terraced hills of Java." [Erickson (1988), 36.] In 1996 he said the Gym "was influenced by the Greek ruins of... Pergamum and the acropolis there which had its gymnasium so magnificent just at the top of the hill, and you could imagine the runners going right along the edge of the hill and so--I mean the siting and not the architecture--and also Fatehpur Sikri and again all these hilltowns came into my feelings about this...." [Interview, May 7, 1996.] He added, "I've found that your inspiration for doing things you don't know at the time but you realize it later. When you're trying to explain why you did it, you find out why you did it." [Interview, May 9, 1996.]

Although innumerable hilltown are terraced, few if any have such strong horizontality and such unity. Ordinarily each building is placed separately on its own terrace rather than in rows as at Machu Picchu. Terracing as a concept contributed importantly as an organizing principle at SFU, but other concepts and the skill to interrelate them were needed to produce the overall design.

In 1968 Erickson's analysis of current university planning outlined the major alternatives. [Arthur Erickson, "the
University: a New Visual Environment," Canadian Architect (Jan. 1968), 26-37.] He wrote that "the major common problem that faces all universities today, whatever their policy, is that of growth... each faculty and department has a different rate and pattern of growth...." Apart from widely spaced building allowing for infill, the principal arrangements in use in the 1960s were represented by the following examples: Chicago Circle University (where classrooms were placed in one building, offices in another, and so forth rather than by department), SFU (where a "megastructure" [as Erickson called it at the time] provided an unchanging spine along which expansion could take place and along which room types could be consolidated), Scarborough College (where an "interior street" allowed for expansion at each end), East Anglica (where "growth occurs along many fingers"), Bochum University (with a "pedestrian spine"), and the German Free University (where "several parallel spines" with intersections create a "cross-street system").

Erickson said later that "the Free University as I remember was like taking a block and punching holes in cheese in it, and it was absolutely continuous, and you couldn't have identified one discipline from another one on the original master plan." [Interview, May 7, 1996.] Most of these examples are illustrated in Erickson article "University: a New Visual Environment," and a plan, section, and expansion diagram is reproduced for the Free University of Berlin. In no case is there a recognizable resemblance between SFU and any of the other examples, but the
Free University was widely published in 1960 and 1961, and Candilis, Josic & Woods’ attempt to encourage interaction may well have been influential. Van den Broek and Bakema’s widely published designs for Bochum University also predate SFU, and expansion was planned to be outward and downward. Massey said that he and Erickson were not aware of Lasdun’s East Anglia at the time SFU was designed. [Interview, Jun. 28, 1997.]

Scarborough College by Page & Steele and John Andrews has been compared to SFU, but the resemblances are incidental, and it was designed starting in August 1963, immediately after the SFU competition (John Andrews, "Design Concept," Canadian Architect [May 1966], 42. The comparison is made, for example, in the Canadian Architect 25 [Nov. 1980], building no. 31).] Laurentian University at Sudbury has a more similar site, but is neither compact nor readily expandable. [Canadian Architect (May 1964), 51.] Later, for the University of Lethbridge, Erickson/Massey went a step further in providing for ready expansion by making most rooms interchangeable within a single building (even dorm rooms and offices). [Erickson (1975), 161.]

C. Design Concepts

The design process was complicated with the various components going on simultaneously and continually, but the components can still be distinguished. Careful research by Bain produced a detailed program, and the eventual adoption of specific design principles proved to be essential before the
The individual parts of the campus, the more or less distinct buildings, do not resemble the design of any buildings which influence them, but there were specific influences with ideas coming from Ancient, Medieval, and Modern architecture. Erickson later indicated that "few specific models were in his conscious mind when the design of the complex on Burnaby Mountain was in its formative stage. It is only in retrospect that he began to see" where the concepts had come from. [Rogatnick, "Criticism," 263.]

Erickson said the bridge suggested itself and that the Transportation Center was an obvious place for some covered parking, but the inspiration for the great flights of stairs within the Transportation Center and in front of the Quadrangle, and the bleachers planned for in front of the gym were suggested by the way steps had been used at a number of ancient Greek sites. He had visited the Acropolis and had admired reconstructions of its Propylea with a monumental staircase leading up to it (fig. 26E). Erickson later referred to the "grand Propylean stair to the Quad," but he was as much influenced by Frank Lloyd Wright as by the Acropolis. Erickson adopted Wright's standard dimensions for steps of 5 inches by 15 inches, and he said, "I always try to get as close to that as possible." [Erickson to Waddell, Jan. 27, 1997 and interview, Jun 13, 1997.] It was early Wright, though, as in the Imperial Hotel, which Erickson had seen and admired, rather than late
Wright with constantly changing circulation.

SFU's Transportation Center is raised as a symbolic gateway, and it functions also as a propylea or monumental entrance. At the time of the opening of SFU Erickson was asked...

...were you personally inspired by the works of ancient Greece?" He replied, "Most certainly! ...[I] shall never forget my first impression of the Greek city of Pergamon, high on the mountain, with the gymnasium arranged along the side of the hill. Here, at one time, Greek scholars were able to walk in its magnificent halls.--It certainly influenced me, and I have felt since then that the way the Greeks used the mountain, to occupy the temples of their gods, is how the 20th century should use the mountain to build its universities. [Maier, "University," Burnaby Courier (Sept. 2, 1965), 2.]

Erickson explained that he tried to use everything he had admired while travelling: "...this was the one chance to put them all in a composition, but there wasn't any imitation. It was the spacial experience itself and the composition too." [Interview, Jun. 13, 1997.]

Erickson said he intentionally made the Quadrangle resemble the Plaza Mayor at Salamanca, Spain in two respects: He wanted to the Quad to have a similar repose and so he have it completely uniform fenestration, and he wanted it to seem equally spacious (figs. 7D1-2, no. 1; fig. 7C2, right center). [Erickson (1985), 74]
The Salamanca town square is reproduced in Rogatnick, "Criticism," 263.] The Salamanca building bears almost no resemblance to the Quadrangle, but once the source is pointed out, it is easy to see how the idea of a uniform background it provides for whatever goes on in the space was improved upon.

Many Spanish towns in Spain and the Americas had spaces (rather than buildings) as their focal point, spaces useful as market squares, for festivals, and for military purposes, and they were the direct descendants of the Roman forum (which Kiss had also cited and wanted to incorporate into his campus). The forum in turn is the descendant of the palestra and agora, and these were derived from the courtyard house. Later, the process was reversed, and the courtyard house became the remote ancestor of the Medieval cloister and academic quadrangle. With an extensive knowledge of architectural history, Erickson was aware that throughout the history of Greco-Roman architecture and architecture derived from it, the civic center was a space defined by buildings. The same approach to space provided the basis for the courtyard of the Quadrangle, for the Central Mall, and for the courtyards of the classroom complexes, and the courtyard concept proved its usefulness again at scales ranging from the domestic to the civic, the urban and the isolated. It can contain, and it can exclude.

Erickson said that a basic question about education was "whether your intellectual life should be developed in the center of things or whether it should be allowed to be nurtured in
relative contemplation." [Interview, May 7, 1996.] He was referring to an urban setting versus a rural setting, and at SFU he tried to provide both rather than one or the other. The Mall was the "center of things," and the Quad was for "relative contemplation."

It was not an obvious solution to place the academic core on the highest point any more than to place student offices in the center of the campus. In doing so they literally restored academics to the highest position. In some other plans the administration building had been placed either on the highest point or in the center. Erickson and Massey placed the administration building at the "entrance" from the parking lots and made the Central Mall the functional centre of the campus. The Quad courtyard is a was very carefully and elaborately planned even for the competition drawings to show that it was intended to be a contemplative space rather than an assembly space, and the uniformity of the Quad fenestration was intended to contribute the restfulness of the space. It was designated as the "Academic Quadrangle" with intentional reference to similar contemplative spaces in Medieval cloisters and colleges.

The classical inspiration is most apparent in the design of the Gymnasium (fig. 7E1-2; numbers 10-11), but more in terms of structure and light than form. To adapt the effect of light on an ancient peristyle temple was stylistically as appropriate as to adapting a Medieval quadrangle for the faculty. Both Plato's Academy and Aristotle's Lyceum were created within sports
facilities, and the words "academic," "lyceum," and "gymnasium" are all derived from the ultimate origins of the university in the places where youths gathered and teachers had to go to instruct them. Erickson's admiration for the changing effect of light and shade on a classical colonnade is especially apparent, and he was well aware of Le Corbusier's indebtedness to the boldness of Greek architecture. [Liscombe, New Spirit, 37 and 39.] When Erickson began his travels after graduating from McGill, he "had no interest whatsoever in historical architecture...." [Inglauer, Seven Stones, 51.] When he saw a great deal of it, he realized that it could provide usable ideas as well as any period or style. He particularly admired buildings constructed entirely from a single material, buildings which look as sturdy as they are, and stone surfaces finished with the apparent softness of sculpture.

D. Design Process

In Erickson/Massey's 1966 Progress Report on SFU, the firm stated how its office was organized:

Erickson/Massey works on the basis of teams.... The team method is also used for all architectural works in the office. Teams are constituted according to need and the members are chosen for experience, ability and the particular talent they may bring to such unit, and the size or the team [is] determined by the urgency of the task. Special consultants are drawn on at any time
as required to be part of the team

All teams are directly responsible to one of the partners and in many cases to both partners for different aspects of a problem. In this way both partners are directly involved in every project.

[Progress Report, G-3-53.]

Although the office was considerably larger in February 1966 than in July 1963, what Erickson, Massey, Bain, and Burroughs have stated about preparing for the competition that the work was divided up similarly into separate tasks which required research and analysis before any designing could begin and that criticism was welcomed and utilized from everyone working on the project at all stages of the design. Bain had just graduated from UBC, and he was hired to start to design process by doing research to create a more detailed program. He determined more specific spacial requirements and diagramed possible relationships. Bain said that the vagueness of the Conditions of Competition about space requirements for the humanities and the varying needs of departments for expansion suggested placing all classrooms in one or more buildings rather than dividing them into departmental buildings. The Conditions had stated that it would be premature to try to design plans, but several architects nonetheless showed sections of some buildings to indicate ceiling heights and overall configurations of space. Erickson/Massey showed the a number of sections through the entire site, and their generally horizontal buildings allowed for greater flexibility in plan than
more vertical buildings. Bain’s principal task was to take the competition documents and develop... amounts of space—you know, this was really sort of loose—basically to develop further and to create what amounted to a... space and massing approach to the whole thing. In the meanwhile Erickson went off to Mexico and did some little drawings and came back with some very preliminary sketches, and we took those sketches and I worked with him for another couple of weeks trying to organize all this and the space requirements and everything else and mainly just trying to get this thing to work. And it was finally—you know, there was a point there which I think happens in every kind of intense project like this where nothing seems to ever work.... Then we just finally decided were going to make it work, and we did. We sat down and made a bunch of decisions. We said we’re going to do this, this, and this, and Ken came in and started working on the drawings at this point. It took us two weeks to finish this design and present it at the end. Around two weeks. [Interview, Jun. 26, 1997.]

Ordinarily, Erickson’s initial sketches are only plans. Bain said "...once you know Arthur..., his sketches are shorthand—are very much of a diagram that is very close to what you are going to see." Bain worked on the design development of SFU and later on the Museum of anthropology at UBC and said, "there was a lot
of work done on the program of both of those, and it was
diagramed out, and Arthur took that and developed the first
schematics so that the program was respected. We had the
information in a very simple format. If that information hadn't
been available, I think it would have been a different kind of
process.... [Then] it was a matter of turning those into three
dimensions." Bain added that

...the main problems were that you had to try to make
this work on some parts of the site and you could
manipulate and shift around. You had to try to make it
work on some parts of the site where in fact the slope
was not sufficient for the terracing you wanted and
other parts of the site the sloping was too steep. The
ridge wasn't a ridge; it was a series of hills and
valleys and so it was a matter of trying to straddle
all of this thing and take this large building and put
it across the entire site... with 60 feet of excavation
in some locations.

The Classroom Complex was particularly difficult to incorporate
because the slope was so much less adjacent to the Quad on its
north side as on its south side. The labs of the Science Complex
could be stepped down a story at a time, but the classrooms of
the Classroom Complex could only be stepped down a half-story.
In general, the actual contours were followed as closely as
possible to minimize the terracing required, and the actual
topography turned out to be more favorable to the concept than
the topographical map which had been included in the competition packet.

When asked if a megastructure was planned from the start, Bain said, "yes, in the sense that the Mall and the Academic Quadrangle were basically the key ideas and then the other buildings then sort of falling away from those.... It was more a matter of taking that concept and sort of rationalizing the thing from one end to the other and the series needed to be sort of reiterative and cyclic processes until you got the thing to work...." Asked how he prefers to design, Erickson later wrote, when the human mind has a picture, it is very hard to change, so in thinking of the form for a building it's important to prevent having a picture as long as possible, and only after all the information has been gathered. After the first analysis we build a model of the site, and then we put models on it to see the best organization.... Between the first model, a general massing model, and successive models, we begin discussing structural methods and finishing materials, which usually become obvious.

[Iglauer, Seven Stones, 102.]

As soon as the block model has been prepared, the design team meets to discuss any aspects of it which might need changing. "So I would get the team to do all the analyses of the spaces, the volumes, and everything else, and then we'd start directly with models--very rough models--to see what the impact
of spaces were with the contours.... the forms would gradually develop from these. That's the way I work always--really in three-dimensions--in three dimensional models" (but after having prepared two-dimensional plans, which in turn are based on two-dimensional diagrams). [Interview, Jun. 13, 1997.] Massey said, "we were always building models. We were constantly building models. Arthur's way of working with models really is the best way. You fool yourself just doing perspectives." [Interview, Jun. 28, 1997.]

There is no known visual records of a model prepared during the SFU competition, but there is general agreement that at least one block model was prepared. Erickson was sure that a site model was prepared. Bain could recall working on the one for Lethbridge, and he said that the usual preparation for a competition was that "we would have a big evening with half a dozen people around cutting cardboard and styrofoam and messing around until we modelled the entire project.... I can remember the sort of esprit de corps where people would work half the night in an intensive kind of cheret until we to the model to a point where we could refine it to the next stage." The next stage would be to rebuilt the same model "in terms of refining it, and again, this is a combination of some detailed ideas and some massing ideas.... You can only do so much with drawings.... Sometimes where the direction hadn't been decided and he [Erickson] was exploring alternatives in terms of ideas [models of alternative were prepared]--the concept was there, but how to
achieve the concept had not emerged—and sometimes that wasn’t easy.” [Barbara E. Shapiro, who later worked in Erickson’s office, describes a similar design procedure and illustrates preparatory drawings and alternative models in Arthur Erickson: Selected Projects, 1971-1985 (New York, 1985).]

On the architectural character of the material chosen, Erickson wrote,

Horizontal masses dominated the composition with verticals providing deep recesses at the windows so that the more durable character of concrete rather than glass reads as the dominant material. The combination of horizontal masses with vertical accents provides an extremely pleasing but insistent rhythm carrying throughout the building masses and reflected even in the trusswork of the glass roof. Such simple thematic devices which serve structural purposes as well, give the building complex its characteristic of classical repose. [Bulletin (Sept. 8, 1965), 7.]

Every one of the top five firms specified concrete because at the time it was the standard material for constructing university buildings. The influence of Le Corbusier still predominated in architectural journals, and the sculptural potential of concrete made it his favorite material.

At McGill, Erickson had been thoroughly grounded in the use of pilotis, roof gardens, and other Corbusian features. [Erickson (1985), 18.] In 1978 he still listed Le Corbusier as one of the
three architects who had influenced him the most (the other two being Wright and Mies). [Erickson to Liscombe, Jan. 5, 1978.] La Tourette, the Dominican monastery Le Corbusier designed and constructed at Eveux (1953-1959) appears to have influenced the massing and detailing of two of SFU's original buildings: the Quad with pilotes and deeply cantilevered stories (fig. 7C; bottom right) and the Library (with faculty studies at the edge of a broad roof similar to the monks' cells; fig. 7F1, section 4). [Le Corbusier et son atelier rue de Sèvre 35, Œuvre Complète, 1957-1965 (Zurich, 1965), 7: 33.] The rough-hewn look of parts of SFU and Lethbridge and even more so of the MacMillan Bloedel Building owe an apparent debt to Chandigar. [Erickson admired Chandigar with reservations (Journal of the Royal Institute of Canada (Jan. 1959), 27.) His admiration of Le Corbusier along with architects quite unlike Le Corbusier was characteristic of the broad range of sources Erickson drew upon for ideas rather than forms. [Liscombe, New Spirit, 193, n. 108.] As early as 1947 Erickson was knew well that Le Corbusier's approach was largely different from Wright, who had made him want to be an architect, and with SFU he managed to combine them both. He wrote, "Le Corbusier opposed the earth with something removed from the ground, on stilts. Wright married the earth by using its rhythms and contours...." [Erickson to Mrs. Leslie, Mar. 12, 1947; quoted in ibid., 39.] Erickson said that "Wright was always an influence, but mostly in terms of materials and site." [Interview, May 7, 1996.] The Quad
is raised from the earth, but the megastructure is consummated.

Thus, the work was intended to be done in stages from research to analysis to diagrams and sketch plans before preparing block models. Each stage sometimes suggested the need for further research and analysis, and major changes in the direction the design was taking might happen at any time. Most of the architects followed a similar process, yet all came up with very different results. The end product depends most on the decisions made about what is most essential for the design and on the final stage when the design is manipulated until it seems incapable of improvement. Erickson said the process continues "until something seems right and it all comes together--and that's very quick at the very end and everybody is in a panic. That's the way it happens." [Interview, Jun. 13, 1997.]

Sometimes the design come together better than others, and sometimes it does not come together at all. Burroughs could recall only one later competition, though, in which a great deal of work went into the preparation, but no entry was submitted because the components of the design could not be unified into a coherent design.

Erickson generally puts off a final decision about how a building will look until the last possible minute. He continually thinks about it, but refused to say what he is thinking until everyone has considered every possibility there is time to think of. "The crisis always energizes people. Usually, I keep people waiting because I haven't made the decision
myself." [Ibid.] Burroughs said that the preparation for competitions "were always down to the last second.... That one we finished about 4:00 in the morning. We worked right through. We had to noon to get this thing in. We were all sitting around thinking what else is there to do? We must have missed something." [Interview, Jun. 24, 1997.] When Burroughs was asked why things never come together well before the deadline, he laughed and said, "that's not humanly possible." He explained that while preparing a design, Erickson was constantly thinking of ways of refining things or doing things. He's a designer through and through. He holds onto it until the last minute and even then it's subject to change.... The process of the spine and the development of areas adjacent to the spine sort of evolved [well in advance].... There's a whole rhythm of architectural expression that came out of the things on the mall--the glass canopy and all that--and that showed up fairly early and was an important part not just of the organization but of the sort of physical expression of the rhythm and cadence to emphasize the organization--because we had to have some of that to do the drawing--the final drawings.

He added that the details of the design "came with the solution and to a degree that Arthur was confident to show that much detail.... He knows what he wants. He knows in his mind when it's ready. When I say he was at my shoulder [while drawing the
Bain recalled, "I was responsible for all of the plans and drew that one [fig. 7B]--making it work with the site grades and the cross sections and everything else." In other words, the designs for individual buildings were worked out first including their overall massing and sections, and then the site plan was prepared. "...the cross sections were generated from the [programming] work that I had been doing and sort of modified as we went along, but the basic setting of the grades and floor to floor relationships and everything else was generated and various portions of that were developed to the appearance with Arthur and Ken contributing largely to that.... We had [building] sections and [site] cross-sections and sort of levels for this thing all drawn out and that was what the perspective was from. And then Ken drew the perspective" (fig. 7A1). Burroughs then drew the site perspective view referring constantly to the topographic map of the site, the site plan, and the building sections (rather than using a model to draw from). Both Bain and Burroughs worked on the third drawing (fig. 7C). At the end, except for a few hours sleep, Bain said that "...Ken and I worked around the clock for about three days."

Erickson has said that he prefers to do all of the design work on a project, but as in any architectural office, his decisions are based on information and ideas provided by clients and colleagues. When asked how the design responsibility was
divided for the SFU competition, he smiled and said, "I did it all.... I was using Geoff’s office so he had to organize it, and there wasn’t time. He might have come in and said, ‘why don’t you do this’ or something, but the whole massing, the whole concept, and everything was mine." However, when asked about problems which later arose, he said, "Geoff might remember better because he was working more closely with all the problems." [Interview, May 7, 1996.]

When Massey was asked how much of the competition design he contributed, he said, "well, really not very much. Arthur took the thing--did the main project--the design work.... Arthur is a brilliant designer." [Interview, May 9, 1996.] When asked how he would like his contribution to the design of SFU recorded, he said "...it was very largely his concept," but when working drawings were prepared, "...I did have a lot to do with the design too.... I certainly was responsible for the design of some aspects of it--and the administration of the work." [Interview, Jun. 28, 1997.]

8. Judging the Competition

In the final week of preparation for the competition, Shrum said, "what we’re looking for is ideas.... There may be desirable features in them all. I’ll meet with the winners on Wednesday and we’ll work from there." [Sun, Jul. 25, 1963.] In the Conditions he had warned the architects that the designs which won might not be executed, and now he indicated again that
the competition was not intended to decide what would be built.

Despite his stipulations, Shrum's plan to encourage entries far exceeded his expectations. On May 5, he had hoped for at least 25 entries. [Sun, May 6, 1963.] A total of 95 architectural firms representing 145 architects paid for the competition packet, and thus 53 percent of all architects registered in the province were interested in entering. The number of architects in BC had increased from 35 in 1945 to 235 in 1963, and a great many of the 200 additional architects were recent graduates of UBC and welcomed the opportunity to show what they could design, and since the competition was limited to BC architects, most of them felt they had a chance to win one of the five prizes. [Liscombe, New Spirit, 50.] The simplicity of the entry requirements encouraged 71 firms to prepare designs.

"There was a seventy-second, but his wife went to the hairdresser on the way to deliver his drawings and missed the deadline" (Iglauer, Seven Stones, 64). Kennedy made a survey of the architects who submitted designs and found that an average of 525 hours went into preparing each entry. He estimated that SFU got over $500,000 worth of free architectural advice to select from [Province, Aug. 3, 1963.]

Shrum said that he and Kennedy had "arranged for a jury of five prominent architects, two from Canada and three from the United States.... Among the three from the United States was Stuart Williams, with whom Dr. [Leon] Kroener and I had worked when building the Graduate Student Center at UBC." That Shrum
already knew Williams and respected his opinion turned out to be crucial. Shrum and Kennedy were ex-officio members of the jury (without vote), and Shrum had set it up that way because he did not want his vote to count equally with the members of the jury.

...I was concerned that the jury might select a design that could not be built at a reasonable cost and within the time available. Under the rules, five architects would win commissions, but I reserved the right to choose the winning design [that is, the one to be executed] from the first ten selected by the jury, without restricting myself to the first five. I was going to select the design, not solely for its aesthetic value, but on the basis of practicality as well. [Autobiography, 102.]

In other words the jury's job was primarily to select ten entries for Shrum to choose from and to select five architects to turn the ideas Shrum liked best into buildings. The jury could award the prizes in any order it wished, but Shrum would award the contracts. Shrum admitted in 1966 that "...the real point of the prizes-for-everybody... was that I wouldn't have to go along with a first prize winner. I wanted to pick my favorite. So the committee set up picked the first five and then I was a super committee of one." [Rudy, "Radical," 39.] The result could have been a disaster, but the jury had ideas of its own.

In alphabetical order, the five voting members of the Board of Assessors were: Aaron G. Green, a former student of Frank
Lloyd Wright and the West Coast representative of the Frank Lloyd Wright Foundation in San Francisco; E. Stuart Williams, a principal in the firm of Williams and Williams Architects of Palm Springs; David A. McKinley, a Seattle architect who had previously judged Honour Awards Competitions; Thomas Howarth, Chairman of the Department of Architecture at the University of Toronto and author of a book on Charles Rennie Mackintosh; and Henry Elder, formerly of Cornell and recently made Director of the School of Architecture at UBC. [Since Shrum knew Williams and probably Elder, he is likely to have selected them. Kennedy surely selected Howarth (considering that Kennedy had attended Mackintosh's school) and probably selected Green and McKinley. The files of the British Columbia Institute of Architects is missing for this period.]

All entries had to be submitted by 4:30 P. M. on Tuesday, July 30 at the Vancouver Art Gallery. [The Conditions state incorrectly that the deadline was Aug. 1 at 4 P. M.] The judging began immediately after the deadline and was completed the following morning.

Kennedy said that the judges had no difficulty narrowing the 71 entries down to a manageable size.

You usually find that you eliminate two-thirds of them right away for one reason or another. They're wandering in the middle mists.... Out of the number only about 10 or 12--a small number--that you've got to really look at because you are taking them quite
seriously. The others you can almost tell at a glance will not be in the running. You must have seen this through life? That's what happened. It was a very good competition in the sense that we didn't end up in an indeterminate way whether or not we'd been right in what we said. We felt we had the right answer from that competition. [Interview, Jun. 20, 1997.]

Shrum said that "after selecting the top ten, the judges had difficulty ranking them in order of preference. They were unanimous on their first choice, but not on the others, and every one had to be decided by a vote." [Autobiography, 102]

The Report of the Board of Assessors... provides a summary of the basis on which the jurors reached their decisions:

The variety of submissions was considerable, embracing a diversity of thought from fine competence to utter dullness. ...complete unanimity was reached among the assessors in awarding Number 43 [figs. 7A-C by Erickson and Massey] the First Prize, for it was thought to be an outstanding contribution in the field covered by the contact. The assessors went further than their appointed task in recommending to the Chancellor that every effort be made to see that the first prize-winning design be built without destroying the overall concept.

The report added that Erickson and Massey's design "went a long way towards the creation of a new image for a university.... The
architecture concept is so very simple that it can be comprehended at a glance: it is virtually impossible to lose one's way." More consideration was suggested, though, to "problems of servicing, circulation and noise."

The assessors commended the courage of Rhone & Iredale for recommending an entirely different solution than was proposed in the Conditions, which had called for innovation (figs. 6D1-3). They praised the scale of the design and the ease with which it could be expanded, but they felt that "the constant repetition of facilities such as libraries, auditoria, etc., for each college" was uneconomical and impractical.

The entry by Zoltan Kiss was praised for its ideas and its execution (figs. 6C1-3). The assessors had no objection to providing separate buildings for each academic discipline, but they felt that "the concept has not the clarity" of the design by Erickson and Massey. They were especially impressed that "the drawings submitted particularly the perspective, conveyed ideas and vigour with great conviction."

The entry by Robert F. Harrison was criticized because its buildings too closely resembled "what we have grown to accept as modern collegiate vernacular" (fig. 6B1-3). However, it was praised for "effective use of architectural space in relation to site." Its circulation was also praised.

Duncan McNab and Associates' entry was felt to be too formal and overwhelming for the site, but was praised for its "carefully conceived traffic pattern" and for placing parking close to each
of the buildings with classrooms (figs. 6A1-3). The judges expressed concern that the classroom buildings were placed so far apart.

The assessors also listed five honorable mentions "in a rough order of merit": Thompson Berwick Pratt; Fred Hollingsworth and Barry Downs; Vladimir Plavxic; Alexander Mackenzie Webber; and John Lloyd Kidd. [All three drawings by all five of the firms receiving Honorable Mention are also reproduced in the Assessors Report.] At one time or another, about half of the architects who won the top five prizes had worked for Thompson Berwick Pratt, and Kiss was working for this firm at the time of the competition, but had been permitted to enter separately and was allowed to continue to use the firm's offices to prepare working drawings.

The only large and well established firm which placed in the top five was Duncan McNab and Associates. All nine of the architects in the five firms which won prizes were 46 or under. Erickson and Massey were 39 and 38, and Rhone and Iredale were both 34. [Sun, Jul. 31, 1963. Iredale interview.] Shrum wrote, "it was a surprise to see how many of the firms with big reputations were among the big rejects. I don't think I would have had a very imaginative plan for the university if I hadn't had the competition." [Shrum to Howard Petch, Aug. 5, 1963. Shrum Papers.] One of the reasons the larger firms had not done better was that individual architects had been permitted to enter on their own.
Shrum said, "some entries had lots of colour paint and looked beautiful: this might have influenced me not to pick the judges' first choice, a plain drawing. Stuart Williams took me aside, however, and explained the features of the first-choice design. He sold me on it." [Autobiography, 102.] What Williams said to Shrum is likely to have been much the same as what he wrote a week later to Kennedy:

I cannot tell you how impressed I was with the potential of the #1 Scheme submitted by Erickson and Massey. It seemed to fit the gently rolling crest of Burnaby Mountain like a well cut cloak, tailored to fit the exact shape of the Owner. Not only was every requirement of the general program provided for and the inter-relationship between each large basic element especially well studied, but the possibilities of future expansion down each side slope without disturbing the proportions and appearance of the interior mall were almost unlimited.

I believe that Simon Fraser University stands a better than even chance to become the most beautiful, best planned University int he world if both administration and architects treat this initial scheme with the respect it deserves every time they make an important decision.

Shrum implied that he preferred Kiss's plan. He said, "...if I had chosen number three there would have been a controversy,
especially as number one had been the unanimous choice of the judges." [Autobiography, 102. He says "if" and thus must have preferred one of the others, but not necessarily Kiss's. Erickson is convinced that Shrum preferred Rhone & Iredale's plan.] However, he eventually accepted the assessor's unanimous decision and Williams' arguments and concluded

The Erickson-Massey plan, then, gave me everything I wanted. Probably no other university in the world has had covered parking so close to its main lecture rooms. The university was all together, not as one tremendously big building like the University of Montreal, but as a series with interesting connections. There was, as requested, a main entrance and information centre, and Erickson-Massey provided for expansion by putting the mall and main buildings right on the crest of the mountain with provision for other buildings to be added down either side, like the shingles of a house. Simon Fraser University looks almost the same now as it did the day we opened it, despite the great expansion that has taken place. [Ibid.]

Shrum did not like the first choice. Later, he "often told Erickson that he thought it looked crazy...." [Autobiography, xiii.] He respected the expertise, conviction, and unanimity of the judges too much to trust his own judgement. He said, "all these talented architects showed courage.... They put their
reputation on the line in doing the new, the out-of-the-ordinary." [Business and Financial Chronicle (Dec. 1965), 26.]

Shrum's own taste ran more to Collegiate Gothic, which he had liked so much at UCB that he designed a Gothic house for himself nearby. However, none of the top ten entries were in the Gothic style, and Shrum was aware that he knew little about architecture. He had been forced to hire an architect to straighten out the design for his house when he could not arrange the plan so that stair could run from the basement to the upper floor. He felt that he had as much common sense as anyone, but he respected the expertise of persons in authority, and he had helped to select the experts and could hardly disagree with every one of them. Anyway, as he said, "I have always wanted to get results, to achieve something worth while," and he believed that he gave "people the change to do the job in their own way. All I asked for was results." [Autobiography, 62.] Since the design was so overwhelmingly preferred, since it seemed practical and affordable, and since it seemed the most ready to be built of any design, he was content to get started immediately.

The announcement of the awards was made on the afternoon of the same day that the decision was reached. At 4:30 on July 31, exactly 24 hours after the entries had been turned in, 500 people gathered in a small park at the western end of Burnaby Mountain, and Premier Bennett announced the top five winners (fig. 8A).

Iredale recalled that every architect who entered must have been there, and the presence of Berwick and Pratt among the
dignitaries convinced him that Thompson Berwick Pratt must have won first place. When Bennett announced that the young architects Erickson and Massey had won first place, he said "we thought that was wonderful." When Bennett announced that the youngest architects of all had won the second plan, Iredale said, "I must have jumped 10 feet." [Interview, Jun. 18, 1997.]

Shrum said, "I still reserved my final choice from any of the first ten. When I got up and said, 'I announce that we're going to build number one,' there was a tremendous cheer--everyone was delighted with that decision."

Erickson wrote later that "...when we contravened the conditions by submitting a design we believed in, and won, we were somewhat surprised." [Erickson (1975), 134. In 1985 he admitted that they had been "truly surprised" (Erickson [1985], 32).] They had hoped for first place, but doubted that they would get it.

On the day of the announcement, Erickson said "'we simply set out to design a practical, flexible and compact campus, taking full advantage of the unique location.' Massey, equally modest, said 'we tried to approach the project from a common-sense point of view.'" Shrum added, "...the plan submitted by Massey and Erickson is so good that we shall build according to their design.... And I am convinced that we are going to have the most distinguished university in Canada" (fig. 8B). [Sun, Jul. 31, 1963.]
PART C: PREPARING FOR PHASE I

9. Five Winners of One Prize

Shrum wrote, "the morning after the awards ceremony, I held a meeting of the five winning architects.... I explained that Erickson and Massey, as competition winners, would be in charge of everything as far as the overall design was concerned. I then gave the others a choice of sections of the work.... Erickson and Massey had to see that all sections fitted into the general plan...." [Autobiography, 104.] Massey said later, "we were afraid, though, that we would be told to associate with some large established firm after we did win it that they would not feel we were capable of doing it ourselves. Fortunately, Shrum said if you guys screw it up, it's on you." [Interview, May 9, 1996.]

Iredale said that Shrum seated everyone around the big wooden conference table in his office on the 17th floor of the BC Hydro building and told them essentially, "I want you all to understand that this university has to be built in 18 months. I want your assurance that you'll do whatever is required to have it up for me in the 18 months, and if anybody can't do it, there
are a lot of other architects that want the job." [Interview, Jun. 18, 1997. Both Iredale and McNab sounded exactly alike when they quoted Shrum, and he must have usually spoken as if he were addressing troops.] Shrum informed the architects that each firm would receive a 5 1/2 percent commission on the cost of construction and that 1/2 percent of the standard 6 percent fee would be deducted and paid to Erickson and Massey for coordinating the project. Some architects objected, and Shrum told them that if anyone was unwilling to accept his offer, "'I'll substitute somebody else for you right this morning.' ... I was still a committee of one at that stage, and it is a wonderful feeling being a committee of one." [Autobiography, 104.]

Erickson said, "the first thing he told me was that I had to quit my job teaching in order to do this--full time." When asked what would Shrum have done if he had not resigned from UBC, Erickson said "...he would have gotten one of the others." [Interview, Apr. 13, 1997.]

One newspaper columnist commented at the time that the "prizes" were the "greatest financial juggle since Premier Bennett invented contingent liabilities." [Jack Wasserman, Sun, Aug. 3, 1963.] As far as Shrum was concerned, the architects had competed entirely at their own expense, and now they were being given a chance to earn a commission by being draftsmen for Erickson and Massey. He had not even planned to pay each firm $5,000, but he consented to see if an advance against their commissions could be arranged.
Shrum told the architects to get together immediately and to work out among themselves how the project would be handled. They meet together in a coffee shop after their meeting with him.

[Harrison interview, Jun. 17, 1997.] There was general, if not complete, agreement that Erickson and Massey's design deserved to have won: Harrison said, "I thought it was a wonderful scheme. I think we all thought that." [Ibid.] McNab said it was "an excellent plan and was very compact and enabled the buildings to be built very economically...." [Interview, Jul. 11, 1997.] Kiss said, "well, it had to be admitted that Arthur’s concept was the most detailed and the most interesting.... Their drawings were very beautiful." [Interview, Jul. 11, 1997.] Iredale felt, though, that there were "five equal winners." [Interview, Jun. 18, 1997.] No one had suspected that four of the five prize winners would be asked to execute another firm's design. Each firm had been led to believe that it would get to design one of the buildings called for in the Conditions. There was no agreement on how to proceed.

There was even uncertainty about which buildings were to be built initially, and not a single floor plan had been drawn for any building. Each firm had been instructed in the Conditions to make recommendations about what parts of the campus should be built during the first stage of construction planned to accommodate 7,000 students by 1971. Now, the first stage was divided into two phases, and during Phase I as many buildings as possible would be constructed before September 1965, when the
University was expected to open with about 2,000 students.

Erickson and Massey had recommended in their entry, for example, that the Academic Quad be built after 1971 and that the Classroom Complex be constructed immediately on the south side of the ridge. Shrum said to build the Quad and the Science Complex and to put all the faculty and students in them initially. Erickson and Massey had also recommended constructing most of the administration building, but Shrum said the administration was to be placed in the Library. Erickson and Massey had not recommended the Transportation Center be built initially. Although Shrum was strongly in favor of student housing, he rejected Erickson and Massey's recommendation to build a substantial portion, and none was planned for Phase I until a contribution was later made for the purpose.

Shrum "gave the architects four months to produce their designs, a task normally requiring two years." [Stainsby, "Instant University, 18.] He said later, "...all of them were good and they all co-operated with each other. It was a pleasant working arrangement." Erickson later wrote to Shrum that although all the architects had "apprehensions..., I think I may speak for all that we have been more than pleased with how remarkably well everything has gone. The friction which at first seemed inevitable, has been avoided and we have had the closest possible cooperation from our colleagues." [Shrum to Erickson, Feb. 27, 1964. Shrum Papers.] When Erickson was asked in 1997 if this was correct, he replied, "I had to say that." [Interview,
May 7, 1996.

Shrum assumed that all the architects had to do was put UBC interiors into the Erickson/Massey exteriors. During the next two months while negotiations continued among the architects, Bain worked on refining the program. When he sent Shrum a series of questions, Shrum called him and said, "I've made arrangements for you to go and talk to anybody at UBC that you want to, and you can use them as your programmers." [Interview, Jun. 26, 1997.] When Massey tried to pen Shrum down on the number of seminar rooms and lecture halls, Shrum said, "I don't know any better than you do, but it doesn't matter. We'll fix it in Phase II." He took for granted that money would be available to build more of whatever might be needed. Erickson/Massey did more research, and its projections turned out to be a "pretty accurate" reflection of what the needs were when the University opened. [Interview, Jun. 28, 1997.] Shrum later told Iredale, "we'll need labs just the same as at UBC for chemistry, physics, and biology. Just go and copy them.... I've been working at universities for long enough that I know that decision is a good as a committee could make in a year and a half so get on doing it.... You guys cooperate. Arthur and Geoff are in the lead. You work with them, and we're going to build the scheme exactly as it is on that drawing.... You guys go ahead and draw."

[Interview, Jan. 18, 1997. Iredale said, "...as I look at it I'm amazed how much--how little it varied from those original competition set of drawings."]
10. Attempts at a Working Relationship

The "Minutes of Meeting Number One of Chancellor Shrum with the Designing Architects" recorded that at the first meeting on July 31, "a discussion was held concerning the necessary working arrangement between the designing architects. It was agreed that the matter should be dealt with by the architects themselves at a meeting in Mr. Massey's office on the same afternoon." [Shrum Papers.] Also surviving is a "Summary of Points Discussed by Architects, Simon Fraser University Competition, August 1, 1963":

Agreed by five firms:
1. That the design carried out would be that of Erickson & Massey.
2. That Erickson & Massey would be in charge of the design section of the program.
3. That because of the nature of the winning design it would be difficult to divide it into portions that could be carried out by individual firms.
4. Agreed by four firms and one dissenting that an association of the firms would be the best method of preserving the unity of the design. Firms to share equally in profit and responsibility. [CAA.]

The dissenting firm was Erickson and Massey. In other words, nothing was decided that Shrum had not already stipulated, but his stipulations had been accepted.

The next day, August 2, the architects met again with Shrum and requested a month "for the preparation of a report which
would define each firm's contribution to the project." He said work should begin immediately to be ready to start the bidding process "not later than January, 1964.... If plans and specifications are not produced on schedule, the Chancellor said that additional architects would be appointed from the group that won Honourable Mention in the contest." The architects indicated that they could not come to agreement, and "the Chancellor preferred Erickson & Massey to have overall design authority with other firms functioning in a competitive spirit. He said that Erickson & Massey should ensure that individual buildings would not clash with the master plan. Otherwise, each Architect should develop his design according to his own concepts." This clarified nothing, but it helped that Shrum "suggested that the order of choice of buildings between the Architects should be in accordance with the order of the prize awards." He added that all he had promised them was a commission on work done, and that the budget would be $15 million and that this amount needed to cover access roads and everything else except the sewer and water system, which Burnaby would provide. "He said his policy is that quality should never be sacrificed for lack of money," but what he meant was that less would be built if necessary. [Minutes of the second meeting. Shrum Papers.]

Shrum gave his reasons in a private letter written a few days later: "Four of them [the firms] had wanted to form a joint firm to do the work, while Massey and Erickson disagreed. I ruled in favour of the latter for two reasons,-- (a) they won the
competition, and (b) I prefer to have the work split into blocks with each of the four having its own block and contractor. In this way it will give better control and comparison of performance." [Shrum to Howard Petch, Aug. 5, 1963. Shrum Papers.]

The next meeting of Shrum with the architects did not occur until September 23, nearly two months later. In the interval, Erickson and Massey planned the road system, started work on small scale working drawings for all the buildings to be constructed during Phase I, and met with the other architects to try to resolve what their relationship would be. On August 29, the firms which had placed 2nd through 5th in the competition met in the office of Duncan S. McNab and Associates. McNab took minutes and he noted "at present two proposals are acceptable to the four firms-- (A) The setting up of one organization in one location in which the responsibilities, cost and profits are shared equally. (B) the dividing of the work into three portions suggested by Mr. Massey to be carried out by individual firms and combined firms." [CAA.]

On September 1, Iredale indicated that Massey had proposed that the three parts of the project be the Quad, the Mall and Theatre, and the Library and Gym. He recommended that Erickson and Massey work with McNab on the Mall and Theatre (together estimated to cost nearly $4 million), that Rhone & Iredale and Kiss work together on the Quad and Science Complex (estimated at about $4.4 million), and that Harrison take the Gym and some
other work (estimated to cost a total of $1 million). By his plan, each of the nine architects would receive a commission on about $1 million worth of work—rather than the approximately $9.4 being divided among the five prize winners. This was unacceptable. [Iredale to Massey, Sept. 1, 1963. CAA.]

On September 10, when Iredale proposed that Erickson and Massey serve as "Planning & Design Consultants," that they allow the other architects initially to follow their designs as they thought best, that they "redesign any element that in their opinion will not form a harmonious part of the total campus plan," and that the University (Shrum) arbitrate in any disagreement. Of necessity, this was more or less what had to be done to meet Shrum's conflicting stipulations, but two weeks of additional negotiations were required to reach full agreement.

11. Development Plan

During the six weeks following the competition, Erickson and Massey prepared a comprehensive planning document entitled the Simon Fraser University Development Plan. It may not be true that they were stalling for time with their negotiations, but in any case they made good use of the time the negotiations provided and that Shrum did not want to give them.

Ron Bain prepared the report by consolidating the most relevant information from a variety of sources: the Macdonald Report, the Conditions of Competition, Erickson and Massey's competition design and statement, diagrams prepared in-house for
Phase I, and reports prepared by a number of consulting engineers. The information Bain collected and presented filled 66 pages not counting the ten engineering reports which were appended. [Bain said he "wrote a substantial portion" of the report, but "Arthur contributed portions of it" (interview, Jun. 26, 1997).] The purpose of the report was to "summarize the steps taken and the conclusions made from the information we have gathered in order to arrive at a Master Plan." He also prepared the revised site plan entitled the "Development Plan" (fig. 11), which is dated September 11, 1963. Copies of the report were sent on September 12 to the other four firms, to Shrum, and to various others. [SFU Archives. Massey lent his copy to be photocopied for the CCA and CAA.]

The Development Plan consists of five parts: (1) "establishment of physical requirements," (2) "the development plan," (3) Phase I, (4) implementation, and (5) appendices. Attached were reports by a surveyor, geologist, landscape architect, civil engineer, traffic planner, mechanical engineer, and electrical engineer.

To establish physical requirements, the academic plan was briefly summarized. Shrum had decided that when the university opened in 1965, it would offer basic courses needed for the first two years of a four-year program in the arts (humanities), sciences, and education. In the falls of 1966 and 1967, third and fourth year courses would be added, and in the fall of 1968 coursework for a master's degree program. However, since there
was still no one connected to SFU except Shrum, Bain had to spend
two weeks interviewing faculty members at UBC, and
Erickson/Massey had to draw its own conclusions. [Interview,
for student enrolment and the present enrolments in various
departments at UBC, the report gave proportional calculations of
approximately how many students were likely to enrol in each
subject area during the first two years at SFU and then estimated
the probable space requirements.

In terms of square feet, the minimum requirements for space
needed by September 1965 were estimated to be 20,350 for
classrooms, 36,800 for student labs, 17,600 for offices, and
6,600 for research labs. These minimal requirements were
increased by 60 percent to estimate the square footage required
for most non-academic spaces, and additional estimates were given
separately for the library, administration, student center,
auditorium, and gym. The totals went from only 81,350 for
teaching, office, and research spaces to 601,500 for the usual
spaces most campuses were expected to provide for 1,800. [At
Macdonald’s current cost for construction of $20 per square foot,
this would require $12,030,000, but it did not include site
development.] To accommodate 7,000 students, the total was
estimated to be 1,605,400 square feet and for 18,000 students a
total of 3,191,000 square feet.

The Development Plan zoned the site into areas set aside for
the following purposes: academic, residential, maintenance,
playing fields, parking, developed parkland, undeveloped parkland, lake, and affiliated research institutes. A lake had been included in the competition design, and the accompanying statement indicated that its purpose was to collect run-off water from the cleared areas of the site and to use boating.

Expansion plans were diagramed (fig. 13C), and the diagram is significant for showing before any other firm was involved in the design of the project, Erickson and Massey had already made several significantly different decisions from their competition design. The most important of these was that the Science Complex was shown as divided into six separate double-loaded corridors rather than three (including one with two corridors). By contrast, the Classroom Complex was reduced from six narrow extensions down the north slope to four broad extensions. The administration building is shown separated from the Quad rather than overlapping it. The Library is shown as expanding vertically rather than horizontally. All of these changes were followed in the execution of these buildings, and they show also on the large scale drawing titled "Development Plan 11.9.63."

[In their 1966 Progress Report, Erickson/Massey refer to "the Development Plan dated September 11, 1963" (B-2, p. 9 and 14). Its scale is 1"=200'.] The following crucially important design objectives were specified:

(a) The campus should fit the hilltop and look out to all sides.

(b) The campus should be a single entity.
(c) The campus should have a strong identity. Simon Fraser University should be as unique as its setting.  
(d) Compactness of plan must be resolved without sacrificing the demands of expansion and flexibility.  
(e) All buildings should be built as permanent buildings. At no point in its growth should the University look incomplete.  
(f) The campus should be composed of building volumes which have been tailored for use so that each part of the University can be identified with its particular function.  
(g) Similarly, exterior spaces, courts, quads, etc., should be identified with their specific uses.  
(h) Thus, the purpose of each part of the complex is carefully and clearly set out and the University reduced to the simplest and most compact form. The clarity of the total plan should be immediately evident to the visitor.  
(i) Though clear and obvious in layout, there is no lack of visual interest because of the interplay of more intimate inward looking campus spaces with the endlessly changing aspect of the surroundings for which the campus acts as a view window.  

Many of these decisions are so clearly reflected in the competition designs that they provide the best indication of which decision were made in order for the design to come
From the beginning the outside spaces were as carefully planned as the interior spaces. The Quad courtyard and the residential courtyard were intended to balance one another at the east and west ends of the campus, and they were to be connected by a continuous elevated mall. A visitor who parked in one of the terraced lots at the east end of the campus and who walked to the west end was intended to encounter the following distinctly developed areas: an avenue of trees, a plaza adjacent to the administration building, the formally landscaped Quad courtyard, a small plaza, the covered Mall, a long plaza connecting the Mall with the residences, the large residence courtyard, and another small courtyard framing views from the west end of the site. This sequence of architecturally defined spaces was eventually achieved except at each end of the campus.

A complete system of roads needed to be created. The Conditions of Competition had envisioned four-lane highways from both the Trans-Canada Highway and from the foot of the mountain's east end climbing a thousand feet to the summit, but they had not been begun. Only a narrow two-lane road connected the foot of the mountain's west end. To provide immediate access to the site for construction vehicles, Erickson and Massey proposed widening the existing road and extending it across the north side of the site. The extension was intended to be paved eventually to become a scenic drive near the crest.

As planners, Erickson and Massey also had to make provisions
for a water tower, connectors to sewer and storm drain systems, site grading, electrical service, and a central energy facility. The report considered all of these requirements.

For Phase I the Development Plan recommended construction of the following buildings were recommended: the entire Quad, the Science Complex, the Mall and Transportation Center, the Library, a 500-seat theatre, and the main portion of the Gym (fig. 13B2; cf. 13B1). That a recommendation was still needed shows the final decision had not yet been made by the middle of September. The final decision is shown in a perspective of how the campus was expected to look at the end of Phase I (figs. 13J-K).

The Plan also recommended that during Phase I landscaping was to be done around buildings as each was completed; some playing fields were to be laid out; and the lake was to be created. Access roads and the loop were to be built, but aside for parking for construction workers, additional parking would be provided only in the Transportation Center and under the Mall. Services to be installed initially included the central heating plant and water tower.

More specifically, Phase I called for the completion of a wide variety of seminar rooms and lecture halls. The principal large lecture halls Shrum had specified were to be adjacent to the south side of the Quad as part of the Science Complex, but were to be used for the Humanities as well as the Sciences. Initially, there were to be one lecture hall for 500 students, two for 350, two for 200, and five for 75-9. The Quad would also
have six classrooms for 45 students and six for 30, and there were to be 10 seminar rooms for 15 students.

Rough estimates made on the basis of square feet totaled $9,560,000 for Phase I construction. In addition, engineering costs alone were expected to total $2,222,500, and miscellaneous costs (for relocating the BC Hydro tower, furnishings, contingencies, and architects' fees) totaled $3,285,000. The grand total was $15,060,300.

In the section on the implementation of the design, Erickson/Massey stated that "the compactness of the solution... prevents individual interpretation by other architects" and that "the physical and aesthetic interdependence of all parts of the scheme... demands careful control of all aspects of the design... Mandatory to the success of this scheme is its unity and any departure from this would seriously affect the outcome of the design." The other four firms were expected to conform closely to the adopted design and to guidance provided to ensure its uniform execution. They were expected to limit themselves to "detailed design, the production of working drawings and supervision" of construction. "The consolidation of the various firms into a single production office" was still considered as possibly the best way to ensure the "close collaboration required."

In a summary of the "principal intentions of the design," special emphasis was placed on the use of terracing parallel to the axis of the mountain. "Where practicable, the roofs would be
used as terraces with pedestrian access." Since the buildings are designed as integral parts of the whole and since they are physically linked, "it is vital that the collaborating architects accept and help to establish a 'vocabulary' of form, materials, and details which would become standard to guide design decisions. A vocabulary of form is fundamental to any significant architecture...."

In order to coordinate all of the design work, a ten-foot module was established as a horizontal grid. Vertical elevations were to be made as uniform and continuous as possible throughout the site. Concrete finishes were to be standardized. Windows were to be deep set to allow the concrete walls to predominate visually.

This very comprehensive Development Plan concluded by asking that it be adopted and that "the University instruct the architects to proceed immediately with detailed design studies, working drawings, etc."

12. The Working Arrangement

On September 23, 1963, when the architects met for the third time with Shrum, the working relationship had still not been resolved, but by then Erickson/Massey had been working on their own design continually for four months (two months before the competition and two months afterwards). None of the other four firms had started to work on a building for the simple reason that there was still uncertainty about which firm would get which
building. Since Erickson/Massey had the first choice, there would continue to be uncertainty until it made its choice, and then the other firms would choose in order of their place in the competition.

McNab told Shrum "that the four other firms would act as a joint office to produce working plans and specifications from approved preliminary plans supplied to them by Erickson Massey." Shrum asked how soon a set of preliminary plans could be prepared, and Erickson said in about one week more for the classroom block (the Quad) and two months more for all the other buildings. "The Chancellor felt that this proposed working arrangement would not use the design and productive abilities of the four associated firms to full advantage. Mr. McNab said Erickson Massey would be responsible for planning and the other firms for production. They expressed some reservations about this arrangement, but it appeared to be the most efficient scheme for this integral design." [The extended negotiations are worth following in detail because they provide a good indication of how responsibility was divided, how much cooperation was forthcoming, alternative solutions for a difficult situation, and how much credit belongs to each firm.]

Soon after the competition, Shrum had said to Erickson, "you know I don't understand. I'm not an architect. But you were judged by people I respect that this is a superior project, and I will support you...." [Erickson interview, May 7, 1996.] Had Shrum been willing for the architects to follow the arrangement
they had decided upon, an enormous amount of disagreement could have been avoided. He felt rightly that he had put the other four firms in an almost untenable position, and now he overruled all five firms. Although he had publicly stated "we're going to build number one," now he felt it was sufficient to have the campus resemble the adopted design. Since he had been unfair to the other architects, he now tried to make up for it by being unfair to Erickson/Massey. He managed to be impartial by being equally unfair to everyone. He was more interested in ensuring that the work be done on time, and he had already threatened to bring in as many other architects as necessary. He felt his commitment was to the competition drawings, and his goals were solely that the buildings resemble the drawings and be completed on time for agreed upon amounts. He had absolutely no interest in developing the winning design further.

Shrum rejected Erickson/Massey's request for the two additional months to complete preliminary plans, elevations, and sections for all buildings, and he instructed Erickson/Massey to turn over what they had already done so that the "design and productive abilities of the four associated firms [could be used] to full advantage." He also went back on what he had said at the initial meeting of the architects on July 31: "Erickson and Massey, as competition winners, would be in charge of everything as far as the overall design was concerned."

If Shrum had kept his word to the assessors, to the public, and to the architects, the winning design would have been
followed in all important respects. Although he had been unfair to the other architects, it was now unfair to Erickson/Massey to overrule the other architects to speed up the work. It is probably fair to conclude that he was principally concerned about meeting the deadline he had agreed to more than about what was built and that he was eager to report that everything was on schedule when the Board had its first meeting two weeks later.

Nearly a week remained before contracts were signed and the work Erickson/Massey had been completed in the first two months was turned over to the other firms. By that time the preliminary designs for the Quad were complete or all but complete. Erickson/Massey continued to work on all drawings for the Mall and Transportation Center and for site development, and they also produced additional preliminary designs for the other buildings as quickly as possible.

Erickson said, "I wanted to take the Quadrangle originally, but we said, if it's going to tie together properly, we've got to take the central element that ties everything together. So in a sense we were really taking a less significant building because it was the interface between all of the buildings, but we felt that's what we have to do." [Interview, May 7, 1996. I said, "it is Simon Fraser." He grinned and said, "yeah."]

At the meeting, Iredale proposed that "each of the five firms be assigned responsibility for individual buildings with Erickson massey also acting as consulting architects to the other firms." He recommended that Erickson Massey take the Mall, Rhone
& Iredale the "Faculty Offices" (the Quad), Kiss the "Classroom Blocks" (on the north side), and McNab, Lee & Logan the gymnasium and theatre.

Dr. Shrum said this arrangement had great merit because work could begin immediately and individual responsibility was clearly delegated. Mr. Erickson said they had considered this scheme earlier but had not adopted it because control of design could be difficult to define. Dr. Shrum replied that all firms should have the right to appeal to the University over any dispute concerning the design of a building.

There continued to be disagreement about the 1/2 of 1 percent fee each of the other four firms was to have deducted for Erickson/Massey. Shrum offered to pay a flat amount for planning if Erickson/Massey would accept 1/4 of 1 percent, which they agreed to in principle providing that they also be paid the amount already invoiced ($11,689.97). Shrum accepted this in principle and set up another meeting for two days later. At the fourth meeting on September 25,

the architects reported that they had agreed upon a revised allotment of buildings for a more equitable distribution of the work as follows:

Erickson Massey--Buildings and services of the centre mall, landscaping, site development, ground services, water tower, and reservoir, building and grounds and field houses, etc.
Considerable discussion ensued concerning legal and financial aspects. After all contentious points had been negotiated, [contracts were scheduled to be signed on September 27.]

When the contracts were signed to days later, Erickson/Massey received a 6 percent fee and were to "be responsible for coordinating the work under a separate contract with the Client."

Each other firm had a schedule "A" attached to its contract with the following provision:

The Architect acknowledges that Messrs. Erickson and Massey have been retained by the Client as Consultant Architect Planners and are responsible to carry out the work set forth in their agreement with the Client dated September 27, 1963 which agreement the Architect acknowledged to have read and understood. The Architect further acknowledges and agrees that his work is a component part of a master plan for Simon Fraser University and agrees to cooperate with Messrs. Erickson and Massey in the carrying out of the work assigned herein to the Architect.
The four contracts for the other firms were essentially identical except for the building specified. For example, Rhone & Iredale's contract stated "Whereas the Client intends to erect Simon Fraser University, its buildings and surrounds, in accordance with the overall concept or plan prepared by Erickson & Massey, and has requested the Architect to perform architectural services with respect to that portion of the overall plan designated as Laboratories, Lecture Theatres, Offices and Classrooms."

Erickson/Massey's separate contract was the crucial document because each of the other firms agreed to abide by it. As "consultant architect-planners," Erickson/Massey's contract was to be valid from September 27, 1963 "until the 31st day of December, 1965, or such longer period as the University shall in its discretion see fit...," and during this period Erickson/Massey shall be responsible for the overall ground layout and design of the University campus, including recommendations to the University as to the siting and landscaping of buildings, the overall architectural character of the campus, the general layout, massing and architectural character of individual buildings, a selection of building materials, the review of building designs as proposed by individual architects and external furnishings, and without limiting the generality of the foregoing shall include:
(a) Acting as co-ordinator of the work of the architects retained by the University to work on the building complex;

(b) Determining in consultation with the architects the relationship of each individual part of the campus to other parts of the campus and to the master plan and design of the campus area as envisaged by Erickson-Massey and approved in principle by the University....

(c) Instructing the architects as to the siting of each part of the building complex;

(d) Determining in consultation with the architects the building design and choice of materials used in each part....

Importantly, it also included the stipulation that "in its agreement, with other architects, the University shall, during the term of this agreement, require such other architects to consult with Erickson-Massey and submit plans of the individual parts of the building complex to Erickson-Massey for their approval thereof in relation to the said master plan...." Erickson/Massey was also to coordinate the landscaping, advise on furnishing and signage, and consult on roads, but not to have "the responsibility for implementation of the said design of the construction of any part of the building complex except under separate contract...." The University agreed to pay its outstanding bill and to pay a fee of 1/4 of 1 percent on the cost
of all construction. If any disagreement arose, the University’s decision would be final. But who the University was soon began to change and kept changing.

Erickson/Massey’s goals were "to ensure that the various parts of the University complex were architecturally consistent, i.e. integrated in materials, structure, position, massing, scale, and details" in order to achieve "a completely unified campus" and by doing so to ensure that "both in concept and execution, Simon Fraser will initiate ideas of consequence to the whole field of university planning." Shrum had more or less agreed to all of these goals finally, but the new Board and President would soon also need to be persuaded. [Erickson and Massey to McTaggart-Cowan, Jun. 4, 1964.]

13. Initial Changes by Erickson/Massey

By the end of September Erickson/Massey had been working on its design for SFU continuously for four months before any other firm was involved in the design process. During June and July, it had refined its design to the point that the completed buildings would later closely resemble the competition drawings. During August and September, further changes were made and all were adopted by the University before any other firm was involved in the design process. Enough of the preliminary plans, elevations, and sections survive to show that what Erickson/Massey turned over to the other four firms was an essentially completed designs for the appearance of the exteriors
and the spaces of the interiors, but with a tremendous amount of design work remaining to be done on the structure, the utilizations of the spaces, mechanical engineering, and detailing. The other four firms also made an increasing number of changes in the all aspects of the designs.

Ron Bain and others kept a record of when the preliminary drawings were completed and distributed, and the surviving drawings are dated. [The list is in the CAA, and the originals of the drawings are in the CCA. The drawing numbers on the surviving drawings correspond to the record of their distribution.] The revised master site plan was completed on September 20 and was sent to all architects (fig. 11). A set of plans for the three principle levels of the site was completed and sent on October 8. [These levels are 1186', 1195', and 1219'-the last the level of the Mall. The competition design had given the mall elevation as 1220' (fig. 7D2); the level was eventually changed to 1218'.] The first sectional drawing for the Quad was completed on August 21, and two drawings for the Quad were sent to Kiss on September 27, and all preliminary drawings for the Quad had been projected for completion the week before. On September 30, drawing for the Library were sent to Harrison, and drawings for the Science Complex were sent to Rhone & Iredale (figs. 13E-I). [These dated drawings are in the CCA.] Additional plans and sections for the labs were sent to Rhone & Iredale on October 1, 3, 9, 25, and 29. Plans and sections for the Theatre and Gym were sent to McNab on October 1 and 3.
An undated group of eight large sketches by Erickson must have been made early in this period of redesign. They show the Library three times as long as wide (figs. 13D1-3), and it was built more compactly. Since these designs are more similar to the post-competition site model (fig. 13A) than to the competition drawings, but still significantly different from the preliminary drawings, they must have been prepared during August or September 1963. The CAA sketches are similar in format, and Erickson said he drew them, but he thought they were for the competition. Bain and Burroughs agreed, but some of the sketches are far more highly developed than the competition drawings. Seven of the sketches are of the Library, and one is of buildings planned for "stage 1" (fig. 13J), a design which appears to be reversed, but Erickson said the Library was never intended to go on the south side of the Mall. "I always work on both sides of the tracing paper because I have astigmatism so my lines will go this way and I have to correct them by turning it over so I always work both back and front. I used to be an artist, and I always had to reverse them and reverse them in a mirror because your eye becomes so adjusted to one way of looking that you get that fresh view by doing than--and upside down." [Interview, May 7, 1996.]

On August 26, 1963, Massey had ordered a site model nearly seven feet long to be prepared by R. A. Dunne (fig. 13A), and it was probably completed before the end of September. Although the model is not known to have survived, it is well documented in a
series of photographs by Herbert L. McDonald taken on November 1 (including fig. 25A2]). This model conforms closely to the "Development Plan" (fig. 11) and clearly represents preliminary revisions by Erickson/Massey before the other four firms were involved in the design process. [Dunne prepared the 42" X 80" model at a scale of 1"=100' for $2,500. Massey to Dunne, Aug. 26, 1963; CAA. A letter dated Aug. 21, 1963 to Erickson from Harvie Thompson and Steven Waring Ltd., Toronto, stated that Herbert MacDonald had sent them a plan and perspective, and they could make a 44" X 80" model in three weeks from the receipt of the order. Since their bid was only slightly higher, Dunne must have been able to provide his model within a similar time period.

The photographs are in the SFU Archives; "Progress Photography File," by Herbert L. McDonald, photos MOD 1-20. Another photograph of this model appeared in the Universities Capital Fund brochure, p. 8 (reproduced here as fig. 13A).]

The principal changes which had been made by Erickson/Massey during the first four to six weeks after the competition were in the design of the Library, Theatre, and Gymnasium. The Library's upper stories are stepped back in the model (fig. 13A) rather than vertical as in the competition drawings (fig. 7F1). The Theatre is already shown in two parts rather than as a single mass including two large audience halls (fig. 25A; cf. 25A1). The Gymnasium is substantially enlarged. [This model was prepared for public relations and fundraising, and it was initially displayed in the BC Hydro lobby and later at Simpson-Sears,
Burnaby. By May 14, 1964, it was on display at the BC International Trade Fair (Board Minutes), by May 18, 1965 at the Hudson Bay Company store, and by Aug. 26, 1965, at the Pacific National Exhibition, its last known location.

The evidence of the competition drawings, the Development Plan, the model, the preliminary drawings, and written documentation all support one another completely that the overall conception of the exteriors and the overall arrangement of the interiors was the work of Erickson/Massey. Nonetheless, much detailing remained to be done; much expertise went into decisions about how buildings were to be engineered and equipped; and changes were made that Erickson/Massey did and did not approve of, but that the University authorized. The overall architectural character of the university was determined by Erickson/Massey and was executed to their designs, but there is much at SFU which does not represent their intentions. Some of it is excellent.

When Iredale, Harrison, McNab, and Kiss were asked in 1997 if Erickson/Massey had furnished them with preliminary drawings, none recalled any:

**Iredale:** "As far as drawings are concerned, I don’t remember much other than several meeting in which conceptual ideas were gone over...." [Interview, Jun. 18, 1997.]

**Kiss:** "I don’t recall that there was any more than what they submitted to the competition." [Interview, Jun. 11, 1997.]

**Harrison:** "No.... That was left up to each individual
architect." [Interview, Jun. 17, 1997.]

McNab: "...the Theatre had only been blocked out, and we designed it completely from scratch.... The buildings of all the architects in the competition were completely different from the buildings that were built." [Inteview, Jun. 11 and 28, 1997.]

When Erickson, Massey, Burroughs, and Bain were asked if they had prepared preliminary plans, they all were certain that they had:

Erickson: "...we did detailed plans as well of every building.... We independently gave them separate plans, sections, and elevations of each project." [Interview, May 7, 1996.]

Massey: "Yes, that’s right. Well, Shrum made that quite clear—that we were the master architects—not just from the panning point of view, but from the design point of view." [Interview, May 9, 1996.]

Bain: "The drawings we actually give them were very close in the plans and elevations." [Interview, Jun. 26, 1997.]

Burroughs: "I know for a fact that we did because I can remember as clear as day doing them and working them out." [Interview, Jun. 24, 1997.]

In the previous section it has been shown that the other four firms cannot have begun to design the buildings until a definite decision was made on September 27 about which firm would design which building. The question is thus not whether or not preliminary drawings were prepared, but how many and with how
In a definitive statement made in the February 1966 Progress Report, Erickson/Massey wrote,

Preliminary drawings showing plans, elevations, finished grades around buildings and excavations done under our contracts for various buildings, floor levels, building modules, massing, etc. were issued from this office to all other architects. These drawings were sufficient for other architects to be able to immediately finalize their preliminary drawings and commence working drawings much sooner than would otherwise have been the case. The conceptual stage of design, which is often the most time-consuming, was consequently eliminated and exact guidelines were given for the siting of their buildings and the linkage to the University services. [Section B-2, p. 3.]

A comparison of Erickson and Massey’s competition drawings (figs. 7A-C) with their surviving preliminary drawings (figs. 13F-J) and a comparison of both sets of drawings with what was built provides the best evidence of how much of the design had been worked out before the other four firms started their design work. Although there were some major changes, these changes have been shown to have been made during July and September before the other firms began to work on the project.

When SFU opened in September 1965, the Mall and Transportation Center (for which Erickson/Massey prepared the
working drawings) were very much as in the competition designs. The library proposed initially on the competition plan was several times longer than wide, and it was intended to be expanded laterally rather than vertically, but this change was indicated in the Development Plan (fig. 13C). The Gym was shown substantially smaller with an outdoor pool at the west end. The enlargement of the Gym is shown on the model which was ordered no later than early September 1963. The Quad changed insignificantly in its overall form, size, and location from the competition designs, and these changes can be attributed to the complete set of preliminary plans Erickson/Massey prepared for it. The Science Complex has essentially the form it was given in the Development Plan, but as it was constructed, it was increasingly redesigned. The student residence scheme later changed radically, but the first and third residences were designed entirely by Erickson/Massey and the second residence, and nearly all the remainder of their various plans for housing (including courtyards at the west end of the site) have never been executed.

14. Erickson/Massey

Arthur Charles Erickson (fig. 14, left) was born in Vancouver in 1924. He was initially attracted to architecture by seeing illustrations of Taliesin West by Frank Lloyd Wright, whose rustic designs strongly appealed to British Columbia architects as a group. [In 1947 Erickson saw the article on
Taliesin West in *Fortune* (Erickson [1988], 17). Ron Thom considered Wright "the most profound single influence" on BC architects (Thom, "Modern Architecture on the West Coast," in Leon Whiteson, *Modern Canadian Architecture* (Edmonton, 1983), 23.) He was a student at UBC's School of Architecture from 1942-1943 and at McGill's School of Architecture from 1946-1950 (graduating with honors). At McGill he was greatly influenced by the "study [of] the potential of materials, following Bauhaus methods." Erickson listed the principle influences on him as his mother, Myrtle Erickson; Lawren Harris; and Gordon Webber, a McGill professor who had studied with Moholy-Nagy at the Chicago Bauhaus. [Iglauer, *Seven Stones*, 48; Liscombe, *New Spirit*, 33.] His mother "challenged everything. She never took anything for granted." Harris "never gave anybody any advice. He said, 'you've got to find your own answer,' and, of course, that's always the best advice to give." [Quoted in John Lownsborough, "At Home with Arthur Erickson," *Western Living* (Jun. 1988), 52f–g.] Webber set as one of his principle goals "to find a new architecture to exploit those [new] materials to their most practical and aesthetic ends" (Quoted in Iglauer, *Seven Stones*, 37.).]

During the Second World War, he served with the Canadian Army from 1943-1946 as a Captain in the Intelligence Corps in India, Ceylon, and Malaysia. After graduating from McGill, he travelled for nearly three years on a McLennan Travelling Fellowship and studied architecture in Egypt, Syria, Turkey,
France, Spain, England, and Scandinavia. [Business and Financial Chronicle (Dec. 1965), 27. The experiences of these extended travels substantially shaped his approach to architectural design: "What excited me most was how courageous the early buildings were--how bold the ideas--and how timid we are, in comparison, despite our vast array of techniques.... we are continually misusing history to justify our point of view." [Erickson (1975), 12-13.]

In 1961 he travelled to study architecture in Japan, Cambodia, Thailand, and Indonesia on a Canada Council grant. He spent five months in Japan and absorbed a completely different architectural tradition. In 1969 he said, "the great experiences in my life" were the trips to Europe and Japan. ["Interview between Mr. Arthur Erickson and Mr. Takanishi--Taisei Director, Tokyo," Nov. 13, 1969; typescript bound with "Speeches of Arthur Erickson," UBC Art Library. This interview contains the most comprehensive summary of Erickson's early life and career before 1963, but while travelling in Europe and Japan, he kept a diary in the form of letters recording his impressions of the architecture he was seeing.]

Since 1961, Erickson has made study trips to Africa, South America, Iran, India, Pakistan, and China as well as working on design projects in numerous countries. His extensive travels have continued to provide a principal source for ideas, which Erickson extracts from buildings so that they can be utilized to generate unique forms. [A chronological listing of his and
Erickson/Massey's projects is in Erickson (1988), 224-226. Subsequent work is listed in the publications of the firm of Arthur Erickson Architects, and his newest work is widely published in architectural journals. A critical appraisal of Erickson's work has been made by Rhodri W. Liscombe in "Critical Biography" (Shapiro, Erickson, 8-11). Biographical sketches are also included in Liscombe, New Spirit, 202, in Contemporary Architects (1980), 236, and elsewhere. In 1979 Erickson stated that "my friendship with Bess and Lawren Harris and my brief contact with F. L. Wright" and the design of SFU were the most significant events in his life. [Erickson to Liscombe, Jan. 5, 1979. UBC Art Library Vertical Files.] SFU provided Erickson with the first chance to use the ideas he had most admired in buildings throughout the world, and he tried to incorporate as many as possible.

From 1953-1963 Erickson worked for several architectural firms and in private practice and from time to time collaborated with Massey on the design of houses and apartment buildings. He also taught architecture as an Assistant Professor at the University of Oregon during the academic year 1955-1956, and he taught at UBC from 1957 until 1963, when he resigned as Associate Professor at Shrum's insistence that he devote his full time to SFU. Ken Burroughs made the important observation that "being a professor at the time, I'm sure he [Erickson] had some pretty good ideas about how the education process worked and how it could work better." [Interview, Jun. 24, 1997.] No other
architect of the nine principals had the academic background of Erickson.

Prior to the SFU competition, Erickson's principal designs were the Filberg House in 1958 (Comox, BC) and the Graham House in 1962 (West Vancouver). [Erickson (1975).]

Geoffrey Massey (fig. 14, right) was born in London in 1924 and lived in England until 1938, when he went to the United States to attend a preparatory school. In 1942 he enlisted in the Canadian military and served until 1945. Afterwards, he went back to the United States and attended Harvard. He graduated in 1951 with a M. Arch. from the Harvard Graduate School of Design, which was directed at the time by Gropius. [Frank Walden, "Stage Shy Architect," Vancouver Life (Oct. 1965) 1: 48.] His Bauhaus training was from its principal source.

After graduation, Massey decide to live in Canada, where his father's family was from, and he initially chose Montreal, but found little was being built at the time. In 1952 he moved to Vancouver and worked from 1952-1956 with Sharp & Thompson Berwick Pratt. He gained extensive experience designed housing, office buildings, and industrial buildings, and he established his own practice in 1956. Prior to the competition for SFU, he had won awards in several other competitions. From time to time he and Erickson collaborated on separate projects before they formed a partnership, and they designed the first Smith House (1953), the Killam House (1955), and the Chico Street Apartments (1956). [Vita, Art Library vertical file, UBC. Erickson (1975), 20-23]
Erickson and Massey formed an informal partnership on winning the SFU competition, and in the contract with the University dated September 27, 1963, the firm is called "Erickson-Massey Architects." They worked together as Erickson/Massey until 1972. [A draft of the partnership agreement dated Oct. 21, 1964 (actually 1963) in the CAA, and it gives the date the agreement was to take effect as Jan. 1, 1964. The name of the firm is given variously. On some early drawings, it is Erickson & Massey. On early letterhead, there is no punctuation in the name of the firm. By 1964 dots appeared. At least by the beginning of 1966, Erickson/Massey became the preferred form of the firm's name, and it is so given in the Progress Report (and in Erickson [1975], 219). References to the firm by other often included a hyphen, and in quotations, I have used whatever was indicated. Otherwise, I have used "Erickson and Massey" before the competition and to Erickson/Massey afterwards.] During this entire period, they were preparing designs for various buildings at SFU, but they also prepared the design for the University of Lethbridge, the McMillan Bloedel Building, and numerous other major projects.

The design team for the SFU competition seems to have consisted of Erickson, Massey, Burroughs, and Bain. Upon winning the competition the office was quickly expanded to 11 architects, and Ehling coordinated the work of the staff. Although Ehling had assisted Kiss's competition entry, he had also worked
previously with Erickson on the Filberg House. Other architects who worked on SFU included Bruno Freschi, Rein Raimet, Genje Ogawa, Bing Thom, Fred Dalla-Lana, and Dan Lazosky. [Erickson (1988), 219.] By 1965 the office had expanded to about 20 members, but numerous other projects were beginning to be offered to the firm. In 1973 as work was ending at SFU, it had 40 employees. [Sun, May 1, 1973.]

Erickson/Massey had the first choice of buildings, and they chose the Mall and Transportation Center, the site plan, and a number of smaller buildings (including the water tower and fire pump house) which together increased the amount of their commission until it was equivalent to most of the others. Erickson said he felt that the core of the campus was crucial for him and Massey to design to ensure that all other parts fitted to it exactly. It was a thankless task no one else wanted, and they made it the most memorable part of the university.

The Mall and Transportation Centre are a single, continuous structure consisting of the bridge between the two peaks with parking under the Mall and in the bridge and with student offices and other facilities, and with broad staircases east and west leading from the roadways to the Mall level. Most significantly, it includes the wood, metal, and glass Mall roof and its concrete supports.

In addition to designing every detail of the Mall and Transportation Centre and the preliminary plans for the buildings constructed during Phase I, Erickson/Massey established the
composition and surface treatments of the concrete; they selected the types of doors, windows, and hardware to be used throughout the campus; they had charge of all the landscaping; and they had the responsibility to approve the designs of the other four firms and coordinated their work and to supervise construction to ensure uniformity of materials and finish. They designed uniform details such as the detailing of the precast concrete fins to be used on most buildings. After construction began, they also designed the Women’s Residence (Madge Hogarth House) as a prototype for all housing to be built at the west end of the campus, and it was also completed during Phase I.

To the extent that they could get the other architects to cooperate (which they generally did), their preliminary designs were followed for the buildings constructed during Phase I and through the end of their first contact. From the beginning of 1968, they ceased to have the authority to ensure that the adopted design was executed. [After Erickson/Massey dissolved its partnership, Massey resumed his own practice and became an Alderman of the City of Vancouver.]

15. Rhone & Iredale

William R. Rhone (fig. 15, left) attended the University of California at Berkeley and graduated in 1952 with honors and a master’s degree in architecture. He served with the United States Army Corps of Engineers until 1953 and then created his own practice. He formed a partnership with Iredale in 1959.
W. Randle Iredale (fig. 15, right) was born in Calgary, Alberta, in 1929. In 1955 he received a degree in architecture from UBC and afterwards worked with McCarter & Nairne until he was registered in 1957. He had his own practice from 1957-1959. [Business and Financial Chronicle (Dec. 1965), 32.]

Rhone & Iredale had the second choice of buildings, and they initially chose the Quad, but were talked out of it by Kiss. They chose the Science Complex, which Shrum ensured was expanded on a regular basis (and it was later named for him). The first two phases of the Science Complex cost $3.8 million while the Quad cost $3.5 million, and Rhone & Iredale got to design the third phase of the Science Complex as well. [Ibid., 29, 32.]

The Competition drawings (fig. 6D1) had shown only a series of block forms stepping down the south hillside, but this had been given increasingly more specific for with the Development Plan and the preliminary drawings by Erickson/Massey. The first phase included most of the top half of the Science Complex, and later Rhone & Iredale expanded completed the first three wings and expanded them further down the hillside. [Other architects subsequently added two wings to the east of the original three.]

By contrast, Rhone & Iredale's competition entry had shown separate colleges, each of which was to teach the lower levels of instruction in all subjects, but one of which was to specialize in the sciences. They did not indicate separate buildings for chemistry, biology, and physics in their design. Rhone & Iredale did show separate groups of windowless blocks stepping down
terraced slopes, and although their purpose was not indicated, they were apparently intended as the large lecture halls Shrum had called for, and similar halls were part of the Science Complex.

16. **Kiss**

Zoltan S. Kiss (fig. 16) was born in Menfocsanak, Hungary, in 1924. During the Second World War, he was a student at the Technical University of Hungary at Budapest. When the war ended, he went to Denmark to continue his studies in architecture and to study ceramics. He later transferred to UBC and in 1951 completed a degree in architecture. Along with Iredale and Lee, Kiss was one of the younger UBC graduates Shrum had particularly hoped would enter the competition. While attending UBC, Kiss lived with Iredale's family. [Iredale interview, Jun. 18, 1997.]

He initially worked for Thompson Berwick Pratt from 1953-1962 and had the opportunity to participate in the design of major projects such as Vancouver International Airport [Business and Financial Chronicle (Dec. 1965), 29.]. In 1956-1958 he and Barry Downs were project architects for he Buchanan Arts Building at UBC. [Liscombe, *New Spirit*, 89; a biographical sketch is on p. 203.] He had also designed other buildings at other universities. [Kiss interview, Jun. 11, 197.] He started his own practice after winning third place in the SFU competition. Even while he was working as part of a large firm, he achieved a reputation for designing "distinctive and elegant" buildings.
Although Kiss was awarded third place, he got his first choice of buildings. He wanted the Quad, and he told Erickson and Massey (who had first choice) that since they had so many other responsibilities, they should not consider adding the Quad to them. When Rhone & Iredale had wanted the Quad, Kiss said, "if you select the Quadrangle, it's one building, and when it's finished, it's done, but if you select the science buildings, they'll keep on going." [Interview, Jun. 17, 1997.] As Harrison later said, "Zoltan was very persuasive in his quiet way." [Interview, Jun. 17, 1997.]

During Phase I, Kiss prepared working drawings for the western portion of the Quad. Although the Development Plan had called for all of the Quad to be built during Phase I, the eastern third of it could not be budgeted until Phase II.

In Kiss's competition design, the classroom and office buildings were separate highrises (as the Conditions had suggested; fig. 6C1). His buildings had complex forms, but they bore no resemblance to Erickson and Massey's design for the Quad. Kiss agreed strongly with the Modern dictum that a building should reflect its plan, and he wanted to change the fenestration to reflect the variety of spaces in the plan, but in this case the University sided with Erickson/Massey. He wanted the concrete fins to be white rather than grey, and the University
sided with him.

During Phase I, Kiss also designed the President's House. It is in the location indicated on Erickson and Massey's competition design, but not visible from the campus, and Kiss produced for it a completely new design.

In the second phase, Kiss was awarded the completion of the Quad and the design of the second block of student housing, Shell House. With the University's approval, he departed substantially in materials, textures, and color from the principal buildings constructed during Phase I, but created a building which was compatible in its overall form and character. Although he sited Shell House perpendicular rather than parallel to the axis of the Mall, Erickson and Massey's competition design had called for connected blocks of housing which would have included the building site and left space for the large courtyard planned for the west end of the campus.

17. Harrison

Robert F. Harrison (fig. 17) was born in Vancouver in 1925, and during the Second World War, he served with the Canadian navy in the North Atlantic. After the war, he articled with the firm of McCarter & Nairne (as had Erickson and Iredale). Like most of the other nine principles, he had worked for Thompson Berwick Pratt. In 1954 he became a registered architect and in 1961 the Registrar of the Architectural Institute of British Columbia. While working at SFU, he was made Chairman of the Institute's
Examining Board. Prior to winning fourth place in the SFU competition, he had won a number of other awards including a Silver Medal in the Massey Award for Architecture as a partner in the firm of Hale & Harrison. [Business and Financial Chronicle (Dec. 1965), 33.]

Like all of the prize winning principals except McNab, Harrison was starting his career and had not yet received a major project. He pointed out that since the competition had been designed to give younger architects a chance to win, Shrum was unconcerned that only one of them had been given so much responsibility previously. Shrum wanted them to gain experience, and he expected them to do so quickly. [Interview, Jun. 17, 1997.]

There were no bad choices in the first phase of SFU, and Harrison was able to select another major building, the Library. The exterior of the Library already had the projecting study carrels and a strongly horizontal roof line supported on strong verticals in the competition design, and it was given its relatively compact form by the time of the Development Plan. However, Harrison replanned the interior and later added and redesigned the top two stories. Ron Bain had worked previously with Harrison, and their friendship greatly facilitated cooperation.

As co-chairman of BC Hydro as well as Chancellor, Shrum decided that the lower floor of the Library would include six gas boilers for the central heating plant of the University.
Harrison managed to incorporate it so that its presence is unnoticeable within the Library.

The Library had been planned to have only 250,000 books, and the relatively small collection was to be primarily for undergraduate coursework. [Statement for the Chronicle, May 8, 1963; Shrum Papers.] Most research requiring library resources was intended to be made available through UBC’s library, and much of the Library’s interior was intended to be study space.

By September 3, 1963 Shrum had decided to build most of the Library during Phase I. He wrote, "...I am insisting upon a separate and permanent library building." [Shrum to Robert H. Blackburn, Chief Librarian, University of Toronto, Sept. 3, 1963. On Aug. 28, Blackburn had written advising him to hire a librarian immediately to begin the time-consuming process of acquiring and cataloging books. Shrum Papers.] Since the University opened with only 30,000 books, the Library might seem not to have been needed as one of the first buildings, but one of the first members of the staff Shrum hired was the librarian, and book acquisitions continued at a fast pace when the Library opened. Even though the Library was planned to have seven stories, it opened with five, and the lowest is largely taken up by the energy facilities. Shrum’s plan was to use most of another floor for administration and a bookstore and to leave the uppermost story unfinished until it was needed for more bookstacks, and these last minute decisions required substantial change. The extra space was soon needed for classrooms to
accommodate a larger enrolment than expected. Gradually, the Library was able to occupy its entire building. (Even with two additional floors, additional space is required is now required, and a compact storage is planned to be built adjacent on the north side.)

When Harrison added the upper floors, he departed from Erickson/Massey’s, which had been top heavy and which would have distracted attention from the design as a whole until they redesigned it soon after the competition. Instead of stepping the floors back, Harrison beveled the top two stories, added windows, and managed to improve the profile of the building without making it resemble a Mansard roof. His own competition plan had included a library building with massing more similar to the final design than Erickson and Massey’s own initial design, but it a largely different treatment of the fronts (with the glass rather than the concrete being given the most emphasis; fig. 6B1). He had not planned a bevelled roof for his own building, and this feature was not shown in a painted rendering he prepared for Phase I. [SFU Archives; framed.]

After the first phase, Harrison designed an entirely new administration building in keeping with the architectural character established for the University. It was in the location which the "Development Plan" had recommended.

18. Duncan McNab and Associates

Duncan S. McNab (fig. 18, left) was born in Nanton, Alberta.
in 1917 and grew up in Calgary. At age 46 he was the oldest and best established of the nine architects who won the SFU competition. In 1941 he graduated with a degree in architecture from McGill, and during the Second World War was a navigator in the Royal Canadian Air Force.

McNab was the only one of the nine architects who had completed an architecture degree before military, and while the others were completing their training, he was already establishing a reputation. From 1945-1948, he had major design responsibilities as part of Sharp & Thompson Berwick Pratt, and in 1949 he started his own partnership. At the time the demand for new schools was particularly great, and his firm became one of the leading designers of schools for British Columbia and also had experience in university design, having greatly enlarged the biology building at UBC. By 1963 his firm included about 15 architects. [McNab interview, Jun. 11, 1997. The name of the firm is given differently in various publications, and during Phase I, it was referred to sometimes as Duncan McNab & Partners and at other times as McNab, Lee, and Logan. The firm’s stationary had Duncan McNab and Associates. ] Of the five firms, only McNab already had the staff he needed to begin working drawings immediately. [Harrison interview, Jan. 17, 1997.]

McNab’s partners were Harry Lee, who was in charge of design for the Gymnasium, and David C. Logan, who was in charge of the design of the Theatre. All three buildings were often credited to all three architects, and they worked together on the designs.

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Lee (fig. 18, center) was born in Prince Rupert, and he graduated with a degree in architecture from UBC in 1950 (making one-third of the nine principal architects graduates of UBC). When he graduated, he joined McNab’s firm.

Logan (fig. 18, right) was born in Vancouver in 1922, and he graduated in 1950 with a degree in architecture from the University of Manitoba. He worked in Ontario until 1956, when he joined McNab’s firm.

Duncan McNab and Associates had fifth choice, but McNab was delighted: “we wanted the Gym. That was our pick really.” He had been on a diver on the swim team at McGill, and later in his career one of his principle commissions was a large and innovative indoor pool complex [Interview, Jun. 11, 1997]. It was no coincidence that the courtyard of the gym in the competition design by the firm was to serve as the entrance to the campus. The firm was able to add the Theatre as well.

McNab’s design for a gym (fig. 6A1-2) resembled Erickson and Massey’s gym in its massing, in having prominent vertical supports, and in having a strongly horizontal roof cornice. The McNab design called for 8 widely spaced piers which would have created a significantly different effect even from the 14 piers in Erickson and Massey’s competition design and still more different in effect from the 30 closely spaced piers of Erickson/Massey’s September 1963 model. The flat roof profile was like what was built rather than the peak on the roof of Erickson and Massey’s design, which reflected a different
structural concept than the one adopted. However, the central courtyard and central location were very different.

The McNab concept of an auditorium within a ribbed dome (fig. 6A1) was entirely different from Erickson and Massey's blocky building with a roof which stepped down except for its loft. The interior of the theatre was wholly redesigned to provide a maximum of flexibility.

Shrum had been determined to have a gym and a theatre among the first buildings constructed at SFU. He said,

The University of British Columbia opened [in downtown Vancouver] in 1915 without a gymnasium, and it did not get a proper one until after the Second World War. Before then, they had to make do with a little wooden affair built with student funds. It had taken UBC fifty years to get a theatre, and in 1963 it still did not have an indoor swimming pool. After a university is established and if someone tries to get a swimming pool or a theatre, there are always fifteen academic departments whose demands for funds seem to take priority. I included a gym, a theatre, and a swimming pool in my SFU plan because I knew from experience how difficult it was to obtain such facilities later on.

Though not an athlete, Shrum was a sports fan, and it annoyed him considerably that so many athletes had been lost to Canada by being "lured to the U. S." To make his case, he said "athletics may not be the panacea for all our problems, but in young people
athletics are as much of a driving force as sex." [Autobiography, 108.]

19. Working Drawings

Shrum tried to get every architect to prepare working drawings and specifications in time for the bidding process to begin by January 1, 1964, but that arbitrary deadline simply could not be met. The earliest set of bidding documents was completed was by Duncan McNab and Associates for the Gymnasium on February 20, and no other firm had a set ready until March.

In the meanwhile, a tremendous amount of site preparation needed to be done before any construction could begin. Since the clearing and rough grading were not completed until March construction was little delayed, and in the cases where it was delayed, the construction time estimated to be necessary was still more than adequate.

The preparation of working drawings involved many stages of approval by Erickson/Massey and by the University. A few examples will indicate what was required.

On October 15 Erickson and Massey met with Rhone and Iredale to discuss the design of the Science Complex. The next day Massey wrote commending their proposed "treatment of the courtyards between the Science Blocks. We feel this approach has great merit, but would like to discuss it further with you since it diverges from the original scheme and thus requires serious restudy." [Massey to Rhone & Iredale, Oct. 16, 1963. CAA.]
Clearly, a collaborative effort was being seriously attempted, and all aspects of Erickson/Massey's preliminary drawings were not expected to be accepted automatically.

Even so, the ramifications of changes had to be considered, and the final decision had to rest with Erickson/Massey for the coherence of the design to be maintained. Massey went on to say in his letter that "we are a little concerned with the overall massing sketch which accompanies your drawing insofar as we seem to be loosing the effect of terracing in the Science Block which we feel is essential to the overall eventual design." Rhone & Iredale had evidently proposed that the lecture halls be treated as more unified masses, as was eventually agreed upon.

On October 18, Kiss wrote Erickson/Massey that he had enlarged the Quad courtyard to be 360 feet across rather than the 320 feet he had proposed in the drawings he presented on the 15th. The larger building would have 240 single offices, 120 double offices, 18 special offices for heads of departments, 4 areas for stenographers, and 4 conference rooms--altogether space for 446 employees. [At this point, the upper two floor of the Quad were still to be used entirely for faculty offices, but since all of the offices would not been needed until the school expanded, all would not be completed in Phase I.]

Kiss was designing the interiors for the cafeteria and lounge on the east side of the Quad at the level of the Mall (that is, in the second story of the six story east front; the basement had not yet been planned). He estimated that the
227,300 square feet would cost $3.5 million rather than the $3.1 million a building with a 320-foot courtyard would have cost. He requested "approval in principle" for the overall size and cost, for individual room sizes, and for the proposed boundaries between the Quad and the adjacent projects. [The Quad corridors were shared by the Quad and the Science Complex, but were designed by Kiss as integral parts of the Quad.]

On October 23, Massey wrote Shrum asking for a decision on whether to leave the Quad incomplete by omitting all of the east side and one-fourth of the north and south sides or by omitting two-thirds of the north and east sides. He recommended the asymmetrical arrangement to encourage completion and to save an extra $100,000 in Phase I. At their first meeting together, Shrum had told the architects, "don't ever, ever say that you've been held up because you weren't able to get a decision from me. I'm a busy man, but I will give you a decision when you need it--just don't ask before you need it." [Autobiography, 104.]

Shrum's decision was to leave the Quad incomplete, but symmetrical (presumably so it would look better on opening day for he certainly intended to complete it).

On October 11 Massey had asked Harrison to submit preliminary drawings, initial cost estimates, and a schedule the following week, and Harrison met with Erickson and Massey on the 17th to go over this material. On October 30 Harrison wrote Erickson/Massey that he had made the changes requested in their meeting and requesting a meeting with Shrum "for his comments and
approval to proceed further on my overall planning concept. " His plan for Phase I was to construct five floors with a total of 154,562 square feet, but to leave the basement and second floor unfinished. There were thus to be two stories completed below the level of the Mall and three above. The estimated cost was nearly $2 million excluding the central heating plant. He planned to complete drawings and specifications by March 1, 1964.

Since there was still uncertainty about where book stacks would be positioned, he proposed a structural system which would allow stacks to be located anywhere. "I do not, at this point, plan to finalize the internal planning. This cannot be done until I know the size of the staff and the number of volumes the library intends to purchase initially." He wanted, instead, to proceed with a design which would allow maximum flexibility and only to establish ceiling heights and the location of service cores.

Harrison had asked "Dr. Ralph E. Ellsworth, a leading library consultant at Colorado University" to prepare a library program. He needed an estimate of the rate of expansion as well as more specific information about staffing to handle the rate projected. Ellsworth responded on December 11 that except for minor problem "...the plans look good to me." The Board appointed Donald A. Baird as the first Librarian on Feb. 17, 1964. This was after the plans for the Library had been largely completed with Ellsworth’s advice, and Harrison and his assistant had gone to Boulder and spent several days consulting with
Ellsworth. When Baird saw the plans, he sent President McTaggart-Cowan a three-page telegram on March 8 and objected strenuously: "The plans for the library are grossly inept.... I have written a 12 page critique in long hand which you will have on the 9. If there is controversy on the soundness of my proposals I recommend that the plans be sent to Dr. Ellsworth at Colorado for his opinion." [CAA] At the Board meeting on Mar. 12, "the President reported that there was nothing basically wrong with the plans, but there were one or two points where Mr. Baird's personal preferences had differed from Dr. Ellsworth's."

On November 4 Kiss presented his third scheme to Shrum. This called for about two-thirds of the entire Quad to be constructed in Phase I and the remaining third in Phase II. The total area to be constructed initially was 147,900 square feet of interior space--about the area of the five stories of the Library--but nearly all of the Quad interior was to be finished. Outdoor spaces such as balconies and the open terrace provided additional usable space at least part of the year. The cost of construction excluding fees had been reduced to from $2.7 to $2.9 million. He asked for Shrum to select one of three air handling systems so that planning, structure, and costs could be finalized. He hoped to call for bids on February 14, and he warned that meeting the construction deadline of September 1, 1965 depended on quick decisions, no changes, and no strikes or other unforeseeable delays.

On December 10 Kiss asked Erickson/Massey to provide the
locations for the construction road, where earth was to be placed to be reused for the courtyard mounds, parking areas, benchmarks, service lines, and the size of steps for the courtyard. He also needed information on the "approximately twenty items to be standardized throughout the University buildings."

By December 30 Kiss estimated that 50 percent of his working drawings were complete. The cost estimate had risen back to around $3.3 million with the addition of a basement, larger footings, and a more expensive air handling system than planned. There had been some savings by leaving part of the building unfinished, but the cost rose substantially nonetheless.

As these examples indicate, many decisions made during the period that working drawings were being prepared required significant amounts of redesign. There is no question that the other four firms were making contributions to the design of the campus as a whole. In most cases their contributions were approved, just as if the firms had been associated and good suggestions had been made by any member of a design team. With interiors particularly, though, the other four firms tended to use a greater variety of surface finishes and more color that Erickson/Massey would have chosen.

When the University was about to open, a newspaper noted that "while simplicity and harmony was 'fairly well' achieved on the exterior..., he [Erickson] is not quite happy about the interior. He would have preferred a more monastic atmosphere, achieved through colors more sedate, and ornamentation more
restrictive." [A. L. Maier, Burnaby Courier (Sept. 2, 1965),
2.] In 1978 when Erickson was asked "did the need to collaborate
with other architects at Simon Fraser University hinder or even
limit the realization of your design concept," he responded,
"Yes--insofar as there were differences in finishes and details
and especially with respect to the interiors." [Liscombe to
Erickson, Oct. 20, 1978, and Erickson to Liscombe, Jan. 5, 1979.]
In 1997 Erickson said that he would have designed the interiors
to be more like those "of Renaissance Florence or Santiago de
Compostella. No colour except works of art on the interior."
[Erickson to Waddell, Jan. 27, 1997.] Kiss made much use of well
detailed wood paneling, and the effect, as in the corridors of
the Quad, is one of great warmth. On the other hand, Erickson's
impeccably finished concrete walls in the Student Center have a
softness resembling the stunned marble surface of Greek sculpture
and architecture. Erickson said that the finish and colors of
the Library came closest to what Erickson/Massey would have
specified.

Massey handled most of the firm's correspondence and
coordination. He attended most meetings, provided most of the
information requested and took much of the brunt of criticism.
SFU marked the beginning of an immensely successful partnership.
Erickson later wrote about "the mammoth task that Geoff took on
of coordinating the project--not only the various personalities
but the many contractors, quality control etc. I eschew meetings
and so buried myself in design issues which were large enough and
of course, my primary concern. [Erickson to Waddell, Jan. 27, 1997.

One of the ways in which the design was most effectively coordinated was by having each firm construct a large scale model of its part of the project. When the individual models were fitted to Erickson/Massey's new model at the same scale of the Mall and Transportation Complex, discrepancies became immediately apparent in three dimensions (fig. ). [These models were constructed at a scale of 1/16"=1'. (Progress Report, B-2, p. 23). None of these models is known to survive, but Herbert L. McDonald recorded them in a series of photographs in the SFU Archives.]

Early in the design of SFU, the other four firms began to feel that they were receiving insufficient credit for their contributions. Each firm had prepared a rendering of the final form for the buildings they were responsible for, and these renderings were widely published. Occasionally, little or no credit was given to anyone but Erickson/Massey. On the other hand, the four firms were vague about exactly what their contributions had been. [Ralph Meyer sent Erickson/Massey two photographs of the rendering of the Science Complex and wrote, "we would respectfully remind you of the laws of Copyright and request that his perspective drawing shall not be re-produced]
without proper credit to Rhone & Iredale Architects" (CAA). One generally accurate 1965 publication stated that the Science Complex was "an excellent example of the ingenuity employed by its designers, William R. Rhone and W. Randle Iredale," and the other buildings were attributed wholly to the other architects. The "master plan" was reproduced with no indication that it had been prepared by Erickson and Massey as their competition entry. (Business and Financial Chronicle [Dec. 65], 29, 32-34. In general, most magazines and newspapers were unable to figure out what Shrum had decided that the working relationship would be.)

The period during which working drawings were prepared was discussed in Erickson/Massey's Progress Report:

Erickson and Massey and our consulting engineers were in daily contact with the other architects and their engineers during all the critical phases of the design and production of working drawings.... Although we were imposing strict limitations on their design, we had at the same time to try not to stifle their initiative or dampen their enthusiasm. To gain cooperation on what we felt were the most critical decisions, we had to accept minor revisions. We tried at all times to gain our way by persuasion rather than compulsion, using drawings and models to illustrate our point.

In the light of the multiplicity of firms employed and the conflicting interests, we are surprised in retrospect that our relationships were, on the whole,
as harmonious as they were.... many modifications were requested from the other architects. We did not obtain cooperation in all cases, since the architects argued that time would not allow this.... Despite areas of contention with the other architects, we were successful in ensuring that at least the various parts of the building complex came together satisfactorily and achieved an overall homogeneity. [Progress Report, B-2, p. 4.]

20. President and Board

In the fall of 1963, Shrum thought he had things well enough along that it was safe to have a board and president. The University Act stipulated that the board was to appoint the president. Nonetheless, Bennett told Shrum, "you hire the president, but don't make a mistake." Shrum said later, "I felt that the way to get someone good, whom I knew had ability and good sense, was to look at [my own] former students." [Autobiography, 105-106].

Shrum first asked Howard Petch, Dean of Engineering at McMaster University. Petch attended the ceremony on July 30 when the results of the architectural competition were announced, and Bennett was enthusiastic about him. Petch was seriously tempted by the offer, but he finally decided that some projects he had initiated at McMaster on materials science needed his personal attention. [Autobiography, 106-107. Shrum and Petch's
correspondence is in the Shrum Papers. Later, Petch became President of the University of Victoria and hired Erickson/Massey to be its University Planners. Had he been able to leave McMaster earlier, his special area of expertise would have enabled many problems to have been avoided or at least overlooked an unavoidable.]

Shrum said that he next offered the job to Patrick McTaggart-Cowan, Head of Canada's Meteorological Service, despite his "lack of university experience." In actual fact, Shrum had previously offered the position to at least two others. On May 10 Shrum offered the job to Gordon Robertson, Canada's Deputy Minister of Northern Affairs. On May 17 Shrum asked Robert T. McKenzie to consider the job and told him that he doubted Robertson could be persuaded to. Robertson turned him down on May 29 and McKenzie on June 22 (Robertson to Shrum, May 29, 1963. McKenzie to Shrum, May 29, 1963. Shrum Papers.)

McTaggart-Cowan was at least the fourth choice. [At least two others were recommended. Petch had suggested someone in his place on Aug. 23, 1963, and a management consultant had recommended the Minister of Education, Leslie Peterson, to be the first President. Shrum wrote the consultant, "although I agree with you whole-heartedly, I don't think the Premier would be very happy about losing one of the key members of his Cabinet at this critical time in politics" (Shrum to W. J. Bell, Aug. 1, 1963). Shrum forwarded the correspondence to Peterson, noting that he had been turned down by Petch, Robertson, and McKenzie. (Shrum to
The offer to Petch showed Shrum's typical impatience. He understood Petch would make a decision within four days after returning from Vancouver, and when Petch wrote saying he needed a few weeks to consider how he could fulfill his obligations, Shrum wrote "I don't see how I can wait a few weeks as we need to be looking for a President now." (Shrum to Petch, Aug. 8, 1963).

McTaggart-Cowan accepted quickly, but could not begin until January 20, 1964.] Nonetheless, McTaggart-Cowan came very highly recommended. Andrew Thomson, the former Director of Service of the Canadian Meteorological Service who had been McTaggart-Cowan's boss for 25 years, wrote that "never was there any faltering in his skill or ability to carry out any agreed upon policy.... I cannot over-emphasize his absolute honesty and sincerity." [Thomson to Shrum, Aug. 16, 1963.] J. R. Baldwin, Deputy Minister of Transport and McTaggart-Cowan's current boss, wrote, "...if he remains with the Department, [he] has a brilliant and illustrious career ahead of him in the public service. He has combined, in an unusual degree, the qualities of vigour and enthusiasm with an outstanding technical competence in his own field as well as general technical knowledge in many related scientific fields; and an unusual degree of administrative ability...." [Baldwin to Shrum, Aug. 21, 1963.]

McTaggart-Cowan was good at what he did, but completely inexperienced at what he was hired to do and more than a little defensive about his inexperience.

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Patrick Duncan McTaggart-Cowan (fig. 20; seated, left) was born in Edinburgh, Scotland, in 1912, but he came to Canada in 1913. He studied physics at UBC with Shrum and received his B.A. in mathematics and physics with honors in 1933. After working with Shrum as an Instructor in Physics and doing an additional year of post-graduate research, McTaggart-Cowan was elected a Rhodes Scholar. From Oxford he graduated with honors in Natural Science. During the Second World War he was Chief Meteorological Officer for the Royal Air Force Ferry Command to forecast weather in the North Atlantic, and he gained a reputation for great reliability. He was the recipient of numerous awards and an officer in numerous scientific societies.

When the newly appointed Board of Governors met for the first time on October 10, Shrum presented McTaggart-Cowan alone to be ratified.

I introduced him to the board...to confirm the appointment. Some board members were not particularly happy, feeling they should have been provided with several other candidates from which to choose. I really should have provided a number of other people for them to consider, but I felt that to be sure of getting someone competent I was restricted to former students whom I knew well. Mine was probably not the best way of doing it, but I had to get a president. [Autobiography, 107.]

The Board acquiesced and made McTaggart-Cowan effective January
The first Board consisted of nine members: five businessmen (like the Premier), one educator, two lawyers, and one politician. Shrum said he was pleased that five of them had college educations. The following members were appointed on Oct. 3 by the Lieutenant-Governor in Council: Beth Wood, Fred H. Dietrich, Alan M. Eyre, George Wong, Richard Lester, Charles Bloch-Baeur, Arnold F. Hean, Clarence J. Frederickson, and Ralph C. Shaffer (fig. 20).

The Board also confirmed Shrum as Chancellor and elected him its Chairman.

Since McTaggart-Cowan was unable to begin until January 20, 1964, Shrum was in effect Chancellor and President for a full nine months. In March 1964, a journalist noted that "it has been widely assumed that Dr. Shrum will slide into the traditional role of chancellor, a mere titular head of the university, once the new president takes over. So far, he has not done so. And he does not seem likely to... if past record is any guide."

McTaggart-Cowan described himself "as a committee man and I believe a committee does its best when it reaches decisions by common consent.... I must admit that when a matter of principle has to be decided by a majority vote, in a committee I have chaired, I feel that in some way I have failed in my job as chairman" [McTaggart-Cowan to George C. Whalley, June 29, 1964. Shrum Papers]. In other words, McTaggart-Cowan put off a decision until he thought he had
convinced every member of a committee. Shrum gave committees a chance to ratify his decisions. This basically different approach to leadership was generally in Shrum's favor since, as McTaggart-Cowan acknowledged, "I sat at his feet all through my undergraduate days." [Sypnowich, "University," 4.] Initially, McTaggart-Cowan was widely appreciated, and as "an incredibly hard worker, he inspired great loyalties, and he was superb at public relations." However, Shrum "was only too conscious of his vast experience in universities compared with a President's relatively small experience." [Baker, "Beginnings," 7-8.]

Also at the first meeting of the Board, Massey presented a model of SFU and answered questions. [Presumably this was the site model ordered at the end of August and expected to take about three weeks to prepare.] He reported that all working drawings were being prepared with the intention of beginning the bidding process by January 1, 1964. The Board indicated its approval of the design and confirmed the contracts which had recently been signed with the five firms. The Board also approved the separate contract with Erickson/Massey as Planners, and "...the Development Plan for Simon Fraser University was approved in principle." The expenditure of $9 million was approved for capital costs for Phase I, and a Building Committee was appointed with Arnold F. Hean, a lawyer, as its first Chairman.

21. Academic Planning
In the three month interval between McTaggart-Cowan's appointment and the beginning of his work full-time as President, Shrum consulted with him, but continued to make decisions himself about what the University would offer and continued to announce them. On November 7 he gave a speech to the Faculty Association at UBC and outlined what he expected the educational philosophy of SFU to be. He said that he would rather have the best teachers lighting fires in the minds of large audiences than any number of lesser teachers doing little for small classrooms of students. He also stated that,

The good professor will tell students what to read and stimulate them to learn on their own.... Lectures per week might be reduced from 3 to 2 or 1, per course. Although much research is trivial, provision for research is particularly important in training and in creating good teachers.... Research will be encouraged along with much experimentation in Education.... In order to attract staff to S. F. U., graduate work at the Master's level will be offered in some fields.

In the discussion period which followed, some UBC faculty expressed doubts "that graduate education was needed to attract a staff of high quality, that one could have academic freedom without tenure, and that large classes could serve all disciplines equally.... Dr. Shrum asserted that the men he wanted would not want or need tenure...." [Minutes by J. H. G. Smith, Secretary of the Association. Shrum Papers.]
Statements such as these were widely made, widely published, and frequently misinterpreted, and Shrum repeatedly tried to explain what his purposely provocative statements meant. For example, on the types of research SFU might most appropriately support, he felt that it should primarily be related to teaching methods and to whatever the faculty was interested in doing on its own. Research institutes would eventually be set up to consider local educational programs and local industrial potential, but not wider problems than a small province could be expected to try to deal with. What he meant wanted to emphasize immediately was applied research with the potential for local application. [Shrum to E. Bruce Tregunna, Nov. 26, 1963. Shrum Papers. Tregunna taught Biology at McGill, and he wrote Shrum because he found a Nov. 23 article in Weekend Magazine puzzling.]

A magazine writer reading reports of Shrum's statements got the impression that research would be minimized, and Shrum wrote, "I don't think I have said that we want teachers rather than researchers, but... certainly in the early stages research may have to take second place to good teaching.... Personally, I would like to see more research in education at all levels...." He also emphasized that lectures we not a substitute for "self-education." "We hope to place a great deal of emphasis on the fact that the student can read." Shrum added that SFU would offer courses to improve reading comprehension and speed. "We hope in this way to be able to reduce the number of lectures but
increase their quality." Also, the idea was that with fewer lectures to prepare, teachers would have more time for their own research. [Shrum to Stainsby, Dec. 18, 1963. Stainsby, "Instant University," 18.] Basically, Shrum was convinced that "specific skills or bits of knowledge are no longer an important part of a child's early education because they are going to change very rapidly.... We must adopt new methods, new objectives, new curricula and new philosophies." [McDonald, Challenge, 156.]

The principal new method was to enable a student to learn on his own so he could continually educate and reeducate himself.

At the next meeting of the Board on November 14, R. J. Baker (fig. 1C) was appointed Director of Academic Planning effective January 1, 1964. Baker was an English Professor at UBC, and as one of the key faculty advisors for the preparation of the Macdonald Report, he had already helped to determine what kind of a university was needed. Now he would have the opportunity to put his recommendations into effect.

To a considerable extent, Baker made up for Shrum's concern primarily with Science and for McTaggart-Cowan's inexperience. Eventually, he became the first President of the University of Prince Edward Island [Sun, Sept. 7, 1985.] There is good reason to believe that if he had been SFU's first president the University would have gotten off to an even better start.

About six weeks after starting work, Baker presented the Board a report entitled "the Role of a Director of Academic Planning." [Minutes, Feb. 17, 1964; appendix 2 (4 pp.)]
typescript). He began by stating that "if there were universal agreement on the way in which a university should be organized, there would be no need for academic planning. All universities would offer identical courses. In fact, however, there is no such agreement." He pointed out that the number of years required for a B. A. varied from three to five; the amount of specialization required varied greatly; some departments required foreign languages and others did not; the emphasis placed on tutorials, small lectures, and large lectures varied greatly; the length of the academic year and the number of hours of lectures per course was not uniform; and so forth.

Baker's job was to consider all of the possibilities and to recommend a specific combination suitable for a new university intended to compliment an older one and another new one while offering a significantly different set of alternatives for students to choose from. He had to convince the Board of his recommendations and to advise it on the adoption of policies relating to, for example, faculty appointments and admission requirements. He had to predict what enrolment would be in various departments as well as how many faculty members and how many classrooms would probably be needed. He had to provide the Board with information as far in advance as possible to enable it to make well informed decisions on long-range development, and he needed to increasingly coordinate information provided by the faculty as it was appointed. Eventually, he would be able to turn over many of his functions to others, but to begin with, he
had to create a specific curriculum so that a faculty could be hired to teach it.

As Baker noted, "...I was given a free hand to propose--and with Shrum to propose always meant 'to argue for.... Shrum, himself, quite properly in my view as the Chairman of the Board when the Board had the powers of Senate, questioned everything, usually in his typically aggressive fashion. I remember saying casually once that something or other was done at most universities, including Toronto.... He reached for the telephone and said 'If I phone Toronto now are they going to tell me what you've just said?' 'Of course,' I replied. 'All right,' he said, grinned, and put the receiver down." [Baker, "Beginnings," 12-13.]

Some of the most basic decisions had already been made by Shrum with the approval of Peterson. The principal faculties would be arts, science, and education. The science departments were established as chemistry, biology, and physics (with buildings already intended for them in the Conditions of Competition). However, a department of mathematics was added, and all departments in the humanities needed to be established and the faculty of education needed to be defined. [Baker wrote, "I saw not a single piece of evidence that the provincial government ever interfered with the academic planning" (ibid., 13).]

In an initial listing of "Proposed Faculties and Departments," Baker was able almost immediately to argue
persuasively in favor of the creation of the following
departments for the arts faculty: anthropology, sociology, and
political science; economics; English; geography; history; modern
languages (French, German, Russian, and Spanish); philosophy; and
psychology. The subjects offered for undergraduates were
necessarily much the same as in most universities, but individual
faculty members were to be given the chance to develop innovative
coursework. Although students were expected to take half of
their courses in their major, they were to be allowed to take
more electives and were required to take fewer compulsory
courses.

No foreign language was required. Baker argued that a few
years of a foreign language were so ineffective that most
students later "couldn't order a beer." Students who chose to
take foreign languages would have the chance to do in intensive
courses. The introductory course for a language would meet eight
hours a week and emphasize the spoken language. [Sun, Apr., 27,
1965.]

Only one course was required in the combined fields of
English, history, and philosophy. Shrum vigorously disagreed and
wanted courses to be required in English and in foreign
languages. As an English professor, Baker argued that all
teachers should be responsible for ensuring that students would
write, particularly in their major fields. He won on both
points. [Baker, "Beginnings," 14.]

There was to be no compulsory science course. Each semester
all students were urged to take at least two brief non-credit courses such as overviews of sciences, remedial reading, and physical education. Later, when students refused to take non-credit courses, he admitted they were "a complete failure!"
[Baker, "Beginnings," 11-12.]

Baker based how many faculty members were likely to be needed for each department on the number of faculty and students in departments at UBC, but many UBC majors would not be represented. Since UBC and Victoria had strong departments and good library collections to teach classics, fine arts, and geology, he recommended not duplicating them. [Province, Sept. 8, 1965. Sun, Apr. 27, 1965.] He also recommended against a major in physical education, but he was in favor of having a Director of Physical Education to develop a program of non-credit activities. He opposed athletic scholarships and credit for athletics and art instruction. He wrote "my own preference would have been for athletics and recreations that people could carry on into later life." (Baker, "Beginnings," 11-12.) He also recommended hiring a Director of Performing Arts as soon as possible to make good use of the Theatre. Initially, there was considerable uncertainty about how to compliment what was already being offered elsewhere in the fields of education and possibly commerce as well. [Hean later persuaded his fellow board members to add a department of Economics & Commerce (ibid., 15.])

Baker was not a typical professor. He had disliked high school so much that he dropped out at age 15. Like Shrum, he had
been a poor student. However, after serving in the Second World War, he applied for admission to UBC and was admitted provisionally. He went on to get his Ph.D. and was grateful for a second chance, and he wanted others to have it and to make education more challenging and more individually oriented. Both Shrum and McTaggart-Cowan were sympathetic to this point of view, and SFU decided to admit anyone provisionally on the basis of good recommendations whether a student had dropped out or was still in high school.

The farm-boy Shrum, the Rhodes Scholar McTaggart-Cowan, and the drop-out Baker were very different individuals, and they complimented one another so well that they enabled SFU to achieve a unique approach to education which greatly contributed to its subsequent success. [Baker admired McTaggart-Cowan’s dedication and felt that "in many ways he was ideal for the beginnings of Simon Fraser University." McTaggart-Cowan worked so continually that he had to be forced to take a vacation, and when SFU was about to open a group of the faculty and staff arranged for him and his wife to spend a week in Hawaii. McTaggart-Cowan’s appointments were rearranged without his knowledge, and the group held a send-off dinner at a local hotel which happened to have a swimming pool. "Late in the evening in the pool, it might have been possible to see the first President of Simon Fraser University and most of his senior staff swimming in their underpants." Baker, "Beginnings," 9.]

Shrum felt the most essential requirement was to hire heads
of departments who were eminent in their fields, good teachers, and persons with good enough judgement to be trusted with hiring the faculty members to serve in their departments. Shrum had relatively little faith in deans, vice-presidents or presidents, none at all in bursars or registrars, and he was somewhat skeptical about faculty. Consequently, he advocated strong heads of departments. There were no vice presidents, and the deans, except in Education, were to be short-term deans chosen by the heads of departments in the faculties. In other words, basically they would have very little authority. . . . There is no doubt that many heads of departments were attracted by the freedom from deans and vice-presidents. [Baker, "Beginnings," 5.]

As a military man, Shrum appreciated the need for clear lines of authority, but as an administrator, he preferred to have as few people as possible giving orders. He wrote, "young people are eager to take over departments where they have a free hand in deciding whom to hire and what to emphasize. That is the way to attract the best." [Autobiography, 109.] If he had a motto, it was never sacrifice quality for quantity.

The department heads were to determine the focus of the coursework and research. For example, in physics, the range of possibilities included nuclear physics and the study of the behavior of large molecules ("almost a Bio-Physics"). A nuclear physics program would require around $10 million even to begin, a
prohibitively disproportionate amount of available funds, but so initially less expensive options were considered which might have immediate application in industries such as paper and petroleum. In any case, a general decision had to be made before a department head was hired, and then the department head would be responsible for specific decisions. [Shrum to McTaggart-Cowan, Jan. 9, 1964. Shrum Papers.] On the whole, to offer a real alternative for students, greater specialization was encouraged in the sciences than at other universities. [Baker, "Beginnings," 16.]

Another innovation for Canada was the trimester system. Shrum saw no point in building such wonderful facilities and having them little used a third of each year. In addition, he wanted to provide students and faculty with as many options as possible, and a trimester system would allow a student to start attending during any semester, to finish in as little as 2/3 years, and to stay out any semester to work. It cut down on vacations during the school year, but it increased time off in between semesters and provided larger blocks of research time for faculty members when they chose to take it rather than only during the summer. A faculty member could teach two semesters and take one off or could teach three semesters and take two off. [Sypnowich, "University," 4. The first "summer" semester attracted only 1/3 as many students as the fall and spring semesters, but by 1969, it attracted 2/3 as many ("Student enrollment," 1965-1970). Vertical files, SFU Archives.]
A typical trimester schedule for freshmen and sophomores was planned to consist of 10 large, outstanding lectures a week (with audiences as large as 550 students) and with five tutorials of one hour (with small groups of 15 or fewer students). Juniors and seniors were expected to attend about six large lectures (with up to 150 students) and three seminars of two hours each (with 15 or fewer students). Thus, during their first two years, most students were to spend about 15 hours in the classroom and during their last two years about 12. Most of their time was to be spent reading.

The tentative schedule for recruiting faculty and students was to hire department heads as soon as possible so that they could begin to hire the members of their departments and plan a specific curriculum for freshmen and sophomores. A course listing needed to go to press by December 1964.

Most professors would not be needed full-time until August 1965, and in the meanwhile, they were expected to continue in their present positions. SFU was willing to pay as much as half of a department head’s salary depending upon how much time recruiting might take. [McTaggart-Cowan to Whalley, Jun. 29, 1964.] Although this was not an ideal arrangement, Shrum said "you’d be surprised at the number of faculty people interested in going someplace willing to experiment...." [Sypnowich, "University," 4.] By February 1965 SFU had received 3,000 applications for 160 positions. [Province, Feb. 13, 1965.] By September 1965, he had received 450 applications for the 16
positions in the English department and 270 applications for the 8 positions in the history department. [Sun, (Sept. 8, 1965), 18.]

By February 24, 1965, thirteen department heads had been chosen, and five were already working full time. Six were from Canada, five from Britain, and only two from the United States. The overwhelmingly Canadian and British department heads were expected to select an overwhelmingly Canadian and British faculty, but eventually they selected an overwhelmingly American faculty.

Shrum wanted the best qualified faculty possible, and he insisted on paying equivalent salaries to good teachers and on providing equivalent opportunities for faculty members to do their own research, but in return he demanded that every member of the faculty and administration teach at least some courses to freshmen and sophomores every year. He was very much against relying largely on graduate assistants and junior faculty members to teach freshmen and sophomores:

...the universities in the United States and Canada for a number of years have been emphasizing research and post-graduate training at the expense of undergraduate teaching.... Of the many innovations we have attempted at Simon Fraser University none has been more widely commended than our emphasis on good undergraduate teaching. All our senior staff members, including the Heads of Departments, have, when hired, given an
undertaking to teach first and second year classes....
The first two are the students' most impressionable years and... we cannot afford to offer second rate instruction....

[Shrum to Lester B. Pearson, Prime Minister of Canada, Jan. 28, 1966. Shrum Papers.] Later, Shrum reiterated that the policy of SFU was "research and graduate work will not be neglected but, while resources are limited, the top priority will be given to good undergraduate teaching.... The current shortage of suitably qualified personnel shall not be used as an argument for the permanent appointment of mediocre members of the teaching staff."


When McTaggart-Cowan began work full time, Shrum turned over to him the "responsibility to select both the administration and teaching staff." [Shrum to D. C. Evans, Jan. 29, 1964. Shrum Papers.] However, the Board still had to ratify McTaggart-Cowan’s recommendations, and Shrum was still Chairman of the Board. In general, SFU was able to attract highly qualified department heads, but since McTaggart-Cowan had no directly relevant experiences, he made some decisions which appalled Shrum and represented the beginning of a loss of confidence. When McTaggart-Cowan recommended a dubiously qualified personal friend to be the head of one department, Shrum pulled no punches: "...I would judge from his letters alone that he needs professional psychiatric attention and is not a suitable candidate for an administrative position where sound judgement and emotional
stability are of prime importance. Further, I should add that personal friendship should play no part in appointments at any level...." He added that McTaggart-Cowan was perfectly free to recommend the appointment to the Board, but that he would not support it and that if the entire correspondence were revealed, "...I am certain that the Board will not make the appointment. This will create a serious situation which I feel should be avoided at all costs." [Shrum to McTaggart-Cowan, Jul. 29, 1964. Shrum Papers.] McTaggart-Cowan had to withdraw an offer he had already made.

As Baker wrote when the University opened, "Simon Fraser is determined that what goes on inside will match the beautiful, well-planned campus set in an incomparable site.... It intends to encourage experiment in university education, but not just for the sake of experiment." Shrum had wanted innovation; the architecture provided for it; and Baker planned for it. Later, in a tribute to Baker, Shrum said publicly that "the result of this planning, although perhaps not so conspicuous, match in imagination and creativity the work of our architects." [Shrum, speech for "Installation Convocation," Oct. 28, 1965. Shrum Papers.]

22. Site Development

In the fall of 1963 about 50 acres needed to be cleared for the building site. This included space needed for construction, but not the large area needed later for student parking. Breaks
Brothers began the clearing on October 24 and completed it within the required period of 45 days (figs. 4A and 22B3). [The low bid was $15,600 (Progress Report, B-3, 3). Breaks Brothers cleared an additional 11 acres for staff parking by May 17, 1965.]

Shrum wrote on Aug. 8 that "we had surveyors on the job yesterday and a bull-dozer today." The mountain has such dense undergrowth that a bulldozer seems to have been needed to make surveying possible (fig. 22A1). [Shrum to Howard Petch, Aug. 8, 1963. Shrum Papers.]

Accurate contours for the site established by David H. Burnett & Associates were transferred to an Erickson Massey drawing entitled "Simon Fraser University: Preliminary First Stage Plan." [Although this 1"=100′ drawing is undated, it was made soon after the competition for it shows that the Classroom Complex was still to be developed rather than the Quad, and the Library was still to be expanded horizontally rather than vertically. It is stamped "Erickson & Massey."] The contours show that the area the Quad was planned for was a gradually sloping hillside rather than a bluff. It sloped about 30′ from 1240′ to 1210′ over a distance of about 500′, and it later had to be cut back and built up an additional 20′ at its front edge. The existing topography required the three-story base which was designed to support the Quad’s west front as well as to be a retaining wall. The land in between the Quad and the Gym dropped only about 10′ in the next 500′ except in the area of the Transportation Center, where it abruptly dropped about 10′ more.
The elevation of the Gym floor is almost exactly 1200’ (1197.5), and this level was maintained to the front of the Quad. Two stories of parking were added with the upper surface of the Central Mall built up to 1218’.

A "Site Clearing" plan by Erickson/Massey and dated October 9 divided the construction area into 10-foot gird. It shows an irregular area 3900 feet long and 1100 feet wide. [A copy appended to the Board minutes shows that the area extended from the coordinates 1400'E to 5300'E and from 4200'N to 5300'N (with the datum point 1400'E and 4200'S).] As part of its responsibilities as planners, Erickson/Massey also prepared a Master Site Plan at a scale of 1"=400', a series of sheets showing sections of the site at a scale of 1'=100", and some detailed site plans at 1"=50' [Progress Report, B-2, pp. 9-11.] When the site was carefully surveyed some elevations were found to be as much as six feet different from the competition plan, which had been prepared mechanically using aerial photographs. [Erickson, interview.]

Ten-foot vertical grids were based on sea level, and these completed a three-dimensional Cartesian grid to fix the position of every element of the plan accurately in relation to every other element. The Quad courtyard was established at 1241' with the terrace 4' higher. The main entrance to most buildings was placed at the Mall level of 1218’. The floor levels for every building on the site had to be established quickly without error for working drawings to be begun. Swan-Wooster Engineering Co.,
LTD., recommended changes in the topography, and Erickson/Massey prepared a "Site Grading plan on January 8, 1964 (fig. 22A2). This plan showed the height and extent of each terrace for the buildings of Phases I within about one foot. The contractors for the buildings had to do very little additional grading, but had to dig the foundations.

The grading contract was also awarded to Breaks Brothers on January 20, 1964. Rough grading was needed for the sites of buildings, playing fields, construction roads with access roads to each building site, and some parking areas. [The low bid was $124,000.11. Additional work was done at standard daily rates. As construction ended on each building, Breaks Brothers did final grading from May 1965 through January 1966. The total for all Phase I grading was $311,433.43. Erickson/Massey praised the work of Breaks Brothers as "competent and cooperative" and stated that without the almost continual presence of its crews on the site for more than two years, the construction could not have proceeded with a minimum of delay (ibid., 4-5).] Breaks Brothers progressed rapidly with the work by placing on the site five bulldozers, two draglines, four self-loading earthmovers, and other equipment (fig. 24B1-2). The grading of the construction sites was to be completed by March 31 with the grading of playing fields and parking lots to be done as weather permitted.

[Erckson/Massey, "Revised Construction Progress Chart," Feb. 15, 1964. CAA.]

To document all progress at the site, Shrum hired two
photographers. Starting November 1, 1963, Herbert L. McDonald took photographs at about monthly intervals. George Allen took aerial views when weather permitted. In addition, John Laing & Son hired Leonard Frank to document the construction of the Mall Complex, and he also documented the construction of the Quadrangle, Madge Hogarth House, and Shell House. This comprehensive visual documentation allows the work to be followed in detail. For example, the clearing was well underway by November 1, 1963 when a photograph was taken of a stump being dynamited (fig. 22B3). By April 1, 1964 the grading had been largely completed, and by May 14 the north ring road was being used for construction. [The most extensive set of these photographs is in the SFU Archives, but a larger number of photographs taken by Frank are also in the CAA.] In addition to this extensive visual documentation, SFU’s engineer A. G. Orr submitted weekly progress reports on the construction.

Access to the site for construction could have been a major problem without the full cooperation of the BC Highway Department, but Shrum got everything he requested. The steep, narrow road leading to the Centennial Pavilion at the west end of the mountain (where the awards had been announced) was too steep for large trucks with heavy loads, particularly when it was icy. In a letter dated February 20, Massey pointed out to Shrum that the bids for construction could be significantly higher with such poor access. He had been assured by the Highway Department that Curtis Street could be extended to the top of the site within
four months if approval could be gotten. Shrum asked for
Peterson's help on March 3, and on March 18 Peterson responded
that the extension would be built and the existing road improved.
[Peterson later admitted "that his department had been concerned
for a time about injunctions being issued against it for working
on land it did not have full title to" (Stainsby, "University," 17).]

In his letter of February 20, Massey had also pointed out
that there was uncertainty about "how far the B. C. Hydro are
prepared to extend their [electrical] service." This doubtless
got even swifter attention. Eventually, BC Hydro even placed all
of its wiring underground. [Telephone lines also shared an
underground tunnel. Gas provided the principal source of heat.]

The problem of water supply to the top of a 1300' mountain
was less easily resolved. The Municipality of Burnaby did not
expect to be able to provide water before the Spring of 1965. In
the meanwhile each contractor would have to deal with the problem
as best he could. Had a lake been built to catch the runoff of
rainwater falling on the cleared area, a substantial amount of
water could have been made available for mixing concrete, but
this was not done. In the meanwhile, Erickson/Massey designed a
water tower (fig. 52B) and pumphouse and planned the distribution
of water and drainage with the advice of consulting engineers.
Swan Wooster Engineering planned the sewer and drainage systems,
and the Greater Vancouver Water Board supplied water through
Burnaby.
On July 23, 1965 Doyal Construction received the contract for paving roads and for surfacing parking lots for 1,500 cars. All of this work was supposed to be completed on August 27, but it did not begin until August 3 and was not substantially complete until January 11, 1966. Work was delayed by continuous construction traffic, by delays in construction, and by the installation of lighting (which needed to be completed in advance). [The low bid was $122,082.00, but 13 change orders increased the total to $122,846.48 (Progress Report, B-3, p. 14-16).] The gravel lots did not hold up during the winter, but the University had rejected asphalt as too expensive.

On May 7, 1964 Erickson/Massey estimated that altogether during Phase I, a total of $1,229,934 needed to be spent on site development. Much of the amount which was needed for surveying, clearing, grading, and roads had already been spent as construction was beginning. [For soils engineering and surveying, $35,000; for clearing, $17,314.75; for grading, $130,620.16; for access roads, $345,000; and for service roads, $43,000 (Bain to Shrum, May 14, 1964. Shrum Papers.)] Somewhat more still needed to be spent for the water tower and pumping station, water distribution station, water distribution, storm drainage system, sanitary sewer system, mechanical distribution system, and electrical distribution. [Respectively, $245,000; $100,000; $150,000; $51,000, and $113,000 (ibid.).] These totals did not included the parts of the systems which were in the Mall Complex, and that added $295,000 to the site development costs.
Erickson/Massey's design for the cylindrical water tower was to be constructed by Mason Brothers for $135,379 (Minutes, Apr. 8, 1965).]

The site preparation went so well that all construction was able to begin as scheduled. On May 14, 1964 the Board passed a unanimous vote of thanks to "the Co-ordinating Architects and the individual architects for their work in preparing buildings plans with a very tight time schedule." As soon as the site was ready, they were ready. Even Shrum was so pleased a journalist found that "Dr. Gordon Shrum likes to lead visitors to the windows of his skyscraper high over downtown Vancouver and give them a look beyond the city to the tree covered Burnaby mountain where contractors are scrambling to build him a university in 18 months flat." (Sypnowich, "University," 2.)

23. Cost Estimates and Working Drawings

The Macdonald Report had estimated that $4 million would be required to open a new college to 2,400 students in 1965 and that $16 million would be required by 1971 for 7,000. Premier Bennett thought that only $4 million would be needed in the next few years and that anything over that ought to be raised. Actually, to open SFU in 1965 cost $18 million [Autobiography, 106.].

Estimating costs was a crucially important part of the design process. If the estimates were inaccurate and the bids far exceeded the budgeted amounts, the design usually had to be reduced in some way and the bidding done over or negotiated, and
needed time would be lost. On major projects such as this, it was common practice to hire an independent estimator as a consultant to ensure that there would be as few unanticipated expenses and delays as possible. With only one exception the bidding process did not have to be repeated. Estimates were also essential for the University to apply in advance to the Provincial Government for funding authorizations. [This was complicated by the fiscal year of the Province ending March 31 while the University was trying to open September 1.]

There was initially a good deal of vagueness about how much money would be available, when it would be available, and where it would come from. On May 8, 1963, the Premier announced that "the first stage of the development would cost $15 million, to be raised by provincial government and donations from the public." [Sun, May 8, 1963.] Shrum interpreted this to mean that he could spend $15 million in the next two years, and he wrote "I personally am very happy about the Premier accepting my recommendation that we shall need $15 million worth of new buildings in order to get started by September 1965." [Shrum to R. G. Robertson, May 10, 1963. Shrum Papers.] This is not what Bennett had said. Specifically, he said this amount was for the "first stage," not the "first phase" and the first stage as defined in the Macdonald Report and in the Conditions of Competition was the first five years, not the first two years. Bennett had not said what part of the amount would be provided by the Provincial Government, and he had in mind paying only half of
When building was ready to begin, the allocations for the first year of construction (from April 1, 1964 to March 31, 1965) were $2.1 million for the Mall and Transportation Center and other projects assigned to Erickson/Massey; $2.0 million for the Science Complex assigned to Rhone & Iredale; $1.81 million for the Quad assigned to Kiss; $1.318 million for the Library assigned to Harrison; $0.97 million for the Gym and Theatre assigned to Duncan McNab and Associates; and an extra $0.6 million for additional roads and other expenses. At various times, Phase I was not expected to include the Quad, Library, Gym, and Theatre, but Shrum was determined to include them all.

On March 19, 1964, Bennett as "Premier and Minister of Finance" offered SFU an advance payment of $4 million with an additional $6 million over a five-year period providing that all of this money was matched. In other words, SFU could spend $20 million over the next five years providing it raised $10 million. Bennett noted that the Province was giving UBC the same amount—$10 million—in matching funds from 1958-1966. [Bennett to Shrum, Mar. 19, 1964. Shrum Papers.] SFU would need nearly the entire amount in the next two years rather than five and would be able to raise much less than half of what was needed.

It must have been at about this time that Peterson asked Shrum, "'Where are you going to get the money for these things you're doing?' I [Shrum] said, 'Don't ask me. That's not my problem.'" Shrum was determined to provide what was needed on
time at the lowest possible, and he "did not hesitate to spend money." [Autobiography, 106.] At about the same time, Massey asked Shrum if he had the authority to sign construction contracts. Shrum said "no, but I'm going to sign them." [Interview.]

The rising costs had begun to be of concern the Board throughout the spring as estimates and bids came in. On March 31 the Buildings and Site Committee reported that the first three years of construction would probably cost at least $8 million and the next two years another $6 million, but they warned that their "initial attempt at scheduling this work... should not be considered accurate." On February 26, Massey wrote McTaggart-Cowan that what was being requested between 1965 and 1971 would probably cost more like $25 million, but he added, "we trust you will realize that there are numerous factors which could arise which would drastically alter these figures." [CAA.] On March 27, Erickson/Massey revised their estimates and reported with a greater degree of accuracy that the total amount which would be needed to accommodate 7,000 students would be closer to $36 million than the $16 million estimated by Macdonald. The first three years of construction were expected to required $8 million per year and the last two years $6 million per year. ["Simon Fraser University Building Fund: Construction Schedule...," revised March 27, 1964.] The five architectural firms had worked out their estimate realistically for what had been asked of them, and for the purposed of fundraising, they had broken down the
amounts which would be needed year by year from 1964-1969 for each building. Although these recommended amounts were changed significantly, they were a necessary basis for planning the relative amounts of the project which would be built during each of the first five years:

- **Quad** -- $6.4 million (by year: 1.8, 1.8, 1.4, 0.8, 0.6);
- **Science Complex** -- $7.3 million (1.1, 1.1, 2.0, 1.4, 1.8);
- **Classroom Complex** -- $3.2 million (none, none, 1.4, 1.0, 0.8);
- **Library** -- $3.5 million (1.3, 1.2, none, 0.5, 0.5);
- **Mall Complex** -- $4.8 million (1.2, 1.0, 1.2, 0.7, 0.7);
- **Gym** -- $1.2 million (0.6, 0.6, none afterwards);
- **Theatre** -- $0.7 million (0.4, 0.3, none afterwards);
- **Site development** -- $2.7 million (0.8, 0.6, 0.5, 0.4, 0.4);
- **Interiors** -- $6.2 million (0.8, 1.5, 1.5, 1.2, 1.2)

The Board felt that this figure needed to be reduced so it took away a little here and there and got it down from a total of $36 million to $29.76 million (apparently to get it below $30 million). The Board decided, however, to spend about a million more in each of the first two years. [Minutes, June 23, 1964.]

The $8 million per year for each of the first two years was changed to $8.7 million and $8.9 million. Cuts had been made almost everywhere, but proportionately the largest cuts were in the Mall Complex, which was reduced from $4.8 million to $2.9 million with $1.5 million for the first year, 1.4 million for the second year, and none afterwards.

Construction costs were rising rapidly, and the Board agreed
to build as much as possible as quickly as possible. This was entirely correct, and by 1965 the cost for accommodating 18,000 students was expected to be $100 million. [Business and Financial Chronicle (Dec. 1965), 26.]

In any case it was clear that in the meanwhile special requests for more advances and for increases would needed to be made to the Provincial Government, that authorizations would need to be gotten to borrow money, and that fundraising could not be put off indefinitely. It was also clear that UBC and the University of Victoria also needed to expand and were unwilling for SFU to receive a disproportionate amount of available funding from public and private sources. When SFU hired professional fund raisers to set up a campaign, UBC and the University of Victoria insisted on a joint capital campaign. [Autobiography, 106.]

From October 1963 through April 1964, the revision of estimates caused the revision of working drawings, and the revision of working drawings caused the revision of estimates. Specifications depended on both and also constantly changed. The compression of both into so short a period inevitably caused some misunderstandings, and the Board could not understand why the whole process could not be speeded up even more.

On February 14, 1964 Erickson/Massey requested a one month delay in the tender date for the Mall Complex and a two-week delay for the Library. In part this delay was to try to comply with the Board’s instructions to reduce the cost of the Mall
roof, and a study was to be made of how the roof might be attached on the north side to the Library. [BSC Minutes, Feb. 14, 1964.] The Chairman of the Building Committee, Hean, recommended that the Board reject the requests for delays, and he added "that he was surprised to find the attitude of Erickson Massey, as he described it, 'petulant.' It appeared that Erickson Massey are not fulfilling their function as coordinating architects, as they did not know that Duncan McNab & Associates would appear before the [Building Committee to present the Gymnasium." [Board Minutes, Feb. 14, 1964.] Actually, Erickson/Massey had not been invited to attend the Buildings and Site Committee Meeting, and McNab had not told them that he had asked to appear before the committee. The Committee recommended that "in all instances, dealings with the Board of Governors with any architect shall be through Erickson-Massey," but if it had observed its own recommendation, the problem would not have arisen.

Erickson/Massey wrote Shrum that they felt it was "only proper" for the Buildings and Site Committee to approve the final plans, but that they would like to be able to attend its meetings.

[Erickson/Massey to Shrum, Feb. 14, 1964. Shrum Papers.] Shrum recommended to the Board that Erickson/Massey be given half the time they requested and that they "be informed that the Board strongly objected to the request." [Shrum also asked Orr to "have someone draft a letter for me to sign" admonishing Erickson/Massey (Shrum Papers). The letter stated "you are expected to coordinate the supervision" and that any
disagreements "shall be resolved" before tender dates. Shrum to Erickson/Massey, Mar. 9, 1964. CAA.

At the same Board meeting (February 14), "another suggestion was that a University representative be placed in Erickson Massey's office to keep an eye on their progress as compared to the construction schedule." Arthur G. Orr, the former BC Hydro engineer Shrum had hired to be Superintendent of Engineering Services for SFU, was instructed to visit Erickson/Massey's office "as he feels necessary."

At the same time the Board was cutting costs everywhere possible and making redesign necessary, it was holding the architects to the same deadlines. For example, when Shrum found that one firm had specified a clock and signal control system made by a particular manufacturer, he "insisted upon this being changed" so that more than one price would be available for him to compare rather than the architects. [Shrum to P. J. Sharp, Mar. 6, 1964. Shrum Papers.] The Board wanted the original deadlines met, but wanted the architects to speed everything up still further so there would be plenty of time for the Chancellor, the President, the Buildings and Site Committee, and the Board successively to consider everything anyone might want to change. To ensure that their perfectly legitimate and consistently unreasonable demands were met, they resorted to espionage.

Orr quite astonished the Board by reporting back the architects deserved more time that they were requesting. He
found "some firms [were] working two shifts per day on the drawings." He found also that work on the Mall Complex was being delayed because some of the needed data would only be supplied when the working drawings for adjacent buildings had been completed. He reported that Erickson/Massey had "eight designer-draftsmen, working eleven hours per day, seven days per week...," and that the four structural and mechanical would find it impossible to check everything necessary in the time allotted by the Board. In a written report dated March 9, he strongly recommended that Erickson/Massey be given another month to complete their working drawings: "This would give the architects time to do an adequate checking job on the Mall plans, to catch errors which would result in costly corrections later." On March 12 the Board reluctantly gave Erickson/Massey another month after having strongly objected to granting it only two additional weeks on February 14. Orr consistently represented the Board's interests conscientiously and reported the architects' and contractors' problems fairly. It is to the Board's credit that they at least respected his integrity, but they were inclined to trust engineers and even contractors a great deal more than architects.

When all the bids were in, most of the $4 million advance Bennett had made was needed to complete the Quad alone. The plan adopted to ensure the Provincial Government that a minimum was being requested was that part of the Quad would be built and none of the Classroom Complex and none of the residences.
Shrum consulted the law firm of Robertson, Liddle & Rhrum on the legality of further financial commitment, and L. Keith Liddle drafted an Order for the Lieutenant Governor in Council to authorize the expenditure of an additional $4,650,649 for the first year of construction. [Liddle to Peterson, Apr. 13, 1964. Shrum Papers.] Almost by return mail, Peterson sent back an Order-in-Council signed by Bennett. [The order is dated April 17. Shrum Papers.] Bennett had offered a minimum to start with and had no hesitation about spending more with sound justification. This was about 1 percent of the $800 million Shrum was authorized to spend on the Peace River Dam.

In the meanwhile, Orr was adding in all extra expenses, and on April 20, he pointed out that to be added to the bids were the additional expenses of $1.494 million for site development, $1.8 million for furniture and equipment, and $1 million for fees. To total expenses for Phase I were likely to be $18,336,509. [Orr to Shrum and McTaggart-Cowan. The extra amounts were accounted for in detail by Bain to Shrum, May 14, 1964. Shrum Papers.]
D. PHASE I CONSTRUCTION

During the period from March 15, 1964 to September 1, 1965, from 500 to 800 construction workers regularly worked on the site (fig. 32C). Four contractors built six separately bid projects, and nearly all of these projects were being constructed simultaneously and adjacent to one another. There were also other contractors working on the site development and numerous sub-contractors working at various stages. Six climbing cranes, four mobile cranes, and other machines were in almost constant use. The coordination of so much activity by so many people and so many machines required an exceptional amount of cooperation, and several times a week meetings were called to "settle differences." Nearly always, this was accomplished, and the work progressed largely according to schedule. [Heavy Construction News (Dec. 25, 1964), 12.]

To ensure that buildings were completed on time, the contracts with contractors stipulated a fine of $1,500 per day beyond the agreed upon completion dates. The architects in charge of each project had to issue a certificate that a project was "substantially complete" to authorize payment.
When construction was about to begin, Erickson/Massey recommended hiring a separate site supervisor to coordinate the work of the four different contractors who were all trying to ensure that they were not fined $1,500 per day for non-compliance. Shrum had the strong conviction that problems were best left to subordinates to take care of among themselves, and as he had done with the architects, he decided that "the contractors should be left to settle their mutual problems themselves" so long as the deadlines for completion were not affected. [Massey to Shrum, Mar. 20, 1964, referring to a conversation with Shrum on Mar. 17. Shrum's copy has his initials, his customary mark that he had read a document before having it filed. Shrum Papers.]

24. Materials and Methods

Coherence in the design of SFU was achieved partly through the use of similar forms, details, and materials. The material chosen was predominately reinforced concrete, and it was chosen primarily for its long-term cost with low maintenance costs balancing initial costs. It was both poured and precast. It permitted rapid construction, and it allowed for sculptural treatments of forms and surfaces (fig. 24A). For its versatility and appearance, concrete was much beloved by architects of the
1960s and by Erickson in particular. Erickson wrote that "because concrete... is the only basic structural and finishing material, it becomes as noble a material as limestone... . As in all serious architecture, the structural material is consistent, pervasive and unadorned." [Canadian Architect (Feb. 1966), 41.]

The amount of poured concrete required for the six projects completed during Phase I was 50,000 cubic yards. That is 28 miles of concrete three feet on a side. Many additional tons of concrete were needed for the precast elements which were added to the framework cast in place.

The principal method of construction was the standard one of building formwork for a section of wall a few feet high, adding steel reinforcing, pouring, and raising the formwork to repeat the process. The formwork for floors was usually supported on reusable metal scaffolding.

Three buildings presented unusual problems which required more complex construction methods. The first four floors of the Library had walls constructed with the usual mixture on concrete, but the fifth floor is cantilevered (fig. 24B3), and it was designed to support two additional floors later. To reduce the weight to be supported, 6,000 cubic yards of semi-lightweight concrete was made with baked gravel from Saturna Island that is strong, but that was described as more like popcorn than gravel. [Heavy Construction News (Dec. 25, 1964), 13. This concrete was manufactured by Evans Coleman & Evans. The principal supplier of
concrete was Deek-McBride Ltd.] This reduced the weight of the fifth floor by about 30 percent. The Library’s ceilings presented a problem also. There are deeply coffered, and they were cast between and on top of inverted pans 4’ 1" across (fig. 24B1). The pans were constructed of plywood and steel were coated with fiberglass to be easily removable and reusable, and they were supported on wooden trusses. The resulting structure has beams in two directions to resist earthquakes as well as to support bookstacks arranged in any pattern (fig. 43B2). The wiring had to be placed on top of the ceiling, holes had to be drilled through for each fixture to be installed below, and the conduits had to be covered by an additional three inches of concrete rather than the usual one inch to provide a finished surface. The coffers were left exposed and sand blasted to provide a uniform and apparently soft texture (fig. ).

The Gym used pre-cast beams of a length unprecedented in Canada. The roof was constructed of reinforced T-shaped beams 137’ 9" long and 9 feet wide at the top (fig. 25C). Each beam weighs 36 tons and was lifted over 50 feet to the top of the piers through the coordinated efforts of the operators of two 60-ton movable cranes.

Each beam spans from pier to pier to enable the entire interior to be open. Each was prestressed with 23 stands of steel 1/2 inch in diameter in order to be able to support its own weight, the weight of snow up to 50 pounds per square foot, and the weight of up to 5 tons of machinery. These Lin-T beams were
manufactured by Graybar Precast Ltd. and were delivered using trucks with separately steered trailers (fig. 24C). All but one survived the climb up the mountain. A beam which overturned was under so much tension that it shattered "just like glass." However, all of the buildings at SFU were designed for an earthquake 3 zone. Once the beams had been hoisted into place, all but the end beams were braced on both sides, and cables run across the beams. [McNab interview, Jun. 28, 1997. Heavy Construction News (Dec. 25, 1964), 14-15.] Concrete was used for the floors and ceilings of all buildings constructed during Phase I except for Duncan McNab and Associate's other building, the Theatre, which used steel roof trusses [Journal of Commerce Weekly (Sept, 4, 1965), 35.]

The Science Complex used poured-in-place beams which were post tensioned to provide unobstructed spans of 30 to 50 feet. This method of construction had been previously used in Canada only in bridge construction. [Rhone & Iredale, "Simon Fraser University Science Complex"; news release, Aug. 4, 1965, p. 1. Rhone & Iredale Papers, SFU Archives. Architecture Canada (Oct. 1966), 62.]

The building with the most complicated structure of all, the Quad, used standard poured-in-place methods. The Quad has a perimeter one-third of a mile long, and so much of it is cantilevered far beyond its supporting piers that 1,200 linear feet of reusable scaffolding had to be used to support the formwork. Mobile cranes were used to facilitate the construction
over so large an area. Like the Central Mall, the Quad terrace doubles as a roof structure, and it required exceptional waterproofing measures.

Concrete finishes were used consistently to distinguish load-bearing and non-loadbearing elements. For example, piers are left smooth, and wall panels are roughened. Subtle textures could be achieved by using varying kinds and amounts of aggregates, air mixed with concrete, sand-blasting, bush-hammering, chipping, and acid treatments. Many surfaces were allowed to show the marks of having been cast in formworks of boards. The self-imposed limitation of concrete provided similar colours and textures and gave the campus more the appearance of a single building than it could have had otherwise.

The Quad is so large that 80,000 square feet of exposed concrete required surface treatment, and this was achieved mostly by chipping and bush-hammering inch by inch (fig. 24A). It also has by far the largest number of precast concrete fins, and to ensure that they were uniform in color and texture, extensive tests were performed.

The amount of effort which went into selecting the color and texture of the fins provides a good example of the extreme care with which ever aspect of the project was handled. A half-dozen trial mixes were provided to select from. Sand, moisture content, mixing times, and stirring were carefully controlled and recorded. Pours from separately mixed batches were made to ensure that the different pours would match. Experiments were
also made with speeding the hardening process adding calcium chloride for a faster chemical reaction and by using atmospheric pressure steam (which reduced the air-drying time by half). Strength tests were made after seven and after 28 days of curing. [G. W. Spratt, Chief Engineer, "Report of: Concrete control & testing for architectural panel" by Coast Eldridge Engineers & Chemists Ltd., Jan. 6, 1964. CAA.]

A manufacturer applied a variety of finishes to the approved mixture to indicate the possibilities. White cement was mixed with varying sizes and quantities of shale: fine and course aggregates were used with high and low water content, and fine aggregate with low water content was recommended for the best density for strength and durability and to increase whiteness and eliminate the need for further finishing. Some samples were sandblasted with fine sand and were lightly ground to remove minor irregularities and were afterwards given two coats of 5 percent silicone. [R. Deny, Sales Representative, Ocean Cement Ltd., Evans Coleman & Evans, Ltd., to Erickson/Massey, Jan. 15, 1964. CAA.] Further texts were made with sandblasting after intervals of seven and 30 days of curing. [The results were tested by C. H. Brawn & Son on slabs prepared by Evans Coleman & Evans Ltd. massey to Emil Thorson, Mar. 5, 1964. CAA.]

Some Board members had serious reservations about expense of creating a variety of surfaces finishes for concrete and even about removing what appeared to be a protective surface. On August 4, 1964, when Massey asked the Buildings and Site
Committee to approve an additional $16,000 "for bush hammering instead of sand blasting the concrete spandrels of the Central Mall Building. The Committee members advised Mr. Massey that in their opinion this amount of money was not available for additional aesthetic treatment, but agreed to examine examples of bush hammering before making a final decision on the matter. The Committee then requested a report on the durability of bush-hammered concrete." At the Board meeting on September 10, Orr reported that the National Research Council had found "no indication that bush hammering would lead to any problems in deterioration of concrete."

This was part of the process of educating the Board. Generally, the Board accepted expert advise on anything to do with engineering and rejected it on anything to do with money and aesthetics.

The problems with the Mall roof started when the Board refused to pay for an aluminum space frame which could readily have been constructed of manufactured elements with good tolerances, later the Board refused to pay for plexiglass rather than glass. By stipulating that a Mall roof could only be constructed if it could be built within a lower budget, experimentation and individually cast elements were required, and it proved to be very costly, but eventually turned out to be a successful prototype. Materials, structure, and construction are so complicated that it will be treated in separate sections. Although it is constructed like a series of trusses for bridges,
it is an innovative structure made of wood and metal and utilizing tension and compression in an unprecedented way. No project took longer to complete and caused more difficulties. It had to be entirely rebuilt, and it was not completed until Phase II.

For the surface of the Central Mall, Clayburn Harbison developed an exceptionally hard clay tile which was intended to resist wear and weathering well and which has done so. However, its installation caused problems which will be mentioned as they occurred and were resolved. Massey asked permission to use these tiles on the skywalks and was told that they were too expensive and that he would have to use exposed aggregate.

Erickson and Massey’s competition design had called for precast concrete bleachers across the face of the 23.5’ sloping hillside between the Gym and the track, but the Board rejected them as exorbitantly expensive. These bleachers would also have served as an outdoor auditorium for 5,400 people, which was much needed for all types of events in addition to track, football, and soccer meets. The seating would also have created the effect of a broad staircase in front of the Gym and would have appeared to be a pedestal for the building. In October 1965 this seating of would have cost $24,000, and the Buildings and Site Committee recommended against the expensive as excessive and unnecessary. [Oct. 22, 1965. Progress Report, B-2, p. 24. In 1996 Erickson still regretted their omission and said, "they should do that" (interview, May 9, 1996).]
Erickson/Massey did win on providing durable hardware. All hardware was manufactured of oil-rubbed bronze. With few exceptions, all exposed metal was anodized or finished with a black-green color. [Progress Report, B-2, pp. 5-6.]

The interiors of all the buildings were to have wall surfaces of concrete, white plaster, or dark-stained oak. Occasional "strong colour" were planned for carpets and furniture, but not walls. The interiors of the Mall Complex and Library came closest to the muted color scheme which was intended. Erickson/Massey wrote, "at the time we did not exert too much pressure on fellow architects because we felt that having hounded them on the other aspects of the building they should be allowed some freedom of interpretation of the criteria on the interiors. We regret this decision...." [Ibid., 6.]

25. Gymnasium

Although there was to be no compulsory physical education, sports teams, intermural sports, and recreation was immediately and generously provided for through the large gym with pools and basketball courts and playing fields. McTaggart-Cowan was as enthusiastic about sports as Shrum, and he said that "if you've got good track performers and good coaches, students turn out for track in droves." [Sypnowich, "University," 4.] The Board and the Province were convinced to go along with spending so much initially for non-academic facilities by Shrum's argument that "when the Olympic Games come along Canadians become critical
because we do not make a better showing." [Shrum to H. R. L. Steight, Jan. 25, 1965.] Shrum was determined to making a good showing by openly offering the first athletic scholarships in Canada, and he insisted scholarships be offered in the same amounts for athletics as for academics and for a wide variety of extracurricular activities. SFU offered a total of 50 small athletic scholarships its first year for basketball, football, and swimming, and the small sums expended have greatly enhanced the University's reputation by producing numerous nationally winning teams and by producing numerous Olympic medal winners. [For example, SFU was represented at the 1984 Olympics by 15 students, and they won a gold, silver, and two bronze medals. "The Early Years"; 25th Anniversary publication in the vertical files, SFU Archives. Initially all scholarships were $219 for students with the best academic or athletic records, and athletes had to have a good academic record. Board Minutes, Jun. 21, 1965.]

Erickson and Massey's competition designs showed a much smaller gym with a different roof structure from the one which was built, but their initial site model prepared before the other firms began to work on the project showed a building similar in its location and overall appearance to the Gym which was built (figs. 25A1-2). There were, though, a number of very significant changes in appearance and structure (fig. 7F1, section 4).

Erickson and Massey had shown both an indoor and an outdoor pool in the competition designs, and both pools had been at the
west end of the gym. The outdoor pool was omitted, and the indoor pool was moved to the west end of the gym. A smaller diving pool was added at the suggestion of McNab.

The first site model still showed the top of the roof as having a ridge along its length. One of the major changes made by Harry Lee, the partner in charge of design for Duncan McNab and Associates, was to build the roof with precast, prestressed concrete beams (figs. 25B-C). Translucent plexiglass panels were installed for safety and insulation.

McNab's engineers for Phase I were Thorson & Thorson for structural design, D. M. Drake for mechanical, R. M. Campbell for electrical, and C. A. Tiers for acoustical.

The basketball court at the west end was made large enough for folding bleachers to be pulled out to provide seating for games (fig. 25E2). When the bleachers are against the inside walls, the space can be subdivided to provide two practice courts for basketball, three for volleyball, or six for badminton. Special provisions were made for lighting bright enough for games to be televised, and padded cylinders were suspended to minimize echoes.

The main pool at the east end was made 25 meters long and was divided into six lanes for competitive swimming. The separate diving pool is 13.5 feet deep and was intended also to teach scuba diving (fig. 25E1). It has diving board 1 and 3 meters in height and a diving tower with platforms at 5 and 7.5 meters. The platforms are part of a concrete tower with
cantilevered stairs.

Between the pools and the basketball court, a glazed tower was inserted for lobbies, offices, lecture rooms, and smaller recreation spaces for sports and activities such as tumbling, fencing, dance (figs. 25E2 and 25C3). This freestanding division of the interior contributes to the structural stability and enables the courts and the pools to be used at the same time for competition. Although this division is necessary for the structural system chosen, it prevents the entire gym from being used as an auditorium capable of holding most, if not all of the student body. The double sized basketball court is large enough, though, to be used as an auditorium for many events (fig. 25F). The principal entrances to the gym on the north and south sides are two levels below the Mall, but there are other connections from other levels to this multilevel tower, which also serves as a service core containing stairs.

Under the main floor is a ground floor with locker rooms and showers. This floor connects directly to the playing fields on the south side and parking on the north side.

In 1973 Duncan McNab and Associates added another equally large basketball court to the west end of the gym. This made the building equivalent in scale and impressiveness with the Quad, and the Gym, the Mall roof and Library, and the Quad form an astonishing group when the road up the hill breaks through the trees.

The Conditions of Competition had indicated what the Gym was
to include, but had not provided an estimated cost of approximate number of square feet as it had for nearly all other buildings. On February 20 Lee estimated that the building without pools would cost about $1 million and to add pools would cost about $0.2 million. This did not discourage Shrum from holding to his priorities, and the University asked for the pools to be included from the start.

Having the only large staff initially, McNab's firm completed its working drawings first even though last minute changes by the Board delayed bidding by three weeks. Shrum also decreed unconventional bidding requirements at the last minute, and this caused another delay of two weeks. By no means were all of the delays caused by the architects. A problem had resulted when members of the Canadian Plumbing and Mechanical Contractors refused to bid on the subcontract for plumbing because no bid deposit was required. This association argued that without a deposit, an unscrupulous contractor could underbid everyone else and then sell his contract at a profit. Although this requirement benefitted larger firms, it also committed them to stand behind their bids. On the other hand, the University could decline to accept any bid it felt a contractor could not fulfill. Shrum stated publicly, "...I am satisfied that the attitude of the plumber's association will not cause any concern." [Journal of Commerce, Mar. 21, 1964.]

The total estimated cost had been $1,285,000, and the low bid was $1,261,735. [Minutes, Apr. 9, 1964.] A contract was
awarded to A. R. Grimwood for $1,056,000 (without plumbing), and a contract was signed on April 17 for work to begin immediately. Eight other bids were within 10 percent of one another. The number of bidders and the reasonableness of the bids was extremely encouraging for the first bid on any of the six projects.

26. Academic Quadrangle

The upper two floors of the Quad were raised above the level of the courtyard at great expense, but Shrum still wanted the Quad to be among the first buildings constructed (figs. 26A1-2). Erickson and Massey's competition designs marked the Quad "faculty offices 140,000 sq. ft." The upper floors were intended to contain offices for all the faculty, and a lower level was intended to have the sole faculty dining area. The faculty was expected to intermingle across academic disciplines as much as the students. [McTaggart-Cowan to George C. Whalley, Jun. 29, 1964.]

The Quad is 440 feet on a side and on its west front is six stories tall (figs. 26B, 26C3, and 26F). It is generally thought of only as the top two stories raised above the courtyard, but these are the fifth and sixth stories. The fourth story is a covered terrace, and the third story contains the broad corridors which run the full third of a mile around the perimeter. Partly behind the steps on the second story of the west front (fig. 26E) partly conceals the food service area which was intended
initially for the faculty, but was turned into a 350-seat cafeteria for students. The first story contains a kitchen and storage for food service and areas for mechanical equipment. [Business and Financial Chronicle (Dec. 1965), 29.]

The terrace on the fourth level was raised four feet above the level of the Quad courtyard to enable the broad concourses on the third level to have higher ceiling heights. The proportions, lighting, and detailing of these corridors make them among the most successful interior spaces of the University (fig. 26G). They were compared to "galleria" at the time of the opening. [Burnaby Courier, Sept. 2, 1965.]

Opening off the south concourse are the large lecture halls and corridors leading to the Science classrooms (by Rhone & Iredale). The north concourse later served a similar purpose in relation to the Classroom Complex, but with a skylighted court added in between (by Erickson/Massey). Eventually, the west corridor had food service areas and a lounge placed alongside it (by Kiss). [The food service areas have been repeatedly rearranged and redecorated as strategies have changed for trying to attract students to them. Kiss interview.]

Initially, the fourth level was entirely open except for stair towers. Kiss later added a glazed food service area on the south side.

To cantilever the upper floor from a small number of massive pilotis required elaborate steel reinforcing within the concrete (figs. 24A and 26C3). [Kiss, interview. Kiss's engineers were
Otto Safir & Co. Ltd for structural design, J. D. Kern for mechanical, and A. E. Simpson for electrical.) The steel reinforcements on the concrete face of the piers are recent additions to meet revised requirements for earthquake protection. [Erickson interview.]

When two-thirds of the Quad was completed, the fifth level was used for classrooms and seminar rooms for 1,031 students. The sixth level had offices for 100 faculty members (fig. 26C2). The intention was to move all of the classrooms into the Classroom Complex when it was completed. Most offices are unusually small and have only 100 square feet, but they had furniture designed to make them seem somewhat more spacious, and they had the intended advantage that they could not be used for two faculty members. [McTaggart-Cowan to Whalley, Jun. 29, 1964.] The hallways are interrupted by service cores, a necessity turned to good advantage to prevent uninterrupted stretches of narrow passages.

Erickson has been so impressed by the bland spaciousness of the town square at Salamanca that he designed the interior facades of the Quad to produce a similar impression. He used the same uninterrupted rhythm for the exterior facades, but varied the appearance by cantilevering the top floor outward and leaving a terrace at the top level facing the interior of the courtyard (figs. 26D1-2; cf. 26C1).

While preparing working drawings, Kiss gave the bathrooms different fenestration to express different functions, but
Erickson was adamant. He said, "I don't care if they're bathrooms. I don't want anyone's eye to go to that.... That's not the kind of information you want standing in the square hoping to enjoy the contemplative aspect of it. You've got to have the same fenestration everywhere. " [Interview, May 7, 1996.] Kiss accepted this reasoning, but insisted equally that the fins should be white concrete instead of grey. Erickson objected strenuously. Harrison said, "they're both stubborn...,[but] Kiss said that's the way it's going to be.... They accepted it." [Interview, Jun. 17, 1997.]

The Conditions of Competition had called for a "Multi-Purpose Classroom Building and Office Block" of 80,000 square feet costing $1,75 million. At 200,700 square feet, the Quad was two-and-a-half times larger and at $4.5 million, it was to cost nearly two-and-a-half times more. Even the portion constructed during Phase I cost twice as much as had been called for, but it was intended to be for a campus of 18,000 students rather than 7,000, and Erickson and Massey had not intended for any of it to be built initially. Shrum wanted it and got most of it in Phase I and the remainder in Phase II. Initially the Quad was to have 147,900 square feet, and the second stage was to add 52,800 square feet. ["Preliminary Development Budget for 2nd Stage, September, 1965 to September 1971 (7,000 Students)." CAA.]

Kiss completed the Quad drawings as quickly as possible because it was expect to take the longest time of any of the six projects to construct—a total of 16 months. The first part was
expected to cost $3.4 million, and the low bid was almost exactly that: $3,399,455. The low bid was submitted by a group of contractors which associated themselves under the name of Ptarmigan Constructors to do the work on both the Quad and the Library. The individual companies were Northern Construction, J. W. Stewart Ltd., and Bird Construction. [Summary of tenders (Shrum Papers).]

The bidding included indications of separate amounts for numerous alternatives. With the approval of the Buildings and Site Committee, on April 2, Kiss wrote J. O’Rourke of Northern Construction et al. that SFU had accepted their low bid and two alternatives: white cement and white sand would be used for the concrete fins, and bronze tinted glass would be substituted, bringing the total for the project to $3,432,145. The contract was signed on April 6 in Shrum’s office at BC Hydro.

A separate contract was made for the woodwork, which was made by Nikolai Millwork Industries Ltd. (fig. 32F). Nikolai Millwork also furnished the millwork for the Science Complex, Theatre, Library, and Hogarth House. [Sun, Sept. 8, 1965. Two other firms provided millwork for the campus: Sigurdson Millwork Co. Ltd. and Bell-Craft Woodworks Ltd. (Installation Ceremony, Oct. 28, 1965 (Shrum Papers).]

Although the increase was only $32,690 the change in the overall appearance was substantial and made the Quad seem even more of a separate building than it is. If it had not been part of an overall design, the changes would have been an improvement.
Although the building is extremely effective, from a distance it calls somewhat more attention to itself than was intended and so distracts attention from the campus as a whole.

There were an unusual number of construction problems with the Quad, and although the initial portion was fully usable when the University opened in September 1965, by November 10 there were still $55,000 in deficiencies to be corrected. Two years later, many leaks in the terrace roof had never been satisfactorily repaired. Since the contractor had agreed to provide a waterproof surface, it was legally liable for breach of contract, but the contractor asserted that the details provided by Kiss were at fault and that the University had allowed visitors to walk on the uncompleted portions. Kiss had specifically warned against any "traffic" on the roofing membrane and had repeatedly pointed out deficiencies in workmanship. Since responsibility for the problems were disputed and since the amount likely to be realized from a lawsuit would probably suffice only for repairs, the Board agreed to accept the contractor's offer to make the repairs at its expense. [The BSC got a legal opinion that a lawsuit would probably "not award damages in an amount sufficient to enable the University to have the work done as it was originally designed. Rather, the award would be of some lesser amount, the amount by which the value of the building has decreased by reason of the defect" (Sholto Hebenton of Shrum, Liddle & Hebenton to Hean, Feb. 17, 1967).]

The incident was significant primarily because the Board
overacted to it and stipulated that in the future that work on any project was to be stopped if a defect was found.

The second part of the Quad was expected to cost $1.1 million, but with additions, changes, and inflation, it cost twice as much--$2,219,044 (Progress Report, B-3, p. 52). It will be discussed as part of the construction in later phases (Section 43). Overall, the Quad has held up well, and like most of the rest of the original campus, it appears to have been recently constructed. There have been major problems with the precast steps. The reinforcing bars were placed too close to the surface and in many cases have rusted through and have had to be replaced.

27. Mall Complex

No other part of the campus is so readily identifiable, so often used, so often photographed, and so often published as the Central Mall. The "Central Mall" is the space covered by the Mall roof; the "Mall Complex" is a convenient designation for what was originally called the "Central Mall and Transportation Center." The "Mall" was intended to be continuous from the Quad to the residential area, but which stopped at the Gym at the end of Phase I and which has never been completed.

The Central Mall is a monumental space open at each end yet visually self contained by its system of supports and elevated walkways and by low platforms and monumental planters at each end (fig. 27C2). The roof and its supports are a wholly freestanding
structure on top of three levels of parking and equipment space. The Central Mall itself was intended to provide a large covered space between the Library and two theatres, and now connects the Library with one theatre and the Student Center.

Although the Central Mall was intended primarily to be a connection between buildings, it was also planned as a place to sit and talk, and much seating and landscaping was planned to be part of it (fig. 27C1). It was also intended to be cleared temporarily from time to time to be used with temporary seating for gatherings such as convocations.

Much of the Mall Complex is now hidden from view. Altogether, it is about 800 feet long, 130 feet wide, and including the Mall roof up to five stories high (figs. 27A-B). It has from two to three stories of parking below the level of the Central Mall. The Mall Complex extends to the east to provide a small open courtyard and covered and uncovered walkways to the Quad (figs 7D2 and 26A1).

The Mall Complex extends to the west to become the upper level of the Transportation Center, the bridge spanning the small valley. At the Mall level some of the best views of the Fraser Valley can still be enjoyed even though alder trees have been allowed to block the views around most of the site. As Shrum had intended, covered walkways on three levels run almost the entire length of the Mall, and the top sides of the uppermost covered walkways are usable as "skywalks."

The Transportation Center (fig. 27B) is the principal point
of entry to the campus for everyone arriving by bus and persons arriving by car who park within the Mall Complex. [Initially, covered parking was provided for 300 cars (Heavy Construction News [December 25, 1964], 12). The space north of the Gym was temporarily used for surface parking.] The Transportation Center was also intended to provide offices for the student government, a coffee shop, a student lounge, the telephone switchboard, and a bank.

The University is seen at its best by those who come to it by bus. Few other get to begin at the intended starting point in the skylighted center of the Transportation Center (figs. 27G-H) and to climb the broad staircase with the view of the Mall roof gradually expanding until at the top of the stairs (fig. 40). At the west end of the Mall, the broad staircase leading up to the Quad closes an almost Baroque vista. The path through the Central Mall provides a still more impressive experience, and the visual sequence of climbing the second set of stairs is as impressive as climbing the first set. Erickson wrote, "the walking sequence through the university from arrival to classrooms was planned to be an uplifting one, the architecture unfolding with one's progression to the Quad, providing spaces for the activities that are necessary for the full enjoyment of campus life." [Canadian Architect (Feb. 1966), 40-41].

During Phase I, the Mall stopped abruptly at the Gym "as if it were cut with a knife" so that it would have to be extended to the west (fig. 27I). [Massey interview, May 9, 1996.] It is the
most essential feature for tying together all parts of the campus into a coherent whole, and the subsequent obstruction of the west end and use of the westernmost part of the Mall for parking have separated the campus into two wholly distinct parts.

In the *Progress Report*, Erickson/Massey summarized the innumerable difficulties they had to resolve in designing the Mall:

The Central Mall was probably the most difficult of all buildings to design because it was not as other buildings a complete and separate entity in itself but one which filled in the spaces between and linked to a variety of different buildings and had to make these various buildings seem part of an integrated harmonious total complex. This most difficult task was further complicated because the mall itself was not as other buildings a single structural type serving a single purpose but several structures of widely differing purposes: a parking garage, a glassed roof pedestrian mall, a transportation and service centre and gateway to the University and a student centre. Thus, this mall was in fact a string of buildings, linking to other buildings which had to be given architectural unity and act as an appropriately impressive approachway to the other buildings. [*Progress Report*, B-3, p. 17.]

Like the interconnected academic areas, the mall was intended
most of all to provide a place where students from all academic discipline would encounter one another and exchange information, if not ideas.

The surface area of the Central Mall is 143,840 square feet. In the Mall Complex, there was an additional 181,000 square feet for parking (figs. 27E and 27I), and in the Transportation Centre there was another 26,000 square feet for various other purposes. Phase II was intended to add 70,000 square feet of student facilities and 80,000 square feet of parking.

John Laing & Son (Canada) Ltd. won the contract to construct the Mall Complex with a low bid of $2,649,987 excluding the Mall roof. Since the final estimate had been so nearly the same ($2,684,000), the Board was encouraged to approve the roof, but its redesign took longer. [Progress Report, B-3, p. 17.] The contract was signed on May 6, 1964, and the concrete portion of the Mall Complex was to be completed in 13 months (by May 31, 1965). The concrete roof supports were part of this contract, and they were engineered by Otto Safir & Co. Ltd.

The roof was later built by Laing under a separate contract. Since construction on the roof began late in Phase I and was largely done in Phase II, it will be discussed in later in Sections 35 and 36.

The construction of the Mall's concrete structure was delayed more than any other of the six projects constructed in Phase I, and much of the blame was accepted by Erickson/Massey. An initial delay was not considered serious because virtually
other projects were even further behind. Based on the amounts of concrete to be poured, the Library and the Quad (both being constructed by the same contractor) got as much as three-and-a-half months behind schedule (in part because of a six week delay caused by unusually heavy snows in December 1964 and January 1965). The pouring for the Mall continued on a more regular basis, but went more slowly than expected, and by mid-May 1965 when all concrete was supposed to have been poured, it was continuing slowly and was in some cases not meeting specifications. In its report Erickson/Massey attributed the problem principally to Laing's over commitment when it accepted another contract to construct a paper mill and pulled off many of its employees, including its supervisors. The Mall Complex was left to be supervised by someone who "had only been a carpenter foreman up until this period," had inadequate experience in working with concrete, and lacked the experience needed to coordinate all the sub-contractors. He was also put in charge of the construction of two other contracts: the Women's Residence (Hogarth House) and the Mall roof. The Library was able to catch up under an experienced supervisor.

As the deadline approached, the pressure from the University intensified. McTaggart-Cowan was particularly annoyed with the tile layers, and he asked Erickson, "why don't you get those Italians to work and stop singing?" Erickson said, "look, they're doing better than anybody on this job, and it's because they're singing." [Interview, May 7, 1996.]

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By November 10, 1965, there were still a large number of deficiencies to be corrected, and a total of $77,215.55 was withheld. Eventually, the deficiencies were largely made good, but water continued to leak on McTaggart-Cowan's car. [Massey interview, May 9, 1996.]

Every architect who tries to make improvements is inexperienced. In addition, Erickson/Massey made and admitted mistakes. "The drawings for the Central Mall were turned out in a very short time and we admit did contain numerous errors, and some inadequate details. This, in small part, accounts for some of the delays in the completion of the mall, particularly in respect to the leaks of the roof [of the parking garage]." Erickson/Massey was frank and specific about its share in the responsibility for the problems:

The major items that were in error were as follows: the layout of the paving tile (May 1965), inadequate detailing of roof flashings and drainage, the glass block skylight (May 1965), the changes to kitchen equipment (July 1965), and the problem of partition changes (August 1965). These arose from errors in drawing and in the inadequate communication of information in the architects' office. These errors must be considered in the light of the exceptional pressures on time existing in our office in the preparation of the drawings and the execution of the contract. [Progress Report, B-3, pp. 21-22.]
The size of the tiles had been misread, and all the drawings showing them had to be redrawing. This caused a two-week delay in construction. The glass blocks were insufficiently supported by steel, and when their installation was half completed, they had to be dismantled and reinstalled. Numerous of the leaks were caused by drains being placed too high to drain fully, by a seal being inadequate, and by a recess for drainage having been omitted. The kitchen of the coffee shop was unacceptable to the lessor. Drawings for partitions somehow did not reach the contractor before the installation began.

Some problems were due to the contractor, which made good on them, and some to the architects, which acknowledged their mistakes, but the University was also partly responsible. Like Kiss, Erickson/Massey pointed out that other leaks were "directly attributable to the fact that the University allowed the public in large numbers to walk over incomplete roof membranes." The University had been repeatedly asked to prevent this, but preferred good public relations.

Also during Phase I, Erickson/Massey were preoccupied with the design and supervision of numerous small separate contracts. This increased their fees to make them equivalent to those of other firms, but did not increase them in proportion to the difficulties of dealing with so many minor responsibilities. It was appropriate as Planners that Erickson/Massey be in charge of everything that was left over, but they had insufficient time to handle all of their responsibilities equally well.
The water tower supplied the entire campus, and it also served in place of a communications tower (fig. 32D). The tower holds 750,000 gallons, which was considered sufficient for 7,000 students, and it was later enlarged. [The final estimate had been $104,000, and the low bid was $135,379.] A contract was signed on June 17, 1964, and on August 6, the tank was filled and tested. Manson Brothers had constructed it without deficiencies, and they were also given the contract to enlarge the tower during Phase II. [The upper portion of the tank was estimated to cost $151,000 on May 31, 1965, the low bid was $200,816. The tower was substantially completed on Dec. 6, 1965.]

More minor contracts included some extremely small ones which Shrum insisted should be separately bid. Erickson/massey designed a small enclosure for gas meters within the Mall Complex, and it cost only $9,250. [Laing submitted the low bid, and even this little structure caused a series of problems. Progress Report, B-3, p. 41.] A fire pump house had to be built in Phase I to enable the University to receive moderate insurance premiums. [Pine Tree Construction agreed to construct it for $53,213 between Nov. 3, 1964, and Jan. 28, 1965, but the heavy snows prevented its completion until Mar. 31.] Outside lighting for roads, sidewalks, and landscaped areas was delayed by grading which was in turn delayed by traffic, and the University decided at the last minute that it wanted nearly twice as much lighting. [Hume & Rumble started the project in Aug. 1965, and it was substantially completed Jan. 24, 1966. The low bid of $23,990}
was increased to $43,312.65 (ibid., p. 44).] Erickson/Massey had particularly wanted to ensure uniform signage for all parts of the University including roads and parking areas rather than the usual chaotic clutter which accumulates on most campuses. After "considerable research" on what other universities were doing, the firm chose a sanserif typeface to be used consistently (though it was not even in the beginning). This tiny contract was only $1,306.70, but the effort which went into it exemplified the firm's desire to ensure that all aspects of the University were designed to the same standard.

Uniform furnishings selected by Erickson/Massey included furniture, carpets, drapery, bulletin boards, coat racks, and so forth. Every selection presented extra difficulties. The drapery material was, for example, flown in from Europe and was held overlong in customs and was then delayed in being turned into drapes by a backlog of work which had in the meanwhile been accepted by the manufacturer. Erickson/Massey selected furniture for the Central Mall, Gym, Theatre, and Women's Residence, and they even selected bedspreads for the residence. In other words, they wanted everything to be as good as they could make it, and they took on far more responsibilities than was required because of their personal commitment to the project. This continually got them into trouble.

28. Library

Five floors of the Library were built in Phase I (fig. 28A)
with a structure strong enough to support two additional floors to be added as soon as the space was needed and the money was available (fig. 28B). The main floor was initially in the centre of the five stories. [Harrison’s engineers for structural design were Choulakos, Woodburn & Mackenzie Ltd., for mechanical D. W. Thompson & Co. Ltd., and for electrical Rich-Webster & Co. Ltd.]

Much of the first level was taken up by the central boiler which Shrum had insisted go there, but there was also space for four staff rooms, an audio visual room, and a lunch room. The central heating plan was designed by D. W. Thomson and although it has caused no difficulties, it was a built-in hazard.

[Progress Report, B-2, p.7.]

The second level included a curriculum library and an area with seven rooms for the Acquisition and Cataloging Department. In addition, there were four rooms for group study, a seminar room, and a periodical library.

The third level (the main floor) was intended primarily for reference, circulation, and recent acquisitions. Initially, nearly half the space was used by the University’s administration and for a bookstore.

The fourth level was the area where most bookstacks were initially placed, and it contained reading areas between bookstacks (figs. 28C-D). Eventually, there were to be 620 carrels for student, and the Library was to be as much of a study area as a book collection. In addition, there were six rooms for group study, two seminar rooms, two typing rooms, some rooms for
staff, and a "smoking room."

The designation "smoking room" seems to be an intentional reference to Stephen Leacock's half-serious suggestion that if he had to create a university, "I would found first a smoking room; then when I found a little more money in hand I would found a dormitory; then after that, or probably with it, a decent reading room and a library. After that, if I still had money left over that I couldn't use, I would hire a professor and get some text books." [Time (Nov. 23, 1965), 66]. The suggestion had been made in the 1920s and was well known in Canada. When Shrum was asked in April 1963 if this was what he felt was needed, he replied, "...I agree, and all these we must have...." [Shrum to Frances Tucker, Apr. 28, 1963. Shrum Papers. Eric Nicol posed the question.]

The fifth floor (the initial top floor of the Library) was to be left entirely unfinished inside and was planned to be completed three years after the rest of the building. It was to provide additional stack space as the Library's collection grew. Around the perimeter of the fifth floor are cantilevered cubicles for faculty studies. Each study has windows on each side. [This description of the library spaces is based on Harrison to Erickson/Massey, May 5, 1964. CAA.]

Each floor of the building is at least 96' by 321' and somewhat larger on the top three floors. The floor plan was almost entirely open except for two service cores with stairs, elevators, lavatories, and ductwork. Loadbearing piers
surrounding the core divide the length of the interior into three
equal parts.

The typical floor plan for the floors with bookstacks was to be an open perimeter with pairs of study carrels alternating with two or three rows of stacks. There were to be sitting areas at the center of the building on the south and north sides.

The Conditions of Competition had called for a library of 50,000 square feet to cost $1 million. The Library as built and incomplete in Phase I was doubled in size and was intended to be twice as expensive, but turned out to cost three times as much. The square footage was increased to 204,000, and the cost was estimated at $2.35 million (including the boiler). Leaving the second floor unfinished was expected to substantially reduce the cost, but the low bid by the group of contractors which associated as Ptarmigan was $3,050,581. [Massey to Shrum, Apr. 15, 1964.]

The sixth and seventh levels of the Library were added from 1974-1976. Harrison redesigned the top level to slope inward rather than to be vertical as in Erickson/Massey's competition designs (figs. 7A1 and 7F1) and more like their revised design for the model made in the fall of 1963 (fig. 28E). Harrison's profile also reduced the weight which had to be cantilevered by the fifth floor. [The two upper floors were expected to add 34,000 square feet and to cost $0.3 million.] This change in the design also gave the Library a less top heavy appearance (less like the Palace of the Doges), and it created a more unified
overall design. [Bennett died in 1979, and the Library was named the W. A. C. Bennett Library in 1982.]

The covered space between the front of the Library and the Mall roof supports functions as a portico for the Library (fig. 27I). Erickson has called it a "Romanesque aisle" [Erickson to Waddell, Jan 27, 1997.] On the south side of the Central Mall, the upper part of the roof supports functions as a clearstory, and the skywalk can be thought of as a triforium (second story aisle). Roughly similar needs produced analogous forms.

29. Science Complex

The Science Complex sits on a sloping site on the south side of the Quad, and it consists of blocks of rooms separated by landscaped terraces (figs. 29A1-2). During Phase I, most of two wings of rooms were completed starting from the west end (fig. 29B), and other wings were later added on the east side following basically the same pattern (fig. 41B). Each wing completed initially consists of large lecture halls adjacent the south concourse of the Quad, and each has a central hallway which runs from the concourse past the lecture halls and is then double loaded primarily with labs and storage areas (on either side).

The westernmost wing contains two small amphitheatres seating 86 and 200 students and a large amphitheatre seating 502 students (figs. 29C-E). The middle wing immediately south of the Quad has two medium sized amphitheatres seating 335 students (fig. 29F). Initially, as many as 1,458 students could attend
lectures being given by five of the best teachers. To stay within the budget and to make the commissions more similar, only half of the undergraduate labs intended for the second wing were completed in Phase I (figs. 29 C and G).

The westernmost wing was made suitable for the Chemistry Department and the middle wing for the Bio-Sciences. The Physics Department had to share labs until it got the next wing, which was built in Phase II (fig. 41B).

Graduate labs were intended from the start to be built farther down the hillside. The plan was for most science students to enter from the south ends of the wings or to walk up through the landscaped terraces (figs. 29H1-2). [Erickson interview.] At the ends of the undergraduate labs, a reading room bridged over the terraces to connect the wings, and another bridge was planned to extend across the ends of the graduate labs (fig. 43). The terraces are from 50 to 80 feet wide, and they step down without interruption and are open at their south ends. Each level is planted to provide the appearance of a small courtyard. [Iredale to C. Annabell Gerald, Architectural Journal, Sept. 9, 1966. SFU Archives.]

The largest halls were designed to take advantage of the slope of the hill (and they were positioned accordingly). Even in hall with 502 students, the amphitheatre arrangement allowed every student to be within 80 feet of the lecturer (fig. 29E3). To ensure that all students could hear equally well, a sound system was installed, and to ensure that they could all see what
would ordinarily have been written on a blackboard, overhead projectors were standard equipment. Counters were also installed for scientific demonstrations. [This description of the first part of the Science Complex to be completed is based primarily on a news release by Rhone & Iredale, Aug. 4, 1965 (Rhone & Iredale Papers, SFU Archives.) Plans, sections, a rendering, and photographs were published in the Canadian Architect (Feb. 1966), 62. ]

The two stories of labs are designed to be readily rearranged for sciences which were rapidly changing and needing new equipment. Some radioisotope equipment was included from the beginning, and large and expensive equipment was already known to be needed later. The 1963 Macdonald Report referred to atomic energy and space research and warned that "if man is to survive as a species, and if we are to prosper as a nation and as individuals, we must strive to understand the meaning of the [scientific] revolution as we plan for the years ahead."

The poured-in-place, post-tensioned beams allowed for any arrangement in rooms with minimum spans of 30 to 50 feet. Rhone & Iredale worked out the extremely complex requirements for the individual spaces with the advice of Shrum, department heads at UBC, and their own engineers. [The consulting engineers were Bogue Babicki for the structural system, Simpson, McGregor & Scott for electrical, and D. W. Thompson & Co. for mechanical. ]

Burns & Dation Construction (1962) Ltd. made the low bid of $1,895,500. A contract was awarded on May 4, 1964, and the work
was substantially completed without deficiencies before the agreed upon deadline of August 1, 1965 despite the five feet of snow which prevented work for six weeks in December and January.

The Conditions of Competition had called for three separate buildings for chemistry, physics and the bio-sciences, and each one was to have 50,000 to 55,000 square feet and was to cost from $1 million to $1.2 million. The total eventually came to more than twice as much for these three wings (Section 43), and wings for other sciences were added later.

30. Theatre

The Conditions of Competition had called for a "standard theatre auditorium to seat 1,000" and to included a flyloft. No cost estimate had been given. Erickson and Massey's competition design (fig. 7D2, nos. 7 and 8) and initial model had called for a pair of theatres which could serve a variety of purposes including large lectures for classes. They had proposed one theatre to seat 1,000 and another to seat 500. What was built was a single theatre which could seat 730 people.

Duncan McNab and Associates planned what was almost certainly the most versatile theatre in British Columbia and what was probably one of the most versatile anywhere at the time (figs. 30A-E). Initially, the expectation was that the theatre would need to be used about half the time for lectures, a fourth of the time for drama, and a fourth of the time for concerts and films. As the student body increased and as more lecture halls
were built, the Theatre was expected to be used more for plays.

With advice from Ron Polluck, Logan designed an amphitheatre capable of being arranged in six different configurations. The proscenium version has the fewest seats (470) and the largest stage (60' by 29.5'). The arena (theatre-in-the-round) version has the most seats (730) with a horseshoe-shaped space left in the middle. The other four arrangements have increasingly more seats and less stage. Seating was generally added at the sides on platforms which retract into the side lobbies. The shape of the interior space changes greatly with the varying patterns of seating, stage openings, and ceiling heights. Any arrangement could be set up in less than an hour. [Pollok was stage director of the Stratford Festival Theatre and the Vancouver Playhouse Company. Two other consultants, C. Tiers and J. Breeze provided advice on acoustics ("Flexibility of Stage Auditorium," Journal of Commerce Weekly [Sept. 4, 1965], 35).

The stage could also be opened across its full width and depth for lectures seating 506. It could be made less deep in three stages so that progressively more seating could be added to create a three-quarter arena theatre seating 618, a modified Elizabethan theatre with 562, and an Elizabethan theatre with 474.]

Within the main space is a small orchestra pit (which can be covered over when not needed) and two musicians galleries. Behind the stage is a soundproofed workshop, and in lower levels are a rehearsal area, two choral rooms, and dressing rooms.
For Phase I Shrum had initially decided that Erickson and Massey's 500 seat theatre would suffice, and their initial budget figure had been $0.5 million. As McNab's firm enlarged the size and increased the versatility of the Theatre seating up to 730, the estimate had risen to $0.7 million by March 31, 1964. This included necessary furnishings (primarily seating) and omitted the loft (but with provisions for it to be added later). McNab noted that the Playhouse Theatre with 640 seats had cost more than $1 million, but Shrum nonetheless called for the temporary omission of nearly all the carpentry work (reducing it from $101,300 to $10,300).

The experimental character of the building seems to have made contractors reluctant to undertake it. While nine contractors had bid for Duncan McNab and Associates' Gym, but on January 22, 1964 only two bid on its Theatre, and one bid was considered unacceptable. The tender process had to be gone through a second time, and in May the low bid by Burns & Dation was $666,000 [Bain to Shrum, May 14, 1964. Shrum Papers.]

31. Initial Landscaping and Art Work

A. Landscaping: In the Conditions of Competition, Shrum had stated that "consideration should be given to leaving as much of the natural forest cover as possible. This is important from the
point of view of drainage and run-off." Early in the development of the design, Shrum said, "there will be no lawns to maintain, only trees." [Sypnowich, "University," 4.]

Erickson and Massey adhered very closely to the Conditions in this respect and were completely sympathetic with the concept. When the University opened, Erickson stated that the "the surrounding will be left in their raw, natural state, we don't want the artificial type of landscaping. We want to bring the raw aspect of nature right up to the buildings. By doing this we will achieve the strongest contrast to the buildings." [Burnaby Courier (Sept. 2, 1965). 2.] The firm's site perspective for the competition shows the forest in some places alongside the buildings, playing fields, and parking areas to provide a large, irregularly shaped meadow entirely around the edges of the campus with views in all directions and in some places framed by trees (fig. 7A1). [Erickson/Massey's landscape consultant was John Lantzius & Associates.]

The spaces within the campus were exceptions. Erickson and Massey's detailed competition perspectives show that the Central Mall was intended to have numerous small trees and shrubs in planters, many benches, and fountains with sculpture (fig. 27C1). It was to be a place to sit in as well as to pass through. At the time of the opening this concept had been largely realized, but on a temporary basis, and it could not be fully implemented until the completion of the Mall roof.

The terraced areas between the wings of the Science Complex
were to be landscaped informally and later also the spaces between the wings of the Classroom block, one of which even has a large reflection pool. Only the Quad Courtyard was to be formally landscaped, and during the preparation of the competition drawings, much consideration was given to how it would be landscaped (fig. 42A1). Eventually, most of the elements which show in the competition designs were executed, but no part of it was completed during Phase I. The forms and locations of the elements changed significantly over a period of years (Section 42).

Since the contractors were to be penalized heavily for delays in the completion of their work, it had been unrealistic to expect them to clear their work areas and give up their material storage areas until their work had been completed. No landscaping could begin until July 15, 1965, and some areas were not available for landscaping until immediately before the opening on September 9. Tenders were not even called for landscaping until July 16, and when the contract was signed on August 11, the completion date was set more realistically as October 30. [Conniston Construction's low bid was accepted July 30, but before completing the work defaulted and another contractor had to resume the work in November.]

The terraces of the Science Complex were the only exceptions, and as much work as possible was done of them. The fields were at least green for the opening. In order to have the Central Mall looking as good as possible, 12 men worked
continuously for 48 hours.

The playing fields were seeded with grass and were at least green, but that only took some grass seed. They had not been developed and would not be usable for more than a year. Miller Cartage received the contract for the four playing fields on October 13, 1964, and agreed to complete the work for $167,116.50 by April 30, 1965. [The estimate on March 13 had been $135,000. Progress Report, B-3, pp. 10-12. Changes later added $4,000 to the contract amount.] Since the ground was covered by snow much of the winter, no work on the fields began until the following spring. Between March and September 1965, the work was substantially completed, but the fields were off limits for walking on for four months and for playing an entire year to give the grass time to develop a strong and interlocking root system. Work on the track was not completed until 1966, but this was because the athletic department requested a change in materials and dimensions.

B. Artwork: All of the architect involved in Phase I had hoped to spend 1/2 of 1 percent of the total cost of the project on works of art. This was the policy of the Canadian government, and they considered it minimal. [Memo by Massey on a meeting of principal architects held Nov. 18, 1963. CAA.] If their proposal had been approved, about $90,000 would have been spent by the University. One art project was privately funded, and the only other one cost $3,200. Both art projects were for murals which are integral parts of the architecture, but neither artist
and neither design was selected by the architects. Freestanding sculpture was recommended in the Conditions of Competition, but none was funded.

The University commissioned tile murals for the Quad after receiving a proposal from the artist, Gordon A. Smith. [Smith had been Erickson and Massey's first client in 1953. Gordon and Marion Smith commissioned Erickson/Massey to design a second house in 1964. Both houses were award winning projects (Erickson [1975], 219; cf. 50-52).] Smith's proposal "to create a mural was first considered by the Buildings and Site Committee on October 2, 1964, and the Committee was in favor of a mural but did not particularly like the proposed non-representational design." [BSC Minutes, Oct. 2, 1964.] On October 9, Smith submitted a proposal to the Board to design two mosaic murals, and after considerable discussion and some strong objections, the proposal was accepted. ["Mrs. Wood and Mr. Bloch-Bauer asked that their dissenting votes be recorded." Minutes, Oct. 9, 1964.] The Board agreed "that the design of the mural be left to the artist."

On October 14, Kiss wrote Smith that "the murals, each approximately 11' 4" X 16' 6", should be attached to the core walls of the building on the court level, adjacent to the main exterior stairs" (in the center of the west side). The murals to Smith's designs were later installed under his supervision by the Pacific Tile Company (fig. 42E). The wall had not yet been poured, but was within about a month so that the murals could be

At the same meeting on October 9 when Smith's project was approved, the Board also considered and approved the offer of a gift of "plastic and metal" murals by Beulah Mullen. Orr was asked to consult with the architects.

Mrs. Mullen later designed and executed the large pair of murals for the Theatre with the help of three assistants. Each mural is 10' high and 32' long. The ground is rolled steel, which was protected by a paper covering. The artist drew abstract patterns on the paper, and the assistants cut through into the steel. The steel was then textured with brushes and painted with epoxy resin paints with some sections of wood veneer added. [Mrs. Buell Mullen was a Chicago artist who had previously painted steel murals for the United States Library of congress and for numerous business firms including the International Nickel Company. One of SFU's Board members, Cyrus H. McLean, and admired the Nickel Company's mural and Company's head, Henry S. Wingate, contributed the SFU murals (Business and Financial Chronicle (Dec. 1965), 28.]

32. Construction Progress

The four firms of contractors were working on six projects under the supervision of five firms of architects. The somewhat complicated arrangement needs to be summarized: Ptarmigan was building the Quad and Library under the supervision of Kiss and
Harrison; Burns & Dation were building the Science Complex and the Theatre under the supervision of Rhone & Iredale and Duncan McNab and Associates; John Laing & Sons was building the Mall Complex under the supervision of Erickson/Massey; A. R. Grimwood was building the Gym under the supervision of Duncan McNab and Associates. "And of course everybody wanted to perform, and it was not only the architects. It was the contractors. It was a race to see who could get done first. And this caused a number of other problems including some workmanship issues and so forth." [Bain interview, Jun. 26, 1997. In response to the comment, "I've heard you didn't want to disappoint Shrum," Bain said "no one did."]

By June 5, 1964 all four contractors were working on all six projects and were "vigorously pushing footings and groundwork to completion." [Orr, site report, Jun. 5, 1964. CAA.] By June 24, the site looked greatly different than it had only three months earlier when the grading had been completed (figs. 32A-B). By November 13, the site was extremely crowded, but by December 31, it was wholly deserted (fig. 32C-D). A total of five feet of snow fell during the winter of 1964-1965. The work largely progressed well despite the severe winter and various deficiencies, but there were a number of serious disagreements and unexpected delays.

Even by June 5, though, a major problem had arisen. The rock beneath the site of the Library was closer to the surface than engineers had reported on the basis of sample cores, and
consequently far more rock than expected had to be removed to put in the foundations. The contractor had to blast out the entire foundation by drilling 3" holes in the conglomerate and by using up to 250 sticks of dynamite at a time. [Heavy Construction News (Dec. 25, 1964), 12.] Ptarmigan claimed that the cost of this work was $300,000 and expected to be reimbursed. The Board considered the request for reimbursement and decided that "conglomerate" rock could be considered "hard pan," which was covered by the contract. [Minutes, May 24 and Jul. 9 1964.] The contractor sent a registered letter stating that "he demanded this matter be resolved by arbitration and that he could appoint his representative forthwith. In the meanwhile he had suspended work on the excavation." Orr threatened to cancel the contract, and the contractor returned to work. The settlement was for $32,000. [Minutes, Aug. 13, 1964.]

Burns & Dation were responsible for siting the Theatre correctly, and after putting in its foundations, Bain noticed that it was surprisingly close to the Quadrangle. The foundations were found to be 27 feet too far east, and they were immediately removed and replaced at the contractor's expense. [The problem was caused by relying on a site plan which had been canceled and recalled. Bain interview, Jun. 26, 1997.]

On June 5, work on the Quad and Mall Complex started slowly, but was not much behind schedule. The Science Complex was on schedule, and the Gym was ahead of schedule.

By June 18 the work was progressing so well that it was
clear that the $4 million advanced by the Province would run out quickly. Even including an additional grant of $465,787, all funds were expected to be expended by early October, leaving no money to pay the contractors. McTaggart-Cowan wrote an urgent letter to Peterson asking "may we please have your guidance and direction on how we might proceed from this point[?]"

[McTaggart-Cowan to Peterson, Jun. 18, 1964. Shrum Papers.]

McTaggart-Cowan requested permission to borrow further either from the government or from a commercial lending institution. The Comptroller of Expenditure for the Department of Education pointed out that the other two universities were not being given unscheduled advances, but he recommended making additional advances of up to $1.5 million at a time.

Private fundraising could no longer be put off, and the Three Universities Capital Fund finally got well underway with a gift of $2 million from McMillan, Bloedel & Powel River (the firm which hired Erickson/Massey the following year to construct a concrete highrise for it in downtown Vancouver). By October 28, the campaign had received contributions and pledges totaling just over $5 million, and even though this had to be divided three ways, the Provincial Government no doubt found it encouraging. Among the contributions were gifts of $5,000 each from the President of UBC, Dr. J. B. Macdonald (who had prepared the Macdonald Report) and from the President of SFU and his wife, Dr. and Mrs. P. D. McTaggart-Cowan. [At the time the President of SFU was receiving a salary of $25,000 before taxes. Shrum Papers.]
By the Board meeting of August 13, 1964 the Gym was still ahead of schedule, and the Science Complex, Theatre, and Mall Complex were all on schedule. The Library was nearly on schedule despite its foundation problems, and only the Quad was behind schedule and only by three weeks. All of the work was going so well that it was clearly possible for the first time that all six projects could be available in time to be used by September 1965.

Various disagreements arose from time to time, but were necessarily resolved quickly. In August a disagreement arose between Massey and Kiss, but it is chiefly significant for showing the extent to which the ideas of the other four firms might be accepted or rejected and how the process could work. [The disagreement was verbal, but there were numerous witnesses, as Kiss pointed out in a letter to Massey dated Aug. 19, 1964. CAA.] Kiss had proposed several changes in the design of precast concrete handrails, and he had samples prepared for approval. On August 8, Kiss, Massey and six others met to consider the samples, and Massey approved Kiss’s design for a handrail with chamfered edges and squared ends and a finish created with an acid wash. Kiss later reminded Massey "you expressed readiness to change your detail to follow ours." An August 13, however, Massey "suggested that I [Kiss] reject all railings and order Graybar to re-do them with square edges. I refused." Kiss pointed out that the squared version was "impractical (easy chipping), dangerous (could cut hands) and difficult to make with consistent uniformity" and that a further delay to make new forms
was unjustified. "You were present, you had your chance, and agreed in front. I do not reverse decisions made because you have third thoughts." Massey had not insisted on the change, and he did not insist on one then. [Later, Massey said that despite creating the only building perpendicular to all the others, "Kiss probably conforms most to the original concept" (interview, Jun. 28, 1997 ).]

These same handrails were to cause further problems. Kiss had partly redesigned them to make casting easier as part of the formwork, but the contractor still did not cast them correctly in the beginning and did not protect them from damage as construction continued. On October 30 Kiss wrote Ptarmigan that he had shown the defective work to the Building Committee and explained "that in monolithic concrete work, where finished surfaces are not applied later, but in the actual casting process, the only effective way of correction is to demolish the faulty section and recast it." In this instance alone the Committee decided to permit repair of the defective work, but instructed Kiss to tell the contractor that they did so with "great reluctance" and that the site inspectors had been told that this was an exceptional case which "does not represent lowering of standards for acceptance of any future work not complying with our specifications." [CAA]

The Committee was still more concerned with delaying construction further. The Quad continued to fall increasingly behind schedule, and it went from being the only project three
weeks behind on August 13 to being a month behind on October 9. Serious consideration was given to replacing the contractor, and by November, the Quad was only two weeks behind.

With the increased speed of construction, defects multiplied. Kiss considered a section of the skywalk "unacceptable because of poor workmanship," but since it was structurally sound, the Buildings and Site Committee decided to make another exception and to instruct the contractor only to replace two misaligned handrails. The contractor was warned "that no further exception would be made in the policy of requiring first class workmanship." The Committee took into consideration the "tremendous effort" that the contractor had made to get back on schedule, and this effort continued. By December 10 both of Ptarmigan's buildings, the Quad and the Library, were on schedule with the library even "slightly ahead." All other buildings were also on schedule in part because McTaggart-Cowan had helped to settle a threatened strike of bricklayers working on the Science Complex and the Theatre. [The bricklayers had walked off the job for three days in a dispute with Burns & Dation over a union agreement.]

By December 1, 1964, a major disagreement had arisen between Duncan McNab and Associates and A. R. Grimwood, President of A. R. Grimwood, Ltd. In a letter to Shrum, Grimwood asserted that his firm had made major changes requested by the architects and had submitted a bill for $6,000, which he said represented his cost. "The Architect's representative" said they would allow
$2,300, and the delay would not allow his deadline to be extended. He asked Shrum for a meeting to resolve this problem and to ensure that further delays would not be caused by the architects. At the Board Meeting on December 10, Shrum explained that he [Lee] had asked the contractor to correct some deficiencies and then [to] ask for Mr. Orr's approval. The President added that it might become necessary to clear all correspondence between the contractor and architect through Mr. Orr's office."

Instead, Grimwood had his lawyer represent him in all communications with the architects. In some cases he refused to correct work to conform to working drawings and specifications. McNab said that when Grimwood's firm poured a floor slab thinner that the drawings called for, Grimwood complained to McTaggart-Cowan, who blamed McNab for not preventing the work from being done improperly. When Grimwood refused to correct the placement of reinforcing rods for the diving platform, McNab's firm paid to have it done rather than take so small a matter to court. [McNab interview, Jun. 28, 1997. Harrison and Kiss later had similar experiences with Grimwood, and Harrison said that Lee was "a nice guy, ... nice competent guy." ]

Despite such disagreements between architects and architects and between architects and contractors and despite numerous minor disagreement between contractors and contractors, everyone including the construction worker continued the steady pace necessary for the University to open on time (figs. 32E-F).
In the Conditions of Competition, Shrum had called for an indication of the location of three dormitories for 800 students each. He was presumably thinking of highrises, which he has suggested be considered, but he stated that the form of the buildings need not be indicated. When Shrum first went to college, he had lived off campus, but soon realized "that this was a great mistake." He moved into a dorm, and later he stated that "one project I strongly favored was building permanent student residences. I felt that it was important for students to live on campus to get the full benefit of their university years."

[Autobiography, 70.]

Even though the Conditions had not required solutions for housing, Erickson and Massey had planned housing as an integral part of their overall design for the campus (fig. 7B). They had recommended constructing some housing for both men and women during Phase I (fig. 13B1). Their first site model showed that the initial scheme had been considered in detail (fig. 33A). They had good reason to believe that the adoption of their designs included the intention to execute all of it. The assessors had recommended the entire plan, and Shrum had agreed to build it.

Housing had not been given priority in Phase I because it was assumed that it would not be needed until later. McTaggart-Cowan wrote, "we had reluctantly planned no residences in Phase I on the assumption that the majority of our students would be
commuters and our rate of capital spending was high anyway. Our initial enrollment showed 50 percent of our students coming from outside the commuting radius and our need for residences was instant." [Annual Report (Oct. 1966), 8].

An opportunity to design a prototype for student housing arose when Mrs. D. M. Hogarth contributed $75,000 for a Women's Residence (figs. 33B-C). On September 24, 1964 McTaggart-Cowan wrote Erickson/Massey to confirm his "verbal instructions" of September 16 that the firm was to design a Women's Residence for 60 to 63 students and a house mother.

Gradually, these simple requirements were changed to included a lounge with fireplace, a kitchen and dining area, laundry room, typing room, trunk storage, and boiler room (rather than going to the expense of extending heat from the central energy facility). There were to be 59 individual rooms for undergraduates and 6 for graduates. During construction, large number of other changes were requested by the donor. [Progress Report, B-3, p. 27.]

Erickson/Massey immediately gathered all the information they could on student residences throughout North America in order to consider how best to set a pattern which all later residences could follow. They decided to adopt the "suite system of housing... [which] was found through our research to be the most amenable type of residential environment." Six suites of 11 rooms each were designed, and each suite included a common room and a shared bath. This arrangement made long hallways
unnecessary. The lounge and kitchen were placed on the main floor.

Erickson/Massey found in its research that the unit cost would be considerably less for a larger number of students since the same facilities could serve 90 students as 65. Still large buildings would provide further savings, but all were intended to be lowrise buildings placed on terracing on the north and south slopes of the ridge with a large courtyard in between as in the competition drawing (fig. 7C).

The Board agreed on October 9, 1964 to seek a mortgage to double Mrs. Hogarth's contribution on the basis that the residence "would be substantially self-financing." [Minutes of a meeting with the Minister of Education, Nov. 5, 1964. Shrum Papers.] On October 22 Erickson/Massey presented the Buildings and Site Committee with "plans and perspective sketches of the proposed residence and a model of a typical room."

The donor was allowed to make continual changes during the design and construction of the residence. She "was not in favor" of carpet for one area, and the Buildings and Sites Committee obligingly substituted tile. She wanted a five-foot mirror and a vanity mirror in each room, and she wanted the house mother's room to be so small that only one person could possibly reside there.

On January 6, 1965 Erickson, Massey, and Bain presented revised drawings and a revised model for a typical room. Complete plans and specifications for the Women's Residence were promised
by the end of January, but were not ready until February 9, when Erickson/Massey presented the final version to the committee.

The Buildings and Site Committee approved the plans with the provision that the bid "must not exceed $320,000." This was more than twice the amount the Board had expected to suffice on October 9, 1964. Erickson stated that there had been insufficient time to have a cost estimate made. "The architects were then advised that the Committee was very displeased with their failure to produce plans and specifications on time, because it was clearly understood and promised when their contract was awarded to them that tender call would be made in January." Considering that the delay had been in part to make last minute changes requested by the donor and approved by the Committee, that the delay had been little more than a week, and that there was still time to build the residence before September, this comment did not improve the working relationship.

On March 9 the Board was informed that the low bid was "$69,000 higher than the estimate," again partly because of numerous requested changes. The Board had stipulated that the building was to cost no more than $5,500 per student plus 10 percent even though the cost per student at UBC for housing constructed earlier and without kitchen facilities was $6,138. [Progress Report, B-3, pp. 27-30.] As Erickson/Massey had emphasized from the start, to build a residence for so few students could be expected to cost more per student than a residence for more students, yet they had kept the costs
reasonable. Even though the costs were well in line with comparable costs, the Board decided to try to save money by separating out the subcontract for millwork and trying to get a lower bid for it.

Laing began construction on March 8, 1965 and contracted to complete its work on the building by September 1. The final contract price was $378,633.39, but some subsequent some omissions and a refund of sales taxes reduced the cost to $323,172. Prefabricated rather than built-in cabinets were substituted to save $37,429.69. [On Feb. 18, Laing had bid $364,000, and Nikolai Millwork bid $48,848 in addition. Nikolai had done nearly all of the rest of the millwork for the other projects and had done the work in an exemplary way. Eventually, the University receive a mortgage of $450,000 for the project from Central Mortgage and Housing Corp. (Province, Sept. 8, 1965).]

The work was declared substantially complete by August 27, but was not. About two weeks worth of construction remained to be done, and none of the millwork had been installed to make the building usable, but it was accepted so that its completion could be rushed. Floor coverings and painting had yet to be done, and the University did not want workmen in the building with women living there.

The entire problem had been caused by the separation out of the millwork subcontract to save the contractor’s fee for supervising this work. Since the contractor was to be fined for
not completing the work on time and since he had until September 1, he was in no hurry to complete it earlier, and he flatly refused to be delayed by allowing the millwork to go on at the same time the finishing was being done. Erickson/Massey noted that "no amount of effort could speed up the logical sequence of work which must take place." [Progress Report B-3, p. 32.]

The University's efforts at cost cutting had again turned out to be a disaster, and it was compounded by allowing further changes. Although Mrs. Hogarth's generous contribution had caused the building to be constructed in Phase one, her gift covered about one-fifth of the total cost, and she was allowed to make further changes even after the contractor's work had been acknowledged to be substantially complete. She considered the concrete floors to be "not acceptable." This was partly because of faulty workmanship, but even after minor repairs, she wanted the floors covered, and they were. [Laing's work had been accepted without deficiencies except that the heating subcontractor had installed some pipes of inadequate size, and this was corrected at the subcontractor's expense immediately.] At Mrs. Hogarth's request also, the University decided that someone would need to be found who was willing at the last minute to plaster some of the concrete walls, to install extra lights, to add a metal fence, and to install an alarm system. To do all of these things was expected to add less than $2,000 to the cost, and Mrs. Hogarth had contributed an additional $25,000 to enable the rents to be kept as low as possible. Every one of the
changes could easily have been dealt with if they had been part of the original specifications, but since the contractor had left the job, different workmen had to be found to do each of these separate tasks, and the amount of extra work was enormous. The job of finding and supervising additional workmen fell to Massey. [BSC Minutes, Oct. 22, 1965. An appropriate motto for the architectural profession might be "I don't start until you stop" (suggested by Randolph Martz).]

Despite the unnecessary complications, Hogarth House opened along with the rest of the University in September 1965. As Erickson/Massey concluded, "the importance of this first residence cannot be overstressed. As a forerunner of a community of 2,500 students, its real significance cannot be realized until further units are built. We are confident that in the future the importance of the efforts that have been expended on our part on this initial project will become obvious." [Progress Report, B-3, p. 32.] When Phase I ended, the University wanted to provide dormitories for 2,000 men and 1,200 women. [Business and Financial Chronicle (Dec. 1965), 31.]

34. Mall Roof Controversy

On March 9, 1965 the Board reconsidered the Mall roof, and Shrum "pointed out that it would not be possible to use the Mall for student meetings or convocation, unless the Mall is closed in and free from drafts, and some heating provided during winter months." There had never been any suggestion that the Central
Mall could satisfy the need for an auditorium. Only a 1,000 seat auditorium had been called for in the Conditions of Competitions, and the Theatre would be able to hold nearly that many (730). Shrum decided that a larger auditorium was needed immediately, and he proposed building a temporary wooden addition at the west end of the gym rather than spend twice as much for a useless roof for the Mall.

Erickson and Massey told the Board that the roof would cost only $6.40 per square foot and would be a permanent addition which was "an integral part of the overall design of the University building complex." They argued that to spend $4.63 per square foot on a temporary building would be money thrown away.

At the time of the competition, Erickson and Massey had taken for granted that the Mall roof would need to be a space frame constructed of lightweight aluminum and plexiglass, and they had hopefully estimated that such a roof could be constructed for $250,000. There had been no time to design it and to get an estimate before an estimate was required by the deadlines, and afterwards, they found that their initial rough estimate was the maximum the Board would consider spending. The roof had to be constructed of less expensive materials, and the design process took a great deal longer for an experimental structure, but by March 1965, Erickson/Massey was able to present a scale model of a roof made of timbers, steel rods, and glass. They urged its acceptance rather than spending a lesser amount on
Shrum's temporary field house. No decision was reached.

After the meeting on the same day, Erickson wrote McTaggart-Cowan a letter urging him to support the construction of the Mall roof. He reminded him that their intention had been that principal purpose of the Mall was to be "a place to gather" and that it was to enable the Quad courtyard to serve as "a place to think." He argued that

a gathering place in a temperate but wet climate needs a roof and a roof over an outside space, unless it transmits light, can make a space seem damp and cold. The Mall Roof was, therefore, designed to be a handsome, luminous cover to provide a comfortable, sheltered place as the focal point of campus life.

With a view to the climate of the area, the Covered Mall would be used extensively as a meeting place, for casual gatherings, for informal student activities, summer dances, etc., and also, during eight months of the year, for important university ceremonies.... The Covered Mall was never visualized as acting as an auditorium for meetings, lectures, and concerts....

Erickson appealed to McTaggart-Cowan's meteorological expertise by pointing out that the Department of Transport Meteorology had found that rain could be expected on 41 percent of all days from March through October. On these days the Mall could "be used when otherwise outside gatherings would be impossible." He also
cited UBC Professor G. V. Parkinson as stating that the surface friction of the roof would actually decrease, rather than increase, wind currents through the Central Mall. [Professor Parkinson of UBC's Department of Mechanical Engineers explained in an April 7 letter to Massey that "although the winds blow through the covered region, it will have a lower velocity than over the same ground uncovered by a roof. The extra frictional resistance of the underside of the roof is responsible for this decrease.".] There would be winds on top of the mountain without buildings, and any buildings close to one another will obstruct wind and cause it to rush between them. Highrises would have added updrafts to the problem.

Erickson also wrote McTaggart-Cowan that the preparation of the design of the Mall roof had been a very thorough one. Five study models had been prepared before selecting the design presented for approval: "...wood was chosen over aluminum for economy and over steel for maintenance. The configuration was selected on the basis of lightness of appearance." Although steel would cost the same as wood, steel would have to be kept painted. Aluminum would cost only about 16 percent more, but that was beyond the budget the Board had stipulated.

The first special meeting ever was held on March 15 to consider what to do about creating "a place where large meetings such as convocations can be held in comfort." Erickson Massey presented a sketch for a wooden field house with an asphalt roof and asphalt floor that could be built for $125,000. The Board
approved the construction of the field house and also the construction of the Mall roof.

The second special meeting of the Board was held on March 26, and McTaggart-Cowan asked that it be called so that he could point out that "the precise building program for Phase I and Phase II" had already been presented to the Treasury Board when the University requested the authority to borrow additional funds, and no additional building could be added until Phase III. In addition, "the Field House was not in keeping with the design of the University architecture," and if necessary the gym could hold 2,000 in the large basketball court, another 1,800 could watch a ceremony from the pool side on closed-circuit television. Shrum countered with the recommendation "that the Mall roof should not be built at this time but that the money available should be used to provide additional teaching facilities, for recreation and physical education, in the form of a Field House or an extension of the Gymnasium" or to extend the Transportation Center past the Gym. He questioned whether or not the Mall roof would be able to support the amount of snow which might be expected, and "Mr. Erickson said that the type of roof which the architects proposed has been planned to take a weight of 60 pounds per square foot. This is more than the stress allowed for one or two of the University buildings, notably the theatre" (with its steel roof structure). He suggested that as a last resort to remove any unprecedented amount of snow, "it would be an inexpensive matter to break some of the glass panels and push
the snow through onto the Mall for removal."

In his first challenge to Shrum, McTaggart-Cowan "said that he and the faculty and staff were of the opinion that the roof should be built, as it is an integral part of the overall design." Shrum moved to extend the Transportation Centre instead, and his motion was defeated. He moved to use spend $250,000 for the Mall roof or for a field house or for extending the Transportation Centre, and his motion was defeated. He moved to call for tenders immediately for the Mall roof, and his motion was tabled until the next regular meeting.

Shrum was furious. In order to find as many objections as possible to the Mall roof to obstruct it in any way he could, Shrum got three engineers to give him advice. The best he could come up with were further questions to ask about snow removal, maintenance, and drafts, and he cannot have been pleased when one of the engineers told him that "the appearance of this roof is of vital importance." Shrum was also told that his idea for extending the Transportation Center to the entrance of the Gym to serve as an auditorium with a 90' clear span would require concrete beams 6' tall and would cost $200,000 [L. J. Moulder to C. H. McLean, Apr. 1, 1965. Shrum Papers.]

On April 7, the day before the next regularly scheduled Board Meeting, Erickson/Massey sent Shrum a letter which was an expanded version of the March 9 letter to McTaggart-Cowan, and they sent copies to all members of the Board. They added that their concept of the university had tried to "allow for access to
and between all parts of the university under cover"—one of
Shrum’s own stipulations—and they "emphasized that the library
has no covered connection to it without the roof."

When the Board met on April 8, Shrum tried to prevent
discussion of the Mall roof in the absence of the Chairmen of the
Buildings and Site Committee and of the Finance Committee. The
Board insisted on discussing the issue and voted down his motion
to defer discussion again. Erickson and Massey were called in,
and they said that were still convinced that the roof they
proposed could be built for $250,000. Their contractor, Laing,
estimated that it could cost as much as $330,000, but since no
such roof had been built, this was considered an extremely
conservative estimate. Erickson and Massey proposed if necessary
building the less expensive of tubular steel for $230,000, but
pointed out the maintenance requirement. They were then
dismissed from the meeting.

Prior to a vote, Shrum stated that "both [the Mall roof and
the Mall extension] would have to be done eventually, as both are
integral parts of the overall plan." The Board voted for "the
architects to call for tenders on the Mall roof and to present
them forthwith to the Board." After this vote, Shrum "requested
that it be recorded in the minutes that he regretted the Board’s
decision to spend $270,000 on an ornamental roof, which would
provide a space of no value, when in his estimation there are not
adequate facilities for the teaching program." By contrast the
architect R. J. Thom wrote that without the roof "Simon Fraser
could never have merited the serious attention it is now enjoying as a significant new university." [This controversy was kept so secret that Thom credited Shrum personally with the decision to build the Mall roof (Canadian Forum [Jan. 1966], 225. Similar comments by Thom appeared in the Canadian Architect [Feb. 1966], 46).]

Two days later, on April 9, the Buildings and Site Committee (with Shrum absent) informed Erickson and Massey for the first time that the Board has authorized the construction of the Mall roof providing that the cost not exceed $250,000 and that the completion date be no later than September 1, 1965. The Committee instructed Erickson/Massey to consider the feasibility of installing electric cables in the gutters to melt snow and to find out how snow was removed from similar roofs in Europe. McTaggart-Cowan warned that "to the Board of Governors of Simon Fraser University, the reputation of Erickson-Massey Architects is on the line with this project."

On April 12 Shrum wrote a memorandum to the members of the Board attempting to get them to reverse their decision. He stated that an assessor of the competition, E. Stuart Williams, had reservations "about blocking the view and the problem of snow removal.... I regret that we didn’t have this information before the decision was made last Thursday. Actually, Massey did have it in a letter Williams had written to him on April 5, but Williams had even forgotten that the Mall had a roof (despite the fact that it shows in two perspectives and a section). His
objection was not that a roof would keep the Mall from being seen from the Quad, but that it would limit the view of the Quad from the Mall, and he later withdrew his objection. [William's April 5 letter is stamped as having been received by Erickson/Massey April 6 (CAA).]

Massey wrote Shrum on April 13 that Williams had withdrawn his objection and that snow would not need to be removed except when it needed to be removed from all the buildings of the University in the case of a "freak snowfall." The past winter had been the worst on record, and the snow 5' deep had weighed 55 pounds per square feet. The roof was designed for 60 pounds "plus a safety factor of two times." [Shrum Papers.] Massey had written to the National Research Council, and on April 22 G. K. Garden of its Construction Section, Division of Building Research, wrote "this area should exceed about 40 pounds per square foot once in about thirty years.... Drifting of snow on this roof may produce high local loads but should not exceed the roof structural capacity of 60 pounds per square foot." [Shrum Papers.]

Shrum had demanded to see all of the correspondence Erickson/Massey had received relating to the roof. He learned a great deal he did not want to know.

Warnett Kennedy head of the Architectural Institute of British Columbia and Chairman of the accessors, had written Erickson and Massey on April 7 that "...the canopy was one of the main attractions of the original scheme and therefore, had the
support of the adjudicators. I am personally of the opinion that the concept is a splendid one and will assuredly be imitated on future campuses.... The best things in architecture come into existence as acts of faith on both architects and clients.... I do not think you will have too much difficulty with such exceptional clients."

David A. McKinley, Jr., also an accessor, wrote Erickson/Massey on April 6 that

the solution of unifying the various campus building masses through the use of a central covered mall was one of the jury's basic reasons for your selection as the competition winners. The Simon Fraser University central mall, in my opinion, will be the key to a campus way of life--a fine and elegant space for circulation, studying, contemplation and other student activities which can exist in this protected environment. To visualize this central space without protection and overhead enclosure would certainly be disastrous to the overall scheme. In order to complete the final design in the same direction as the original competition submission, it is imperative that this covered central circulation areas be maintained.

Thomas Howarth, another accessor, wrote Erickson/Massey on April 6 that "the covered mall was a major feature of the design selected by the jury. Without this important covered space the character of the project would be greatly changed and it should
be retained if at all possible."

Henry Elder, Director of UBC's School of architecture and another accessor, had written Massey on April 5 that "the Mall in your scheme, acting as a covered street, was considered at the time of the competition assessment as an outstanding contribution to the problems of student behavior and the inclement Vancouver weather.... in my opinion the Simon Fraser University is an experiment not only in academic matters but also in architectural thought. In the design for the mall roof I find the experiment continued...."

Duncan S. McNab, David C. Logan, and Harry Lee wrote Erickson/Massey on April 6

it is our belief that this protection is essential to make the full use of the facilities as they have been planned. The theatre in particular has been planned to take advantage of this roof and the lobbies have been kept to a minimum because of it. We feel, if at all possible, this roof should be retained, as it is such a fundamental element in the whole concept of this university.

Robert F. Harrison wrote Erickson/Massey on April 7 that the mechanical consultant for the Library, D. W. Thomson & Co., Ltd., based its calculations for cooling the Library on the shade which would be provided by the Mall roof and that there would be higher energy costs without it. He added that he considered the Mall roof an "important architecture... [of] the overall design" and
he would regret its omission. In addition, two other architects wrote in support of the roof as an integral part of the design.

Despite this very extraordinary support, Shrum continued to oppose the construction of the Mall roof. At the May 5 meeting of the Board, Laing agreed stated that it was convinced that the roof could be constructed for $270,000. Shrum asked for the minutes to record a prepared statement that "...it does not seem justifiable to spend over $300,000 roofing an unenclosed area which, because of its exposure and location, will have little utilitarian value; and since it will block the view of the mall from the top of the steps of the Academic Quadrangle, will have a negative aesthetic value." Hean, Chairman of the Buildings and Site Committee, stated for the record that Erickson/Massey's letter of April 7, 1965 had persuaded the majority of the Board to build their roof and that their opinion was shared by a number of BC architects "some of whom are prominent in the building of the University." [Erickson/Massey's letter to Shrum dated April 7, 1965 is reproduced herein as Appendix II.]

Shrum lost the unwavering support of the Board in this controversy. He had reversed himself after stating that "we're going to build number one" and that there were to be "no huts," and now while making innumerable minor economies in permanent buildings, he proposing to spend $125,000 for a temporary structure. In the Conditions of Competition, he had written that "architects should consider the desirability of having a focal point for campus life." He ignored the expert advise of the
assessors he had helped to select. He ignored what McTaggart-Cowan had said about restrictions on provincial funding. For two months, he simply wanted to get his way.

Shrum's defeat represented the end of his commitment to construct the University according to the adopted plan. When the University opened in September with the Mall roof structure under construction, Shrum stated "in beauty and in concept, I doubt that the university can be matched." [Sun, Sept. 8, 1965.] However, he was speaking for the occasion as Erickson was when he stated that Shrum "never interfered." [Burnaby Courier (Sept. 2, 1965), 2.]

35. Design and Initial Assembly of the Mall Roof

In 1978 when Rhodri Windsor Liscombe asked Erickson what problems he encountered in turning his designs into buildings, Erickson wrote, "technics are always behind one's expectations. Canada and especially Vancouver are a little far off-stream to be above to avail yourself of the most advanced technical frontier. Therefore on is continually compromising and being satisfied though not happy with less." [Erickson to Liscombe, Jan. 5, 1978.] This was even more true in 1963.

In 1963 the technical frontier for spanning space with minimal expense was the space frame, and a horizontal space frame is necessarily flat on top. Although the competition drawings appear to show such a roof, at least by the fall of 1963 Erickson/Massey's model clearly showed a corrugated roof, which
had to use some form of truss system. A space frame slab had identical, equally-stressed structural elements, and when they are arranged in a tetrahedral pattern, they produce a thin slab which is essentially flat above and below. The competition drawings show a roof a half-story thick with triangular sections even perpendicular to the Mall (fig. 7C). The study carrels were initially intended to be placed above this roof. Erickson said, "we asked him [Lindsay] to design a space frame, but it isn't a space frame really. It's a combination of a truss... [and space frame]. A space frame has to span in all directions, and this... was really spanning in only one direction. But he did link it all together so if anything failed it would be supported by the trusses on either side...." [Interview, May 7, 1996.]

As late as April 17, 1964 Shrum still expected the roof to be made of aluminum. [Shrum to Lindsay, Apr. 17, 1964. Shrum Papers.] Aluminum had continued to be considered a possibility until it was found to cost slightly more than the Board was willing to pay.

Finding an alternative to span a 90' space was not a simple problem, as Shrum learned when he wanted to span one with concrete and learned that the beams would need to be 6' thick (similar to those of the Gym). Actually, the trussed roof which was built is 11' feet thick, but its thin elements and translucence make it almost weightless. Each truss weighs 5 tons, but each beam of the Gym weighs 35 tons.

The roof is 132' 6" wide (including 21' 3" cantilevered
beyond its concrete supports) and 288' 11" long. It is 30' (three-stories) high, and the thickness of the roof makes it a four-story structure.

The initial correspondence between Erickson/Massey and Jeffrey Lindsay, the designer of the roof, was on October 29, 1963—three months after the competition and one month after Erickson/Massey had chosen the Mall Complex as its project to prepare working drawings for. [Progress Report, B-3, p. 33. This report has a full summary of the design and of construction problems through the end of 1965.] Lindsay took a full year to design and redesign the roof to produce a structurally sound solution inexpensive enough for the Board to approve it. The combination of materials was initially considered to lower the cost. [Erickson interview, Jun. 13, 1997.]

John Kariotis, a structural engineer, did the necessary calculations and prepared the working drawings and specifications. His drawings are dated November 11, 1964-January 22, 1965, when the design was finalized. As for other space frames, he specified standardized components to the extent possible to ensure uniform strength and good tolerances and to facilitate assembly.

Each pair of trusses in the roof are self-supporting and literally bridge across the space of the mall (fig. 35A1). Their stability is further enhanced by connections to other pairs of trusses, but the strength and rigidity of each pair of trusses is made possible through an elaborate internal network of steel rods
A pair of trusses consists primarily of four massive timbers which span from side to side (fig. 35A1). The higher beams are connected to the lower beams by steel tubes (fig. 35B). In between the higher and lower trusses, small timber spreaders are placed perpendicular to the beams and equidistant from them (fig. 35A2).

The wooden members and steel tubes provide the compressive strength of the structure. The steel rods provide tensile strength which keeps all of the timbers parallel to one another and prevents them from sagging. This is accomplished through triangulation by opposing the tension on the rods which run to the middle of the spreaders with tension on the rods which run to each end of the spreaders (fig. 35B). Thus, although the trusses do not form a space frame, they utilize analogous principles of triangulation to spread all stresses more evenly throughout the entire structure.

Every other truss has a ridge beam added to enable the valleys to be created in between pairs of trusses (fig. 35A2). Each valley has a thick plank which serves as a walkway, gutter, and support for the bottom of the bars which secure the glass. The wooden parts have various fittings to enable the rods to be bolted to them. A specially designed rack held the uprights apart for assembly, and a jig was used to ensure that holes were drilled through the beams in the correct locations. [Since this was an experimental prototype, the details of its construction...]

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are noteworthy: The laminated fir beams are 5 1/4" X 6 3/4", and each beam consists of three sections joined together with metal reinforcements. In cross section, the four beams of each pair of trusses are centered 7 1/2' vertically and 4 1/2' horizontally. The square pipes which hold the upper and lower beams apart are 2" galvanized steel tubes centered 6' apart for the width of the room. The spreaders are 4 1/2' long and 3 1/2" X 4" in section. Each spreader has cast aluminum caps to secure the rods to and to connect the ends of the spreaders to one another. The stainless steel rods are 5' long and form 0.346" to 0.586" in diameter.

The gutter plank is fir 2' wide and 2" thick and has planks added to its sides to create a U-shaped trough 9" high. The ridge is 5" X 5" in section. The "standard" (aluminum) glazing bars run from the ridge to the gutter and were initially spaced 2' on center. The resulting slope is 20 degrees. Each piece of wired glass was 4' high, 2' wide, and 1/4" thick. (Jeffrey Lindsay, "Space Structures as a Preoccupation," International Conference on Space Structures, 1966 [Blackwell Scientific Publications Ltd., n. p., 1966]; offprint, Pl, pp. 2-3. CAA.)

Constructing the roof partly of wood turned out to make it a more appropriate part of the rustic site and rustic buildings, and Erickson/Massey were pleased that with the improved appearance and with the ingenuity of the solution. Erickson and Massey had used massive beams in a number of projects starting in 1953 with the Gordon Smith House, which Erickson later referred to as an example of "West Coast sensibility to wood
construction." [Erickson (1985), 21.] Although parts of the roof are made of wood, a wooden roof can last many centuries if it is not destroyed by fire, dry rot, and insect infestation. Some wooden roofs have survived in Japan and China for more than a millennium--but not many. The heating apparatus insisted upon by the Board could cause a fire. The asphalt composition roofing in the gutters needs to be renewed at least every 20 years to prevent dry rot, an a more expensive and more permanent gutter (as of copper) would last much longer. "All timbers were given 40 years protection by pressure impregnation with preservative and fire retarding Boliden Salts." [Ibid., 3.] Although the roof shows no readily apparent signs of deterioration, it can last only if it is regularly checked for evidence of deterioration and repaired as necessary.

Lindsay asked the University to authorize the construction of a section of the roof, but the Board felt this was an extravagance and refused. One bay was constructed to convince the contractor that the assembly was a straightforward procedure. As Lindsay noted with considerable understatement, "empirical confirmation of the theoretical analysis is reassuring, especially on occasions where there are extreme operating conditions." If a pair of trusses had been assembled, it could have been tested, and it would probably have revealed that some of the components had not been manufactured to specification.

The trusses were assembled on top of the supports by using steel scaffolding at the west end of the Mall. After each pair
of trusses was assembled, it was trundled eastward. From the east end to the west, each pair of trusses had its spreaders bolted to the next set of spreaders to interconnect all parts of the roof. To provide an extra measure of safety, spacing bars were also added between the tops of every third set of steel tubes. [These spacing bars were thus at intervals of 18'.] Each pair of trusses could be assembled by 20 construction workers in about 8 hours. The entire roof structure could have been assembled in 36 working days if all the components had been on hand, if all of the components had been manufactured to specifications, and if there had been no defects in workmanship. [Ibid., 5.]

Erickson/Massey accepted the concept on December 23, 1964. On January 12, 1965 the University expressed its first reservations about the concept, and it expressed further reservations on March 3. The working drawings were completed on March 29, and the University had further reservations on April 11 and 17. Most of these reservations were set aside when Lindsay demonstrated the assembly of a section on April 17. When Laing reduced its offer to build the roof by $76,000, the Board agreed to provide $20,000 more that it had stipulated as the maximum. Thus a year passed while Lindsay produced a design and nearly a half year more passed while the Board considered it. Still the architects were held solely responsible when the Mall roof was not completed by September 1965.

Some redesign continued to be necessary because materials
were unavailable or defective. On June 14, suitable sawn timbers were unavailable and glulams (composite beams) were substituted (slightly increasing the price without the Board’s approval).

Castings were made and tested by professional testing firms and were rejected. On July 12, a welded terminal had to be designed. Even the washers did not meet specifications.

[Progress Report, B-3, p. 33.]

Most of the materials were at the site by August 6 when the glulams finally arrived. Immediate attempts were made to assemble trusses, but the assembly rack proved to be inaccurately constructed. The metal components were not uniform and had to be recast. Assembly was able to begin on a regular basis on August 16, but the method of hoisting the beams was damaging them.

Finally on August 20, the first pair of trusses was completed and rolled to the east end of the concrete supports ("rails"). When they were afterwards inspected, they did not conform to the tolerances which had been specified. The second pair was better, but the third pair was unacceptable. The tie rods were not seating properly in the castings, and Erickson/Massey warned that mistakes were being made as the work was rushed. The foreman was replaced on August 31, and work continued. By September 4, ten trusses were in place in time for the University’s opening.

The construction of the Mall roof should have been accomplished without difficulty, and impressive results were almost immediate, but they were deceptive. By the time of the
opening enough of the trusses were in place to provide a good idea of how well the finished look would eventually look, but not for years.

Although the experimentation was worth undertaking, it should have been allowed on a smaller scale. Although the final result fits the rustic setting and buildings better than an aluminum or steel space frame would have, it should be borne in mind that the University rejected proven methods of construction in order to save a small fraction of the cost even of the Mall Complex.

36. Undermining Erickson/Massey

By April 1964 Shrum was already willing for other parts of the University to be designed without regard to the adopted plan, and he did not consult the Planners to the University when he made his decisions. Without Erickson/Massey’s knowledge he conducted negotiations to construct a large, privately financed winter sports complex at the west end of the campus.

On April 23, 1964 a private developer proposed an indoor facility which was planned to include a 1,000 foot sky slope 100 feet wide down the north side of Burnaby Mountain and an ice skating rink on top of the mountain. Other sports including curling and bowling might be added, and the developer wanted to lease a 10 acre site. He wrote that if the idea was approved in principle, he would submit plans by Rhone & Iredale. [J. V. Puttkamer to Shrum, Apr. 23, 1964. Shrum Papers.] By June 24 an
investment company was involved in the planning, and the sports complex was now to include a regulation-sized hockey and skating rink with seating for 2,000, a restaurant, and a store to sell sports equipment. With the ski slope, it was expected to cost $1 million. It was intended to open at the same time as the University, and the representative of the company stated that "the original sketches, which were prepared by Rhone & Iredale, Architects, are being revised to place the skating, curling, and main entrance at the top of the ski run, and moving the entire unit in closer to the S. E. corner of the Circle Road as suggested." [Kenneth G. Reid, Aran Investment Corporation, Ltd., to Shrum, Jun. 24, 1964.] On July 24, Shrum wrote the investment company that "the Board considered the proposal very sympathetically" and resolved that it "be approved in principle." [The Board approved the project at its Jul. 9 meeting, and Erickson/Massey are said in the minutes to have approved the proposal at that time.] The Board was willing to lease the land, and "the University would help to publicize the facilities and would cooperate in every way to make the venture profitable for the operators." The project died through no lack of interest on the part of the University.

The first building to be constructed at SFU entirely to the designs of another architect was the President's House. The Conditions of Competition had stipulated only that the location be shown for a president's house, and Erickson and Massey had shown an L-shaped house in the location which was later used.
However, McTaggart-Cowan did not want them to design "his" house. Even before he had any contributions, he told Erickson/Massey that contributors for the president's house should have the right to select another architect, and he wanted Kiss to design it. Erickson and Massey responded that they were "happy that it is in the hands of a good architect" and that they hoped he would "be required to accept our advice as Planners to the University and Design Consultants on the University buildings. It is essential that if the University is to retain the consistency of plan and design that is its distinction, our present role as coordinators be maintained" [Erickson/Massey to McTaggart-Cowan, Jun. 4, 1964.] Kiss prepared plans before any contributions were raised, and the Board approved them on July 15, 1965 (fig. 36). On August 5, half the cost had been pledged by Collins Radio Company. [Minutes, Aug. 5, 1965. The estimate was $45,000 and the contract price was $54,966 (Progress Report, B-3, p. 52).] The President's House was constructed by Neilson & Grann (BSC Minutes, Oct. 22, 1965.)

On September 10, 1965 McTaggart-Cowan did not like Erickson/Massey's landscaping ideas, but chiefly he did not like being bypassed with everything going to Shrum and Hean rather than to him. He proposed and the Board accepted employing John W. Niell as a landscaping consultant to the President even though Erickson/Massey's contract as Planners had specifically given them the full responsibility for landscaping. On October 9, Lantzius stated that the playing fields should not be used for a
full year. McTaggart-Cowan asked Niell if this was indeed correct, and Niell said that indeed it was. This duplication continued.

The third project for the campus was another private enterprise on public property, and it was not only approved, but built. Again, Erickson/Massey were told what was to be done and not consulted as planners during the planning. The Board approved a Shell gas station in principle on July 15, 1965. It was designed by Shell Canada, and the controversy over its construction delayed its completion until Phase II (Section 37).

Even before the University opened, the Board had agreed to three projects by other architects and in each case had given Erickson/Massey no chance to submit a design. The President's House was as well designed as the Shell Station was not, but this is beside the point. The commitment to the adopted plan was increasingly disregarded until it was wholly repudiated.

Less than a month before the University opened, "Mr. Orr reported that the University's solicitors had advised that Erickson/Massey's contract as Architect-Planners will automatically terminate on December 31st, 1965. The Committee instructed Mr. Orr to place this matter on the agenda of the November meeting of the Board." [BSC Minutes, Aug. 19, 1965. Orr had been instructed to find out how this information. He had defended Erickson/Massey's work as "satisfactory to date" at the Nov. 18, 1964 meeting of the BSC, but "he had some reservations about the future however, because of the increasing work load in
their office." After the working drawings for SFU were completed, Erickson/Massey began to compete for other projects and to get them including the Canadian Pavilion of the Tokyo International Trade Fair and the Canadian Pavilion at Expo '67 in Montreal (Erickson [1975], 224). MacMillan Bloedel and Lethridge too were considered reasons not to continue their contract rather than reasons to continue it.

It was true that SFU increasingly did not have Erickson/Massey's undivided attention, but untrue that it should have. During 1964, the firm began at least initial work on eight new projects in addition to adding the Women's Residence at SFU. In 1965 it started six new projects including the firm’s second major commission, the MacMillan Bloedel Building (Erickson [1988], 224).

37. Opening

Although only about one-fourth of the trusses of the mall roof were in place for the opening, their effect could be judged. [Sun (Aug. 28, 1965), 16.] The rest of the work planned for Phase I had virtually been completed (figs. 39A-39D3).

A total of 3550 guests were invited to the opening, and on September 9, 1965 the University opened on schedule with elaborate ceremonies. Nearly 2,500 students had also enrolled to attend an institution with an uncertain future, and a good
portion of them must have been reassured at least partly by the excellence of the architecture.

In his opening address Shrum said "I believe our modern world offers no challenge more rewarding and exciting than founding a new university." He said two years ago we asked our architects to create a new design for a university--one which would not only meet the needs of the last decades of this century but would still be regarded as modern when we move into the next century. We asked them for something new and distinct in the world of architecture, for buildings which not only would meet our academic requirements but would match the beauty and grandeur of the site.

He went on to mention by name the artists who created the murals, the registrar, and innumerable others, but did not mention a single architect by name.

Shrum did point out specifically how well "practical features" had been achieved in "a harmonious physical entity." He noted that "students could walk from any building from any other without going outside," and he emphasized that "probably the most interesting features of this plan has to do with the provisions for future expansion without disturbing the proportions and appearance of the main core of the University--the central mall," but he clearly meant the spine of the plan and not the Central Mall, and he was referring to his own ideas and not to the design. He went so far as to say that the greatness
of the University would depend on the quality of its students and teachers, "not upon the site, not upon the architecture...." He tried to make it seem one or the other and not the other.

A week after the opening, the Board held a delayed, but regular meeting on September 16. The minutes state only that the Mall roof would probably not even be completed before Shrum was scheduled to be officially installed as Chancellor in a public ceremony on October 28. Erickson said, I’ll never forget that after the opening--I guess it was a week afterwards--we were called before the Board of Governors, and Geoff and I went in thinking we were going to be congratulated. We went in and they gave us such a dressing down. I’ll never forget it. Her we felt we had really accomplished it working our guts out to get this thing done, and we were very proud of it.... All the things to be corrected--that’s all they talked about--not one complimentary statement. So that was the mentality we were working with.... We had to fight for absolutely everything. We were always under suspicion. [Interview, May 7, 1996.]

Shrum and McTaggart-Cowan took turns dressing them down and lecturing them on every deficiency which remained to be corrected. No one on the entire Board said a single word of praise. [Erickson interview, Jun. 13, 1997.]

At the same meeting, the Board voted to place a Shell service station adjacent to the center of the campus. On September 23, Erickson wrote a letter marked "personal" to each member of the Board offering the firm’s services to advise
Shell's architects on the creation of a more compatible plan. Shrum wrote back that it was a "great mistake" to send identical letters marked "personal." He referred to the hostile reaction which has been produced by what appears to the members of the Board to be unnecessary delays, probably do to lack of efficiency. I realize that there may be very good explanations for these delays, but, in general, the Board takes the attitude that it is the results which count and in this respect the other architects were more satisfactory. [Shrum to Erickson, Sept. 28, 1965. CAA.]

Deeply wounded, Erickson wrote back, "we seem to get adverse reactions to whatever we do...." [Erickson to Shrum, Sept. 29, 1965. Shrum Papers.]

38. Acclaim

The unanimous praise of the accessor and the letters written in support of the Mall roof provided a good indication of how the design of SFU would be received nationally and internationally, but periodical articles have to be scheduled months in advance to be written, edited, printed, and distributed. Finally, in December 1965 the acclaim began, and numerous articles followed in professional journals and popular magazines. By February 1966 when Erickson/Massey submitted its Progress Report on Phase I, three major articles had already appeared, and five others were scheduled for publication. [These were listed in the Progress
Report, B-3, p. 54. Although in some cases the articles took a year or more to appear, they were generally about the adopted design and the buildings which were constructed during Phase I. Erickson/Massey could justifiably claim that "Simon Fraser in its planning achievement so far is not only an answer to the needs of Simon Fraser University but a major contribution to university planning anywhere in the world. Its international recognition is only just beginning." [Ibid., B-2, p. 1.] It should already have been difficult for anyone to doubt this bold assertion any longer.

In its December 1965 issue, the American journal Architectural Forum carried a nine-page article on SFU with the headline title "In Canada, the Continent's First Single Structure Campus...." The article particularly praised the Central Mall as "a direct expression of their [Erickson/Massey's] concept of a dignified community learning from both informal and formal interchanges." [Donlyn Lyndon, Architectural Forum 123 (Dec. 1965), 16.]

In the January 1966 issue of the Canadian Forum the architect R. J. Thom wrote, "it is the act of transferring idea into form with such remarkable clarity that is the real achievement of the architects of Simon Fraser. This sort of excellence is probably the rarest thing in architecture, in spite of the fact that this is what is really architecture is all about." It was in this article that Thom credited the Mall roof as being the architecturally most important significant part of
the entire design. [Ronald J. Thom had helped to prepare the SFU competition entry for Thompson Berwick Pratt, the entry which received first honorable mention. (Assessors' Report: a biographical sketch and other information about Thom is in Liscombe, New Spirit, 205).] In an accompanying critique, Lionel Tiger wrote, "Simon Fraser University is the only building in Canada that I would insist a visiting architectural friend... make sure to see." [Canadian Forum (Jan. 1966), 225.]

The most complete coverage of Phase I was the entire February 1966 issue of the Canadian Architect. The competition was described in detail. Baker outlined the academic plan, and Erickson described the architectural concept. Similar critiques by Thom and Tiger were included to the ones they had written for the Canadian Forum. A series of photo essays with perspective drawings and measured plans and sections and with brief descriptions were included for the Mall, Quad, Gym, Science Complex, Theatre, and Library. The plan for the further development of the University was also reproduced as if it were being followed in all respects. [Canadian Architect (Feb. 1966), 35-83. The Canadian Architect had already dealt with the overall design in greater detail in its October 1963 issue (pp. 71-77).]

In February 1966 the British journal Interbuild included a six-page article on SFU and called "both planning and building of the new university... superb." It said that the "bold nucleus... gives Simon Fraser a distinctive and total identity--which is revolutionary on a continent where campuses are too often a far-
flung and mutually hostile sprawl of pedagogic tribal encampments." The writer also praised the appropriately large scale of the campus in relation to its site and the abundance of small scale spaces for people to gather in. "Some, like the mall, are exciting intellectual agoras." There was "no trace of the building speed," which would have been impossible with "the dragging feet of committees." The article also praise the "policy of defined individual responsibility" which enabled Shrum to cut through red tape to get the job done. It concluded that "if, following this first stage, the same designers can continue with the same quality, Simon Fraser will be mandatory on any North American architectural pilgrimage."

In April 1966 the British Architectural Review called the Mall "one of the finest formal-informal spaces of recent architecture" and added that the plan's "decisive clarity puts to shame the wordiness of English university plans." In August 1966 the British journal Architectural Design published a three-page report on how the buildings embodied the concepts. It included a dozen illustrations.

The local acclaim was instant and as the outside acclaim increased Shrum did an about face. At his Installation Convocation on October 28, he thanked Erickson and Massey by name and called them "the prize-winning architects who have been responsible for the overall design of this impressive complex of buildings." He said "the whole complex seems to have become one with the mountain like a precious jewel mounted in an ancient
crown." He also thanked Erickson/Massey for designing and contributing a mace and said, "I trust it is formidable enough to preserve the authority of the Chancellor in any battles he may encounter." ["Address, Oct. 28, 1965" (Shrum Papers).]

By June 1966 Shrum was taking entire credit for the design. In the June 4, 1966 issue of MacLean's, he is quoted as saying

"I'm a scientist. They all thought I'd put up some utilitarian pile.... One professor from Harvard said it would influence university architecture more than any existing university.... The government had nothing to say about it. I selected the site. I selected the design.... Beauty--why not? It's all raw concrete. Our costs work out to about fifty-nine hundred dollars per student, while the Canadian average is nine thousand. Of course other universities are jealous."

39. Progress Report

On February 15, 1966 Erickson/Massey sent the Board a comprehensive document entitled Simon Fraser University, 1963-1965: Progress Report. This second major planning document produced by the firm was prepared primarily by Allen Bell. [Erickson interview, Apr. 13, 1997.] It described what was accomplished in Phase I, but it was essentially a plea to complete the design under Erickson/Massey's supervision. The report began by pointing out that

it must be emphasized that our role in Phase I in
leading our fellow architects to design buildings which they would not on their own design, was a very definitive one.... Unfortunately in the latter stages of Phase I construction, the architect/planners experienced a serious breakdown in communications with the University and have not been able to re-establish rapport or a communication line since.

[Progress Report, A, p. 2.] Erickson/Massey were entirely frank about the problems which had arisen and which had yet to be resolved:

We make no claims to be perfect. We are well aware of our short comings, but we are also very proud of our accomplishments. Members of the Board have commended our achievements in planning but have tended to be unduly critical, we believe, of our architectural achievement and our managerial ability. We would ask that they measure their criticism of shortcomings very carefully against what has been accomplished.... Excellence cannot be achieved without difficulty, but it has been our experience that the problems accompanying excellence which at the time seem large are soon forgotten, whereas the standards are enduring.

[Ibid., B-3, p. 1.]

The report covers all that had been accomplished through the end of 1965, but since Erickson/Massey had been permitted to accomplish little more since September, the report is almost
entirely a report on what was done before the University opened.

In the cover letter which is part of the report, Erickson and Massey stated, "we have attempted in this Report to explain why the University is the way it is...." The major part of the document is a history of the planning services they had already provided. They also re-emphasized the need for planners, how planning should operate, and the parts of the plan which needed further study urgently. Listed first among their accomplishments were that

Phase I of construction has given Simon Fraser the central core for a future much expanded university, has set the pattern for expansion and established an architectural character as a model for continuous development... similar accommodation in the future might require revision and some aspect of the Master Plan require reassessment. However, the original assumptions of the Master Plan and Report of September 1963, show remarkable validity in the face of evidence to date.

The main tenets of the plan--the compactness and all-weather aspects of the University, the anonymity of department quarters allowing both flexibility and easy, economical expansion, the resultant unity and harmony of all parts of the university, the provision of unique public spaces, such as the covered mall and quadrangle courtyard--have all been widely heralded in the
international, public and professional press as being major contributions to university planning. Simon Fraser University has already earned a world-wide reputation. This accomplishment cannot be disputed.

[Ebid., p. 1.]

Erickson/Massey emphasized that it may seem that the need for planning might be over: "Superficially, Simon Fraser may seem an accomplished fact. A framework has been established and it may seem that all that is required in future development is to link into this framework in a manner sympathetic to the existing facilities. Nothing could misrepresent the planning function more."

Erickson/Massey argued that planning should not proceed, as it was then already proceeding, on the basis of how much money might be available in the immediate future. A long-range plan needed to determine what the priorities should be. The framework needed to continue to be tied to the number of students who were enrolled in secondary education and the percentage of them who would be likely to request admission to SFU in the foreseeable future, and this data had to be continuously refined and re-evaluated to determine what the architectural consequences would need to be. An orderly development of permanent facilities could not be achieved by waiting until the last minute to see how much money would be made available by the Province and how many students were enrolling. In other words, the process needed to continue to resemble Phase I rather than to wait and see how many
trailers were needed.

In a section entitled "the Role of the Planners,"
Erickson/Massey outlined five different functions which needed to continue to be performed and to be coordinated:

First is the investigation and gathering of facts and data necessary to establish space needs and standards fundamental to the planning program. Second is the preparation of planning studies and reports on the particular parts of the University, and when a building program is initiated, the expansion of these into a preliminary design stage sufficient to establish the design criteria for that part. Third is coordination of all aspects of site development since site design is one of the major unifying factors of the overall university design. Fourth is the coordination and supervision of the design work of consultants to ensure that development is consistent with the goals of the Master Plan and in harmony with the building program to date. This is perhaps the one function of the planning that is unique to the planners of Simon Fraser University. Fifth is the maintenance of complete and up-to-date records on all construction at the University and the continuous revision of the Master Plan drawings to show completed construction. [Ibid., pp. 6-7. Emphasis added.]

Each of these five functions was subdivided into a list of the
specific requirements necessary to achieve them. Next the composition and purpose of various committees were listed—the Planning Committee, the Buildings and Site Committee, and a Fine Arts Committee (which was proposed). [Ibid., A, pp. 8-10.]

In a summary of "Areas Requiring Urgent Study," Erickson/Massey listed the Classroom Complex (which would need to be constructed during 1967), playing fields (which needed to be landscaped as long as two years before use), food services (which needed to be expanded and improved), office space (which would be only temporarily alleviated by the completion of the Quad), traffic circulation (which was minimal and already overcrowded), parking (which was being dealt with using wasteful temporary expedients), student union (which was urgently needed by students who nearly all had to commute), residences (which were currently being planned for the entire west end of the campus), faculty and married students' housing (which needed to be planned), and expansion of laboratories (which would develop haphazardly without a framework). [Progress Report, A, pp. 11-13.]

Erickson/Massey concluded that all of these needs had necessarily been given little consideration while the University was being built rapidly to open on time for its first students and that detailed consideration of all of them were needed now before proceeding further.

In the second section on the "History of Service," Erickson/Massey pointed out accomplishments and problems and what still needed to be done to correct the problems. They noted that
in only six weeks after the competition, they produced a comprehensive planning document summarizing the information needed by all five firms to prepare working drawings and specifications. This had been their Development Plan (report) accompanied by the Master Plan (drawing). Their task had included collecting data from other universities, commissioning engineering reports, making cost studies, and finalizing the overall design. Until the spring of 1964, further data was still being collected continually for the design of the buildings constructed during Phase I.

As more faculty and staff were added and individual Board members took a more active part in decision making, much of the information which needed to be assembled and distributed was not given to them and when it was it was often unusable. "We found ourselves groping for information from many sources which were often contradictory, reluctantly given and when incorporated in our plans, out of date." The asked to be allowed to coordinate the collection and dissemination of all architecturally relevant information in the future, and they suggested specific ways to ensure that needed information would be regularly reported to them. [Ibid., B-2, p. 1.]

Despite inadequate cooperation from the University, most of the data the firm had gathered initially on the allocation of space for various purposes at other universities had proven to be "relatively satisfactory," particularly considering that SFU was experimenting with teaching spaces. Considering also that
inflation in construction costs during Phase I had been 25 percent and more, the final price estimates had been largely accurate. [The Vietnam War was causing construction costs to escalate as it did. Ibid., B-1, pp. 1-3.]

During the production of working drawings, Erickson/Massey had prepared preliminary drawings for all projects, working drawings for its own projects. It had insured the use of uniform materials and finishes.

During the site development, the firm had worked with a surveying firm to complete a reliable site map and to lay out areas to be cleared and terraced. They had worked with the BC Department of Highways and the Municipality of Burnaby to lay out roads. The University’s central heating system was designed by one of its consultants. The firm had coordinated the development of systems for water, sewers, drainage, electricity, and gas.

Among the general planning projects, Erickson/Massey had also begun to prepare an overall plan for Phase II (which had resulted in the immediate completion of the Quad), a plan for a University town (which had no result when the intended property changed hands), preliminary designs for the Classroom Complex (which resulted in its award to Erickson/Massey), a study for a field house (which resulted in Shrum’s first defeat), bleachers, and a comprehensive study for the development of the west end of the campus.

In October and November 1965, Erickson/Massey made a separate study for the creation of a residential area to house
2,500 students, three cafeterias, an auditorium for 4,000, a student union, meeting rooms, shops, and additional parking. The basic plan was to extend the mall to add additional parking, to place the student center opposite the Gym (as in the competition design), and to place a 200-seat cafeteria between the Student Center and the Gym. The mall was then to continue to the residences with a long and low series of women's residences on the north side of a large courtyard and a similar series of men's residences on the south side with additional 200-seat cafeterias in each residential unit (figs. 47C1-2). [Ibid., B-3, p. 23.]

Erickson/Massey's architectural services included site development, buildings, and miscellaneous other tasks. While admitting that all of their responsibilities as architects were not performed as well as they wanted them to be, the firm stated that the Board should bear in mind their added responsibilities and should consider

the fact remains that the University was completed pretty well within the deadlines without lowering standards of design, and stands in spite of the haste of its gestation as unique in concept, in plan, in the caliber of its design, and the consistency of its execution.

It is important for the Board to remember that we managed this, that it was accomplished. We fell down on some items because of the general haste and because we had not previously the experience of managing such a
complex commission. But it was done, and it was done well, if not perfectly, and we now have the invaluable experience to the University of all of this behind us.

[Ibid., B-3, p. 2.]

The Board discussed the Progress Report on February 17, 1966. "Mr. Erickson, as spokesman, explained that the reason for the presentation of the report was that they have heard criticism of their firm as architects and planners, and wished to document the work that had been done. The main points they wished to make concerned the extent of the planning required in maintaining the integrity of the overall architectural concept. The Board did not agree with certain parts of the report." Shrum stated that the Board is indebted to Erickson Massey for the original concept of the University. However, there are problem areas in the design and construction of the University which are causing annoyance, particularly the poor drainage of the Mall, and the delay in finishing the Mall roof, and the delay in fixing the leaks in the Transportation Centre. The Chancellor also expressed the Board's concern with the attitude of Erickson and Massey with regard to the Board decisions that were not always in accord with the architect's views. If Erickson and Massey signed the contract [being offered them], it should be clearly understood that they were employees of the Board....

To Erickson/Massey's request to be made "architect planners for
the University" in the new contract, Shrum said that planning could be done by the faculty and staff. He said the contract allowing them to be "consultants and coordinators to safeguard the integrity of the overall design" represented the University's "final offer."
PART E: LATER PHASES

The preparation of designs for Phase II necessarily overlapped construction in Phase I, but has been saved for consideration together with construction during Phase II. The Mall roof which was intended to be completed in Phase I was barely underway. The three phases adopted by the University for planning purposes represented only the number of students who were expected to enroll at given times, and as funding became more erratic, the phases became almost meaningless in architectural terms. They would not have with adequate planning.

Later, when the number of students applying continued to exceed expectations, each phase was begun sooner than initially planned and accomplished less, often through temporary expedients. "Phase IIA" was intended to make unfinished space in the Quadrangle and Library usable for classroom rather than offices and books and study space before September 1966.

turned the phases became budgetary phases rather than design or construction phases.

The heads of the Science departments expected enrolment in 1966 to be twice as large as in 1965, and they requested that twice as much space be made available. About half-way through the construction of Phase I, the Board on October 9, 1964 approved the beginning of the design process for Phase II in order to have adequate space for students anticipated in September 1966. The Board voted unanimously "that Rhone & Iredale be appointed architects for the design of the Science Complex of Phase II, and that Zoltan Kiss be appointed for the design of the Classroom complex north of the Academic Quadrangle." This was in both cases to design additional classroom space so that plans would be available by September 1965, and the Board’s plan was to wait until the fall of 1965 before making a decision of how much of these plans to build. In the meanwhile as much built, but unfinished space as possible would be turned into temporary classrooms.

On November 5, 1964 Shrum, McTaggart-Cowan, and other members of the Board and staff met with Education Minister Peterson and asked permission to authorize the architects to "begin to design the space now." Everyone was encouraged by how well the fundraising was going, and Peterson asked for an overall estimate of costs for all construction anticipated during Phase II including interest on funds which might need to be borrowed by the University.[Minutes of a Meeting with Minister of Education,
Nov. 5, 1964. Shrum Papers.] By April 22, 1966 in order to accept every qualified applicant, the Board borrowed $7 million to supplement provincial grants and took on an indebtedness greater than for any university in Canada. [Shrum to Editor, Province, Apr. 22, 1966. Shrum Papers.]

The University was in the legal position to force all five firms to wait until it made up its collective mind. The architects had only been promised fees on at least $1 million worth of construction, and at the least they had received or could were likely to receive fees on about two to six times this amount of construction. The amounts did not correspond well to the order of the prizes or to the overall responsibilities. Kiss certainly needed to be hired to complete the Quad, which would give him fees on $5.7 million in construction, and now the Board was giving him the Classroom Complex in addition. Erickson/Massey had received fees for both planning and design on a total of $4.5 million. Rhone & Iredale were already assured of Phase II construction on the Science Complex and so of a minimum of fees on $3.8 million and were likely to be chosen to complete the Science Complex and along with Kiss to have fees on a larger amount of construction than Erickson/Massey. Harrison as the sole principal in his firm already had fees on $3.1 million. Duncan McNab and Associates had fees on $1.9 million. [Progress Report, B-3, p. 52.] There was less than entire satisfaction with this situation.

Erickson/Massey presented arguments that the completion of
the Quadrangle could provide better for the enrolment anticipated in September 1966. The Buildings and Site Committee "instructed Rhone & Iredale and Zoltan Kiss to make an economic study of this plan with Erickson and Massey to consider construction of the classroom complex as an alternative to completing the Academic Quadrangle." Erickson/Massey certainly wanted the Quad to be completed, but it clearly also wanted to design the Classroom Complex, which the Board had given to Kiss. As a purely economic decision, its recommendation prevailed. On January 14, 1965, the Committee recommended to the Board that $1.5 million be spent to complete the Quad above ground and left temporarily incomplete underground and that $1.8 million more be spent to extend the Science Complex. The combined total of $3.3 million was the compromise accepted for 1965-1966.

Shrum wrote, "...we have fulfilled our obligations and have no continuing commitment to any one of the prize-winning architects." [Shrum to Alex Webber, Jan. 20, 1966. Shrum Papers.] So far as Shrum was concerned, his commitment to "build number one" did not include any commitment to Erickson/Massey whatever, and on January 18, 1966 Shrum was re-elected for another three year term as Chancellor by acclamation. [Province, Jan. 18, 1966.]

40. Building and Rebuilding the Mall Roof

By September 14, 1965 the rate of assembly for the construction of trusses had been speeded up to four pair every
five days. At this rate the entire roof structure could be completed in little more than an additional week. By September 27, a pair of trusses could be assembled in as little and 6.5 hours by 15 carpenters, 3 labourers, and a crane operator.

On September 16, a stainless steel nut fell off the end of a stainless steel rod, and anything of the kind should have been impossible. On inspection it was found that the tie rod threads had been stripped when the nut was forced onto it. Carpenters did not have the experience to be assembling metal parts. On further inspection, some nuts were even found to be the incorrect size for the rods.

On September 17 the University requested an independent evaluation from the engineer Bogue Babicki, who had consulted on the Science Complex. Additional tests on the rods were immediately performed by Coast Eldridge.

While the report was being prepared, the contractor continued to construct the roof. On October 7, some steel rods began to fail when their threads stripped and they pulled out of the nuts. Construction continued more slowly and carefully, and on October 13, Erickson/Massey assured that Board that the structure of the roof would be completed on schedule, but that adding the glass would require 40 additional days. On October 18, however, Massey found that all rods were suspect, and he advised Laing to proceed only at its own risk.

By October 22, it was clear that in some cases the contractor had ordered the wrong sized nuts and that the workmen
had caused serious damage. Laing accepted full responsibility for correcting the deficiencies even though it meant taking down the roof and rebuilding it. [BSC Minutes, Oct. 22, 1965.] The University had chosen the contractor, and the contractor had chosen the workmen and the parts. Erickson/Massey was blameless when the Mall roof had to be rebuilt, but was blamed for not producing results.

When all the evidence had been collected, Babicki produced a report expressing admiration for the ingenuity of the design, the combination of materials requiring almost no maintenance, and the overall skill with which the roof was been assembled, but he recommended that all of the connections be carefully examined for defects and that heavier rods be substituted when the roof was rebuilt. His professional opinion was that some of the rods were capable of providing support for only 40 pounds per square foot rather than 60, but that by changing them the roof could safely carry 56 pounds per square foot providing that the concrete supports were strong enough. [Babicki, "Report to the Board of Governors, Simon Fraser University, on the Roof Over the Central Mall, Vancouver, B. C." (October 1965; 5 page typescript in the Shrum Papers.)]

The final condition furnished Shrum with ammunition he had been looking for. Erickson/Massey had assured the Board on March 26 that the roof would be capable of supporting 60 pounds per square foot. This discrepancy was a small and easily corrected one, but the matter of how much the concrete supports were
capable of carrying was not. Most buildings of the University had been designed to support only 40 pounds per square foot, and that had been the requirement Erickson/Massey's engineer had been asked to provide for. It mattered little how much more the roof itself could support. [BSC Minutes, Nov. 2, 1965.]

On December 23, 1965 Erickson/Massey confirmed that every rod in the roof needed to be examined and tested and that the roof would have to be dismantled. [BSC Minutes, Dec. 23, 1965.] On January 20, 1966 Erickson/Massey reported that the roof would be dismantled and that some rods would be replaced by larger ones as Babicki had recommended. [Ibid., Jan. 20, 1966.]

The Buildings & Site Committee was chaired by a lawyer, and it began to collect material for a lawsuit, which later was threatened. On February 23, the Committee asked Lindsay to guarantee that if the roof conformed to its original specifications it would, as he had asserted, carry 120 pounds per square foot. On March 8, Lindsay sent Erickson an affidavit stating that the "Mall Roof Trusses conforming to specifications can carry 120 pounds per square foot ultimate live load. John Kariotis concurs."

On March 14, 1966 the Buildings and Site Committee sided with Babicki and approved upgrading the rods. [Some 1/2" rods were replaced by 5/8" rods, and the old 1/2" rods were reused in place of smaller rods.] Massey pointed out that to do this, it was also necessary to replace the sawn timber spreaders with gluelam spreaders to resist the pull of stronger rods were
capable of creating. McTaggart-Cowan said "that it was not the responsibility of the University to pay for them." Massey recommended against using glass for the skylights "as it can be easily broken"--and is less strong and weighs more. He recommended using plexiglass as for the Gym, but the committee was unwilling to approve the an extra $1,660 to substitute plexiglass. [BSC Minutes, Mar. 14, 1966. The cost for glass was $4,340 and for plexiglass $6,000.] It is entirely possible that all of the glass would not later have needed to be replaced at the University's expense if the expenditure of only $1,660 had been approved at this point.

The University continued to make costly economies despite that fact that the "net structural cost per student" for all Phase I construction was $5,200 compared to the average cost in Canada of $7,000 and in California of $10,500. Erickson/Massey had provided a design costing on average half as much to built as universities being constructed in California and had already been acclaimed as an internationally important work of architecture, but the Board wanted everything to cost still less.

At the Board meeting on March 17, 1966, Erickson/Massey stated that the rods would be replaced at no cost to the University, but asked the University to pay $5,600 for gluelam spreaders. The Board refused, but nonetheless approved Erickson/Massey to design the Classroom Complex (because the firm had already designed it at its own expense and was ready to proceed).
Everyone was getting thoroughly fed up with the Mall roof. On April 18, Massey wrote Shrum a firmly worded letter stating that "the current attitudes do not reflect the following facts.... In all these altercations, the original specifications proved correct, even to the fine print.... The structure was not underdesigned. The analysis conforms to original codes prevailing for all University work." This was exactly the case, and how much more the roof might support or could be made to support did not alter the fact that the Municipality of Burnaby had required all of the buildings to support only 40 pounds per square foot, as both the roof and its concrete supports unquestionably would do. Massey emphasized that it was not Erickson/Massey’s fault, but the manufacturer’s and contractor’s fault that the parts were substandard and improperly installed (including 250 of the 592 rods tested). [Massey to Shrum, Apr. 18, 1966. Shrum Papers.]

The next problem with the Mall roof was that the steel fabricators had better things to do than involve themselves further in a costly experiment. By August 27 new rods were still not available, and Lindsay wrote Massey "it is still up the Contractor to provide parts and assemblies which conform to specifications.... if new rods had been purchased last autumn as I then recommended, they would be in place now." He was fed up with being criticized for the problems, and he objected now to any change whatever in the specifications: "crafting of parts and assemblies is fundamentally alien to the requirement...."
At its meeting on September 19, 1966, the Board too was fed up. "The Board were unanimous in their dissatisfaction with the long delay in completion of this contract." Erickson/Massey were instructed within 10 days to provide a specific solution and a firm completion date. "Mr. Massey was informed that unless a solution was reached within that time limit, the matter would be taken out of the hands of his firm and referred to another consultant."

Erickson/Massey promised Shrum that the roof would be completed without fail in 100 working days—that is 20 weeks or 4 1/2 months—bad weather excepted. Moreover, "...the rebuilding of the roof will be done by Laing's, at no additional cost to the University. The Board is assured that once the roof is assembled in accordance with the procedure now agreed upon, the roof will fully meet design specifications for strength, snow loads, etc.

On October 6 the Board received this letter as information and instructed the Bursar to insure the Mall roof against damage and collapse.

On January 13, 1967 the Buildings and Site Committee learned that Erickson/Massey had issued a total of 182 change orders for the design of the Central Mall and Transportation Centre, that 49 of these orders had not yet been fully executed, and that the total cost was $96,465.35. The Committee asked for legal advice and reported to the Board on January 19 that the opinion of the University's solicitor is that
Erickson/Massey acted wrongfully in authorizing change orders in the construction of the Central Mall without the approval of the owner. The solicitor advised that the University would be entitled to terminate the contract with the architects on these grounds, and that the architects are legally liable for the damages caused by their actions. The amount of liability would be the difference between the total cost of the unauthorized change orders and the actual amount of improvement to the structure.

Unauthorized changes had also been made in landscaping. The Board decided that any damages would "be deducted from future fee payments."

By March 15, 1967, only 45 of the 65 trusses were likely to be reinstalled by May 20 when the second convocation would be held. The roof would not be completed at the earliest until June 2, and it was taking nearly twice as long as Erickson/Massey had promised eight months earlier. Nearly two full years had passed since work on the roof began, and the Board’s patience was at an end when a major student protest gave them something else to be concerned about. [This protest resulted when McTaggart-Cowan fired five teaching assistants for picketing a high school which had expelled one of its students. It is considered in Section 50.]

Erickson/Massey’s contract for 1967 had not been renewed for nearly four months. The Board finally voted on April 24, 1967
"to include the provisions of the previous contract plus a clause excluding them as Planning Architects from accepting prime architectural jobs on the campus."

The Board was further annoyed when on May 18 Hean reported that Erickson/Massey would not reaffirm their earlier assertions about roof loads for insurance purposes. Shrum recommended that the roof be tested (which is what Lindsay had asked the Board to do before it was built), and Erickson/Massey were asked to state in writing that the roof was "designed for 60 lbs." By May 17 the Buildings and Site Committee had received a letter from Erickson stating only that "snow must be removed from the Mall Roof when the snow load approaches 30 pounds per square foot."

The Board was still trying to prepare for a lawsuit, and Erickson/Massey were determined to avoid one. [Otto Safir, the engineer for the concrete supports, advised Erickson/Massey on Jan. 5, 1966 that snow should be removed when it approached 40 psf. CAA.] The Committee requested another legal opinion on the liability of the architects, and Orr was instructed to consult IPEC about testing the roof's capacity.

On August 2, 1967, the Buildings and Sites Committee asked Erickson/Massey to certify completion of the roof so that payment could be made, and after two full years, the work was finally accepted. The Board was somewhat mollified and on October 19 voted to renew Erickson/Massey's contract as planners for another year, but on November 15 there was serious concern that snow was endangering the Mall roof. The Board approved spending $10,000
if necessary to install heating cables, and it unanimously "rescinded" the renewal of Erickson/Massey's contract for 1968.

Erickson/Massey's greatest triumph was responsible for the abandonment of its plan. During the following winter, in January and February 1969, unprecedented snowfall caused 45 percent of the glass to break. Altogether 1,900 out of 4,224 panes of glass broke. The rest were later removed, and all glass only one foot wide rather than two was substituted and the number of glazing bars was doubled. [Iglauer, Seven Stones, 67.] This snowfall caused serious damage throughout the Vancouver area, but at Simon Fraser, only the glass of the Mall roof failed.

Erickson/Massey hired Gordon Spratt & Associates Ltd., Consulting Materials Engineers, to make an analysis of the failure, and this firm stated that without experimentation, the direct cause was impossible to pinpoint. However, without experimentation, it seemed most likely that there were two principal reasons for the failure: (1) the glass was less strong than the glazing bars and (2) the setting material to hold the glass was insufficiently flexible. The glass itself should have been strong enough. In strength tests, its breaking strength was 72 pounds per square foot, and the maximum snow load had been only 32 pounds. The margin of safety was adequate. [Iglauer wrote that "the contractor ordered the wrong glass.... The mall was boarded over for a few months..." (Seven Stones, 67). Massey blamed off-center wire in the glass (interview). Erickson wrote later that "Lindsay had nothing to do with the
substitution [by the contractor] of cheaper, inferior glass for the type he had specified" (Erickson [1988], 37.) However, the glass seems not to have been the problem.)

The pattern of cracks in the glass indicated that "simple bending" caused most of the failures, but in half the cases the glazing bars had warped, allowing the glass to bend more than it would have within as sufficiently strong framework. [Sutherland to Erickson/Massey, Mar. 27, 1969. CAA.] Even so, the questions remain: would plexiglass, being more flexible, have remained intact, were the bars defective, or were the bars too far apart? Only controlled experiments could determine the answers definitively, and although the problem has not recurred since the installation of narrower glazing bars, an equally heavy has not recurred.

The University had its own study made, it seems to have come to a similar conclusion. Without consulting Erickson/Massey, but without suing them either, the University paid to have the new glass and glazing bars installed. [Massey interview, May 9, 1996.]

It should be recalled that the Board repeatedly insisted that the Mall roof be constructed as cheaply as possible, that it rejected a space frame which would have been made with standard parts, that it rejected Lindsay’s request for an experiment, that it rejected Massey’s request to use plexiglass, and that the maximum snow loads provided by none other than McTaggart-Cowan himself had been exceeded. [Massey wrote McTaggart-Cowan on Nov.
1, 1963 that "our prime concern at this point is the dept of now and consequent live load we can anticipate at any one time." CAA. Massey said McTaggart-Cowan's estimate had been received and used (interview).

Although blame could not be assigned to the architects, they were held responsible. Although the Mall roof was the most often praised and reproduced feature of the University, the majority of the Board considered it represented only an inexcusable series of failures. It mattered little if at all to the majority of the Board that a new structural system had been created and had worked and became an important prototype. "The mall became the prototype for countless other internal malls and atriums built over the next few decades." [Harold Halman, History of Canadian Architecture (Toronto, 1994), 2: 793.] It mattered little that the roof is the most memorable part of the campus (fig. 40).

41. Completing the Quadrangle

On March 25, 1966 Kiss received approval for preliminary plans to compete the Quad (figs. 41A-C). On June 14, he noted that "while contractors are rushing the first phase... to completion by September, 1965, drawings for the second phase to be opened in September, 1966 are finished by the architects for tendering." [Zoltan S. Kiss, "General Information Re: Academic Quadrangle Building"; two page news release (Shrum Papers).] The remaining third of the Quad was to contain 200 more offices on the top floor and to have small classrooms, seminar rooms, and
tutorial rooms immediately below for 1,200 more students.

Kiss noted also that the landscaping of the three-acre courtyard would be completed during Phase II and that this area was large enough for two football fields side by side, an opportunity less likely to have been lost in the United States. Erickson/Massey's landscape plan at this stage was still to have a "circular earth mound" rather than the stepped pyramid which was built. The landscape design and redesign is discussed in the following section.

Phase I had cost $3.5 million and Phase II was estimated to cost $1.1 million on February 26, 1964. If all of the Quad had been built initially, it would have cost $4.5 million. When tenders were called a year and a half later, the low bid was $2,216,000. The delay in construction cost the University over $1 million primarily because of a 30 percent increase in construction costs. As high as the cost was, two-thirds of the lecture room and the language lab would be "without even the partitions." [McTaggart-Cowan to Peterson, Oct. 1, 1965.]

Peterson arranged for necessary authorizations, and construction began on October 25. A three month delay in signing the contract would ordinarily have meant that the contractor would have an additional three months to complete the work without penalty, but this would be put completion at December 1, 1966 when the building was needed September 1. The low bid was by Laing, which agreed to a compromise completion date of September 30, 1966. [BSC Minutes, Oct. 22, 1965.]
On November 22, Kiss presented estimates for completing all interiors of the entire Quad, and this would add $313,000. He also proposed adding a "new student lounge on the court level on the south side of the Quadrangle...." The cost for a largely glazed addition would be about $175,000 to $200,000. The campus still had no student center of any kind, and "it was agreed that this would provide an excellent student lounge...," but a decision was postponed. [BSC Minutes, Nov. 22, 1965. This lounge was later added.]

The construction for completing the Quad went largely well except that a carpenter's lockout delayed the work by about six weeks. [This dispute between the BC Amalgamated Construction Association and the Carpenter's Union was between all contractors and carpenters in the province. Patrick D. McTaggart-Cowan, report To the Board of Governors and Senate of Simon Fraser University (n. p., Oct. 1966), 8.] There was also a rail strike during this period.

By August 31, 1966 serious leaks had been documented in the connection between the Science Complex and the Quad, and two sub-contractors blamed one another. One was found to have been "careless." By March 3, 1967 the Quad had been largely completed, and on March 16 the contractor agreed to correct leaks in the terrace.

42. Landscaping the Quad Courtyard

For their competition designs, Erickson and Massey had
conceived a landscaping scheme for the Quad based largely on principles of Asian gardening (figs. 7D2 and 42A1). [What appears in plan to be a truncated pyramid in fig. 7D2 (upper right) is actually steps around a sunken courtyard (fig. 42A1). This feature was later moved from the northeast corner to the southeast corner.] When the University opened, Erickson described a revised scheme (fig. 42A2) and noted that the basic concepts were Japanese. He said that "the Japanese can evoke a whole range of emotional responses in their gardens by extracting from nature certain forms and reproducing them in a small scale to evoke the reaction to the original sources. It is a perfect means of setting the mind free from masonry, of finding contentment and inspiration from nature within restricted boundaries." [Burnaby Courier (Sept. 2, 1965), 2. Erickson also noted that the pool was to represent not only a river, "but also a primal consciousness, an awareness of man's first attempts to organize nature. Behind the pool will be a mound covered with small pines.... This mound too, will have symbolic significance. It will, in small scale, represent the mountain that, in many parts of the world, already holds a sage-like significance." At this point the mound resembled a mountain (fig. 42A2).]

Erickson/Massey later wrote that

Surrounded by the purposely monotonous facade of the Academic Quadrangle, the landscape of the Quadrangle was to be the only example of a highly sophisticated landscape design.... It was conceived to symbolize the
Fraser river by means of a long pool set with large boulders from the Fraser, against which fountain jets symbolizing rapids, played. At the center of the pool was the [jade] foundation stone and behind, a heather covered hill suggested the mountainous country through which the Fraser flows. [Progress Report, B-3, p. 9.]

Erickson/Massey had given landscaping careful consideration from the initial conception of the campus. When Erickson visited Japan in 1961, he was greatly impressed by Japanese houses which were almost "a raised platform for the observation of nature." He was impressed most of all by the Katsura Imperial Villa: "The building without the garden would be nothing; the garden without the building, nothing. Together they achieve the most poetic statement ever to be made, I think, in the environment of man." [Letters from Japan, numbers 8 and 5, 1961; quoted in notes by Rhodri Windsor Liscombe.]

Erickson and Massey's competition perspective (fig. 42A1) shows long and low earth pyramids on the western side. There were to be some trimmed, hedge-like rows of shrubs in the southeast quadrant and a sunken courtyard in the northeast quadrant. The sketch incorporated hopefully a Henry Moore sculpture of a reclining nude.

While the Mall was to serve as the principal gathering place, the Quad courtyard was conceived of primarily as a space for contemplation--"a tranquil enclosed space uninterrupted by any arresting form of view--a space to walk around [on the
terrace] and look into—a strolling area intended for the scholar—an area that has been traditional to most places of learning of the major cultures of east and west" (figs. 42C-D). [Business and Financial Chronicle (Dec. 1965), 27.] The mall was to be an agora, forum, and market. The Quad was to be an ornamental garden, a Medieval cloister, and an academic quadrangle increased to the size of a town square, but subdivided. Erickson said, "...if you walk around, your view was always changing...." [Interview, May 7, 1996.] It was not meant to be seen as a whole, but was to provide many separate areas to be in and great variety particularly while walking under the covered terrace of the Quad.

On March 25, 1965 Massey recommended to the Buildings and Site Committee that $20,000 be spent to landscape the western half of the Quad in time for the opening of the University. Lantzius presented a preliminary planting arrangement. The Committee instructed Lantzius to delete the pool and to consult with the President’s landscaping advisor, Neill. The Committee did not think that trees "should obscure the buildings or interfere with views from office windows." [BSC Minutes, Jun. 21, 1965.]

On June 25, 1965 the Board accepted a recommendation to purchase a large jade bolder from Fraser Canyon for $1,700 and asked the Buildings and Site Committee to decide where to place it. This acquisition caused the Committee to reconsider its decision to omit the pool in the Quad, and on July 15 the Board
accepted the Committee's recommendation to place the boulder in a reflection pool (fig. 42E).

The selection of a large boulder still in the Fraser River, and the removal, transportation, preparation, and mounting of the 8,993 pound stone took much of the summer. Erickson/Massey "supervised the polishing cutting and lettering of this stone and arranged for its temporary mounting during the Opening Ceremonies." It placed the stone on the landing of the steps to the Quad wanted to keep it there, but the Committee became determined to have the pool for the boulder. [Progress Report, B-3, p. 50. Herbert L. McDonald, the photographer and writer, said in an interview on June 14, 1997 that it was his idea to acquire a jade bolder for SFU, that he selected one from some Bill Yarmack had located in the river, and that he found a donor for the jade and a firm willing to prepare it without charge. He said that an anonymous and undated accounted entitled a "Chronology of Events that Led to Possession of the Jade Boulder" is substantially inaccurate (typescript, 2 pp., Vertical File, SFU Archives).]

The design of the landscaping for the Quad courtyard went through several stages, and although the final design incorporated all the major elements shown in the competition drawings, they were given different forms and locations. The implementation of any design was delayed and complicated by the construction of the Quad in two parts and by the presence of BC Hydro's communication tower in the courtyard area until the fall
of 1965.

At least by June 14, 1965 the design for the entire courtyard had been changed to include the circular earth mound Kiss had mentioned (fig. 42A2), a natural form bearing little resemblance to architectonic forms of the competition drawings and the mound finally built (fig. 42C). The mound was to be constructed of earth removed when the site was terraced, and the earth had already been piled up in the courtyard (fig. 41A). The Board considered omitting a mound altogether when it learned that the cost could be $15,000 to shape and landscape it, but to remove so much earth would also have been expensive. [Massey to McTaggart-Cowan, Sept. 13, 1966. CAA.]

The western half of the Quad was intended to be landscaped as soon as Phase I construction had been completed. The preliminary design work was finalized and approved by the Buildings and Site Committee, and working drawings and specifications were nearly ready for tendering in November 1965 when economy measures caused the postponement of the project.

A model was built of the landscaped courtyard and was photographed on February 15, 1966 to give the Board an accurate impression of how the landscaping would look. [Progress Report, B-2, p. 23.] A decision on what to do with the courtyard was put off until the remaining third of the Quad was nearly completed. On September 16, 1966 McTaggart-Cowan reported to the Buildings and Site Committee "that Mr. Stuart Williams, one of the judges of the architectural competition, strongly recommended that the
original design be retained." Three days later the Board authorized Erickson/Massey to prepare further studies at a cost not to exceed $1,000.

At its December 14, 1966 meeting, "the Board was pleased to learn" that the B. C. Architectural Institute had awarded SFU a citation for the excellence of its design. Nonetheless, it was displeased with Erickson/Massey’s designs for the courtyard, and it authorized $2,000 for a competition to provide a new design for the entire university.

On January 4, 1967 McTaggart-Cowan wrote Massey "I am not at all happy with the massive change order on the plant materials in connection with the landscaping contract which we discussed just before Christmas and I have asked Mr. Orr to make a complete investigation. The maintenance of good will between the University and the firm of Erickson Massey will depend on having these many problems [with the Mall roof and landscaping] cleared away fast." Within two weeks, McTaggart-Cowan called Massey in to tell him that Erickson/Massey "would no longer be doing the landscaping, and that there would be a competition... to choose a landscape architect for the University." [Erickson to Henry Elder, Feb. 8, 1967. CAA.]

On January 19, 1967 Erickson/Massey protested that landscaping was part of their function as Planners. The Board disagreed. On February 14, Erickson wrote Hean as Chairman of the Buildings and Site Committee a long letter explaining the concepts for the landscaping of the University:
The success of the design of Simon Fraser University is largely due to its siting and to the setting which has been created for it by judicious landscape design.... The effective siting of the University on the mountaintop is due first to the principle of terracing.... The application of this principle to both the grounds and the buildings is the reason why the University lies so harmoniously on the hillside....

The second principle was to create an openness to the site that would give the University a greater sense of its elevation on the mountaintop. That is, by keeping the tree belt well below the University grounds, one has, on approaching the University, the impact of breaking out of the trees into the open space of a mountain meadow where the University sits..., recalling the classical acropolii which were similarly sited....

The final principle of the concept was to bring as much planting as possible within the buildings themselves: e. g., on the Mall, in the Quad, in the courtyards of the Science Complex... to create a kind of hanging gardens....

Erickson argued that if a landscape architect were to "introduce a new concept--no matter how worthy in itself--it would inevitably conflict with the present concept.... A competition is usually held to find a concept, not to gain advice on details,
and the concept already exists!" [Erickson to Hean, Feb. 14, 1967. This entire letter is reproduced herein as Appendix III.]

Hean, Shrum, and Dietrich found themselves entirely in agreement with these concepts, and the Buildings and Sites Committee recommended that the Board cancel the competition. On February 16 Erickson/Massey presented the Board with four designs to select from for the Quad courtyard. Erickson explained that advantages and disadvantages of each scheme and recommended the final one he presented.

The first alternative was the second design which had been prepared. It included a tall, conical mound to increase the sense of space (presumably fig. fig. 42A2). The second alternative omitted the large mound and filled most of the courtyard with an immense reflection pool with two small islands, a wooded one and a concrete platform (fig. 42B1). The large body of water was intended to add to the sense of spaciousness. The third alternative would have had a series of mounds and hedges to create a sense of distance through perspective and to provide greater privacy, and it must have been similar to the competition design (fig. 42A1). The fourth alternative, the "preferred scheme," proposed the most elaborate landscape scheme (fig. 42B2), which included a long reflection pool (fig. 42D-E), several separate areas of foliage (as fig. 42F), a sunken courtyard (fig. 42G), and a terraced mound which can be taken to symbolize the terraced top of Burnaby Mountain and an earth pyramid at Monte Alban (fig. 42G).
The Board canceled the competition and approved $85,000 for the recommended plan. On February 20, 1967 Hean wrote Erickson to inform him of the Board's decisions. He added "along with the other members of the Board, I do have a real sense of pride with respect to the University. From a design viewpoint, I think it is magnificent and I, frankly, delight in the feeling I get as I drive up to it." He expressed reservations about "the execution of certain works" which did not require mentioning, but he looked "forward to what we hope will be a true crown--the quadrangle landscaping--completed on time, and within budget." [Hean to Erickson, Feb. 20, 1967. CAA.]

The low bid by Coyne & Ratcliffe Construction Co. Ltd. was about one-third higher than the estimate. On April 24, the Buildings and Site Committee reduced it to below the estimate "by deleting a number of benches, pavers, plant materials, etc. on the basis of tendered unit prices and by installing asphalt in lieu of concrete for the pool floor" (cf. figs. 42B2 and 42F). [BSC Minutes, Apr. 24, 1967. Fig. 42B2 shows more benches, hedges, and another mound (a small circular "heather mound or grass mound.) The Committee also recommended to the Board that in the future contractors be asked to "recommend any changes in design which would reduce the cost without sacrificing the quality of construction. A percentage of savings resulting from such recommendations would be paid to the contractor." Of all the recommendations to reduce costs, this one had the greatest potential for destroying the excellence of any design.
Although the landscaping of the courtyard was finally completed satisfactorily, problems continued with the landscaping of the four playing fields (fig. 48F). In the fall of 1968 the first two fields were "in quite good condition and would be in very good condition except for the students and football team ignoring the 'Field Closed' signs." The other two fields were in such poor condition that they needed to be entirely rebuilt. Lantzius offered to pay half the cost of rebuilding them if the contractor would pay the remainder. However the performance bond had expired a year earlier. [William De Vries to BSC, Sept. 12, 1968.]

43. Enlarging the Science Complex

Phase I had provided 76,000 square feet for the wings of the Science Complex (fig. 43). In the fall of 1965, Rhone & Iredale developed a program and preliminary plans for an additional 51,000 square feet to the Science Complex. [Information prepared Sept. 14, 1965 for the Canadian Architect 1965 Yearbook. Rhone & Iredale Papers, SFU Archives.] The firm designed "totally different... types of undergraduate laboratories and research laboratories" to satisfy the requirements given directly to them by the heads of the three science departments. "Erickson-Massey were not involved in any of this. We did review our preliminary plans with them, however, and all told have spent 2 hours with them. They have further assisted in providing surveys. However, their services envisaged for Phase I simply do not apply to Phase
II. " [Rhone to McTaggart-Cowan, Oct. 22, 1965 (Shrum Papers). Rhone & Iredale and Kiss later asked the Board to cancel the 1/4 of 1 percent given to Erickson/Massey, but the Board refused.]

The complicated working arrangements between the architects varied with the architects involved and varied from phase to phase. In the case of the Science Center during Phase I, Erickson/Massey had prepared a full set of preliminary drawings for the Science Complex, but in Phase II Erickson/Massey was presented with a full set of preliminary drawings prepared by Rhone & Iredale. [Section 12. Preliminary drawings by Erickson/Massey for the first phase of the Science Complex are dated Sept. 30, 1963, three days after Rhone & Iredale had received the contract to prepare working drawings. CCA.] For Phase III of the Science Complex, the Board instructed Rhone & Iredale to work closely with Erickson/Massey and to get its written consent to the designs.

Rhone & Iredale designed increasingly more of the Science Complex, but within the framework of Erickson/Massey's overall competition design and for the first phase their preliminary plans also. The fairest way to represent the respective contributions might be to say that the Science Complex was designed by Erickson/Massey and Rhone & Iredale, but this was not done. Neither firm was satisfied with the way credit was claimed.

For example, at the time of the opening of the University, the Vancouver Sun ran a paid advertisement which stated only
"Rhone & Iredale Architects/ Science Complex," implying that Rhone & Iredale had designed the building wholly on its own. The other firms ran nearly identical advertisements. [Sun (Sept. 8, 1965), pp. 18-19.] As articles began to appear in magazines and journals, the situation was often reversed, Erickson/Massey got all the credit as if four other firms had not been involved. The working relationship of all the firms was made still more difficult.

On January 24, 1966 Rhone wrote Erickson he had learned from the Canadian Architect that in a forthcoming article, "the main heading for the entire article gives total credit to your organization for 'planning, preliminary design and design co-ordination of all buildings, site development and landscaping.'" [Rhone was referring to a letter from Robert Gretton, Managing Editor of the Canadian Architect, to Rhone & Iredale, Jan. 19, 1966. This letter also included the statement "within the conceptual framework thus established, the individual architects prepared preliminary designs, working drawings, and supervised the individual buildings." Rhone & Iredale Papers, SFU Archives.] The other four firms had a meeting and wanted the heading changed to read "overall planning, general design co-ordination, site development and landscaping: Erickson-Massey." Erickson/Massey wanted it to read "Planning, initial design concept of all buildings, general design co-ordination, site development and landscaping: Erickson/Massey." This was acceptable to everyone, and after that heading, the other firms were listed
without further explanation as the architects of the individual buildings. [Rhone to Gretton, Jan. 27, 1966. Ibid. Canadian Architect, Feb. 1966.] More than enough was accomplished for all the architects to have a substantial share of credit, but the fact remained, as Erickson/Massey stated, that the other firms would have designed different buildings on their own. What they would have designed was shown by their competition entries, and what they did design had the overall form, location, and interconnections created by Erickson/Massey.

After further discussion, all five firms agreed to pay for a page in the first SFU annual to represent their respective contributions:

ARCHITECT/PLANNERS TO SIMON FRASER UNIVERSITY

Erickson/Massey

Central Mall, Women’s Residence, Water Tower, Site Services, Landscaping, North-side Classroom Block: Erickson/Massey, Architects

Science Complex, Phases 1, 2, and 3; Lecture Theatres: Rhone & Iredale, Architects.

Academic Quadrangle, Phases 1 and 2; Men’s Residence: Zoltan Kiss, Architect
In 1968 Erickson/Massey had to threaten to sue to be given credit for designing the MacMillan Bloedel Building. Grosvenor-Laing published a three advertisements giving the principal credit to its Chief Architect. Massey wrote the President of the company, "it is a fact that we are the architectural designers of this building, and Francis Donaldson was responsible for production of drawings only and construction supervision.... We have consulted with our lawyers and have been advised that if you persist in your present course of action with regard to credits we will be entitled to obtain a court order restraining you from publishing such misrepresentation, and that we are entitled to a retraction." CAA.

On June 21, 1965, Rhone & Iredale had received preliminary approval for their Phase II plans, but "while the architectural planning was... well advanced," McTaggart-Cowan "required the architects to reduce the space by 25%...," the amount of inflation. He also required them to take "additional economy measures such as elimination of suspended ceilings in the laboratories, bare concrete walls with simple service strips rather than finished electrical installations, etc. In fact,
there is very little internal cladding material left in the plans, with the exception of paint on the walls in areas where equipment sensitive to concrete dust will be housed."

[McTaggart-Cowan to Rhone & Iredale, Jun. 21, 1965. Shrum Papers.] These supposed economies would enlarge the volume to be heated, let the heat go up to where it would be largely useless, and would require replacing temporary measures later. Every such change required drawings to be redrawn or annotated and specifications to be changed, and delayed bidding, and the amounts saved were usually trivial, particularly considering that inflation was continuing, but these changes allowed McTaggart-Cowan to be full of assurances.

On October 22, 1965 the Buildings and Site Committee approved Rhone & Iredale's working drawings and specifications and asked the firm to begin preparing a master plan for Phase III expansion of the Science Complex. Phase III was to add additional facilities for all three departments farther down the southern slope. [Architecture Canada (Oct. 1966), 62.]

Ten months later, on August 31, 1966, the Committee reviewed the preliminary plans for Phase III and congratulated Rhone & Iredale, but "asked if written approval of these preliminary plans had been obtained from the consulting architects. Mr. Rhone advised that liaison had been very close between the architects and the co-ordinating architects, and written approval will be obtained forthwith." The Committee authorized Rhone & Iredale to prepare working drawings and specifications.

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Rhone & Iredale also prepared a comprehensive planning document entitled *Simon Fraser University Science Complex: Phase III Design Presentation*. This publication shows the work completed and planned in 60 drawings with tables to indicate the requirements for every room.

Taking one room as an example of the information provided, the Thermodynamics I Research Lab in the Chemistry wind has 560 square feet, and its general requirements were to provide for corrosive chemicals, inspection doors, ceiling apparatus for power lines, and a ceiling height of 9 feet. Teaching aids and equipment needed were a blackboard, tack board, telephone, and clock. Safety aids were a fire extinguisher and a coat rack or hooks. An electrical requirement was an energy power cutoff near the door. Services to be supplied were standard gas pressure, compressed air, cold water, hot water, deionized water, a sink, and a cup sink. Mechanical requirements were for canopy hoods. The room was also to be divided by a movable partition from floor to ceiling.

Requirements for other rooms included provisions for radioactive research, live animals, dust free areas, special noise control, unusual floor loads, provisions for instruments sensitive to vibration, low temperatures, and special lighting. Each room in the Science Complex required innumerable architectural decisions to be made about the placement of work areas and special equipment in addition to all of the usual requirements for most rooms in the University.
This planning document also graphed the complicated history of the three phases of this project:

Phase I began on September 27, 1963 (when the architects signed a contract), was bid on April 21, 164, and was substantially completed by August 1, 1965. The total cost was $1,985,000.

Phase II design began February 1, 1965, and the project was bid on November 22, 1965 and completed on September 7, 1966 at a total cost of $1,796,485.

Phase III was scheduled to begin in May 1966, to be bid in December 1966 or January 1967, and to be completed by February 1968 at an estimated cost of $3,420,500.

If Phase III could have been constructed for the amount of the estimate, the total for the Science Complex would have been $7,210,985. Funding was not approved until June 1968, and by that time the low bid was $4,029,750. Considering the rate of inflation and the excellent work previously done by the contractor (Maxwell), Rhone & Iredale recommended approval. [Sun, Jun. 20, 1968. W. DeVries to BSC, Sept. 12, 1968.] The work on Phase III was completed in 1971.

Phase III added two new lecture halls which seated 314 and 395 students, more labs, teaching facilities for undergraduates, a work room to make scientific equipment, and offices for the administration and faculty of the three science departments. Grouping chemists, biologists, and physicists together was intended to encourage greater interaction. [Rhone & Iredale, "Construction and Teaching Techniques are All New in SFU’s New...
Science Building," news release, Aug. 31, 1966. Rhone & Iredale Papers, SFU Archives.] However, it also had the effect of separating them from their colleagues in other departments. The two stories of labs had low mezzanine in between them for the supply of water, gas, and air and for drain pipes, and this space was also planned to facilitate future changes. Mechanical and storage rooms were in the lower floor of a partly three-story section at the south end.

By the end of Phase III the three wings of the Science Complex had been completed to house undergraduate and graduate students of the three first science departments. In between were the two planned areas of landscaped terraces. Although the competition drawings had anticipated expansion eastward for additional wings, the entire south side of the Quad finally looked much as it had been intended to in 1963. Altogether, it cost about $8 million while the Quad had cost only about $5 million, but the Quad was not obscured by later buildings.

On February 25, 1982, the Science Complex with its further additions was renamed the Gordon M. Shrum Center for Basic and Applied Science. On November 19, 1983, the Gordon M. Shrum Chair in Science was established. [Volkoff, "Shrum," 160.] The Gym is also called the Chancellor's Gym, and it would almost certainly not have been built initially without him.

44. Shell Station Controversy

The first student protest and the first faculty protest at
SFU was about architecture. These protests provide the best evidence of the high regard the students and faculty had for the architectural excellence of the campus and of the inadequate regard the Board and administration had.

On July 15, 1965--less than two months before the opening of the University--the Board approved in principle placing a service station on campus. All major oil companies were to be asked to bid, and the selection of a site was delegated to the Buildings and Site Committee. This initial approval of the concept indicates that the Board solicited a gas station rather than had an offer as with the sports complex, which it approved in principal without inviting other companies to submit bids.

On August 5, the Buildings and Site Committee recommended two sites to the Board, and the Board selected one a few hundred feet northwest of the Central Mall. On September 16 (a week after the opening), bids came in from the oil companies, and Shell Canada offered the highest bid: an advance rental fee of $116,000 and an unspecified royalty on gas sales. The Board decided the advance would be used to construct a men’s residence. Shell assured the Board that its design for the building would "been in keeping with the architecture of the University."

At the same Board meeting on September 16, Erickson/Massey were given their dressing down and were instructed to include more parking in the campus plan on its south side and were told that the Shell station would go on the north side. On September 23, Erickson wrote his letter marked "personal" to each member of
the Board and stated the Erickson/Massey was in favor of having a service station on campus and was pleased that money would be available to construct another residence. "However, we feel it is inadvisable to allow a private concern such as this... to choose their location and design their buildings without prior direction from the University planners, even though we will be allowed to express our opinions on the plans.... I submit that Shell's architects, without preliminary direction, are not capable of producing a design that would comply with the standards that have been set for the University so far." [Shrum Papers.]

Shrum wrote back "so far as the location is concerned, this was decided by the Board after consultation with various oil companies. There is no point in having a station tucked out of sight or at an inconvenient place so that its use will be restricted. [Shrum to Erickson, Sept. 28, 1965. CAA.] In other words, the Board approved a site only suitable to the oil companies.

On November 10 the Buildings and Site Committee gave its approval of Shell’s request to place the service station "250 west of the center lane of the Transportation Center, and approval of their plan for the service station. [BSC Minutes, Nov. 10, 1963.]

On November 12 Massey sent a critique with constructive criticism. He proposed that a location near the permanent parking area at the east end of the campus was a better location
than near the temporary parking area opposite the Gym. He also noted that the substantial expense of creating a platform on the north slope of the mountain could be avoided. He added that "the importance of maintaining unity in the form and materials for all University buildings cannot be overstressed."

Shell insisted on keeping the site requested and approved, but offered to pay $7,200 to bring services to the site and to pay an extra $7,800 "if the Men's Residence is called 'Shell House'" (altogether, an extra $15,000 with $7,800 as a contribution). [Bloch-Bauer's report of a conversation with McQueen of Shell Canada Ltd. BSC Minutes, Nov. 22, 1965.]

On February 3, 1966, Erickson/Massey received a set of plans and elevations and for the Shell Station. Erickson wrote Hean expressing disappointment that the station would not be placed below the level of the road and that the design was not similar to the Shell station at Malton Airport, "the only example of a commendable architectural solution to a service station in Canada." He wrote,

...no attempt is being made either to fit it to its surroundings or to its particular location in the University complex. There is nothing that could be more disastrous to what has been achieved so far.... I can assure you that the Board will seriously regret having permitted this kind of visual outrage in one of the most prominent locations of the University. With respect to the design of the Service Station, it makes
a mockery of the design of the University. It is a kind of incompetent caricature which I would not permit from first-year students of architecture at the University of British Columbia.... if this is the kind of standard that the Building Committee will allow in buildings at the core of the Simon Fraser campus; the acclaim that Simon Fraser has received thus far will be short-lived.

He offered Erickson/Massey's advice to develop a compatible design. [Erickson to Hean, Feb. 7, 1966. CAA.] Three days later Erickson wrote to apologize for "some incorrect phrasing," but emphasized he had not questioned the Committee's right to decide on the location, but on how the building was being sited and designed. [Erickson to Hean, Feb. 10, 1966. CAA.]

Erickson/Massey received a rendering of the station on February 22 (fig. 44) and sent further constructive criticism on February 23. Without changing the plan or structure, Erickson/Massey suggested an alternate siting and a different "facia treatment around the roof." The station would be less objectionable lowered six feet below the level of the road and turned around so its pumps were on the north side and not visible from the road. The false fins were most objectionable of all. "The building is not large enough to be given fussy and inappropriate treatment of painted wooden fins which, in technique, materials, and effect, caricature the use of fins elsewhere on the campus." Erickson/Massey recommended that the
roof be treated similarly to other roofs on campus, the fence be omitted, and that compatible landscaping be used rather than landscaping that "is completely contrary to anything now planned for the campus of Simon Fraser." These suggestions were considered "minimal remedial measures which do not improve the architecture of the Shell Station in itself to any great extent, [but] they would at least have the effect of making the station less offensive and discordant with the rest of the campus."

[Erickson to Hean, Feb. 23, 1966. CAA. Erickson and Massey said the firm produced an alternative design. "We had it buried into the bank beside the road facing north, and it was really sort of a non-building. It just looked great." Massey interview, Jun. 28, 1997.]

Erickson/Massey felt very strongly that as the designers, planners, and coordinators of the campus, the University should utilize their professional opinions about how all parts of the campus should look. The University felt equally strongly that this was none of their business and that the appearance of the station was irrelevant.

At its next meeting the Board discussed a memo entitled "Problems with Erickson-Massey." [Dated Apr. 19, 1966. CAA.] One of the problems was the firm was "more concerned about aesthetics than functional aspects of design." Actually, Erickson/Massey was equally concerned about both, and the Board was a great deal less concerned about aesthetics than the architects, faculty, and students.
The construction of the station was delayed primarily because the Municipality of Burnaby refused to grant a building permit for a commercial facility on public land, but by May 13, 1966 this had been taken care of, and construction finally started. [BSC Minutes, May 13, 1966.]

When the faculty and students learned what the Board had approved, there were immediate protests by both. On June 15, 1966 the students held a protest march to the station site, but did not interrupt construction. On June 17 the Chairman of a student Ad Hoc Committee and the President of the Student Executive Council sent a night letter to the President of Shell Canada Ltd. in Toronto stating that "student opinion highly hostile to station.... Unanimous motion passed by Student Executive Council June 16 expressing distaste over site and design.... Desire negotiation to acceptable compromise regarding architectural integrity...." [S. M. Steenhuus and Alex Turner to W. M. V. Ash, Jun. 17, 1966. Shrum Papers.] On June 21 a group of students stopped work at the site with a sit-in, but after an hour dispersed when requested to do so. On the same day, the Faculty Association passed a resolution "that the Board of Governors stop construction at the present location..." and that they adopt one of the following recommendations (in order of preference): select another site, "a radical re-design," "lowering of the elevation," or any other solution acceptable to "a committee composed of students, faculty, Erickson-Massey and representatives of the University Administration...." [Robert J.
C. Harper, President, Faculty Association, to McTaggart-Cowan, Jun. 23, 1966.] Shell did not like the publicity it was getting, and since it depended more on students and faculty for business than the Board and Administration and decided not to resume work until the Board could deal with the situation.

At a special meeting held on June 23, McTaggart-Cowan summarized events for the Board and asserted that "there was definite indication that the students unrest was being encouraged and in part organized by adults off the campus and that there was no need for the Board to consult with the faculty or with students on matters of this nature." His explanation that the problems were being caused by an off-campus conspiracy of adults hardly accounted for the protest of the Faculty.

"Mr. Hean felt that the protest was an insolence on the part of the faculty and students, and he said that now is the time to decide that we will tolerate this no longer.... he felt there was no need to do anything further for the faculty or the students other than to advise them of the Board's decision." Bloch-Bauer (who had negotiated with Shell) and Dietrich agreed. Frederickson wondered if a "strong stand might cause more trouble," but he favored suspension of any student "who interferes with the construction." McTaggart-Cowan reassured the Board by reminding it that he had the power to suspend both students and faculty and that while the students could appeal to the Senate, faculty could only appeal to the Board.

The Board declared the construction site off-limits to
students and placed a 24-hour guard on the site. The Board also
voted to reimburse Shell $12,500, which represented half the cost
of having the station constructed with a stone wall across most
of its front.

On June 28 the President of the Student Society issued a
news release announcing that Shell Canada and the Board had
agreed to move the service doors to the back of the station, to
build a plain stone wall in place of them, and to plant trees to
screen the pumps from the road. A group of students had met and
"accepted these proposals." [Alex Turner was President of the
Student Society at the time. Shrum Papers.]

Throughout the entire year from the approval of the station
in principal on July 15, 1965 to July 4, 1966 Erickson/Massey
refused to comment publicly on the Shell Station. The Board then
ran a "Statement by the Board of Governors" in the student
newspaper, the Peak, claiming that "the station has been designed
to meet as closely as possible the architectural requirements and
in its present design is acceptable to the University's co-
ordinating architects...." The statement added that "alternate
sites were not acceptable to the Board, and the University was
paying part of the cost to have the station redesigned "to match
the lower walls of contiguous buildings on the campus" (that is,
to match the fieldstone wall on the north side of the
Transportation Center). Erickson and Massey wrote McTaggart-
Cowan on July 4 that "we have, on several occasions, made it
clear to yourself and to the Board of Governors that we certainly
do not approve the design, the siting or the site.... It is not
our intention to embarrass the University, nor do we wish to do
so. However, we are most upset at being placed in a position
where our own integrity has been put in question." [Shrum
Papers.]

McTaggart-Cowan wrote back, "I doubt that it is worthwhile
continuing the discussion.... I have no intention of involving
you further in the Shell Service Station.... If on some occasion
the differences of opinion are so severe that the minority feels
that their integrity is in jeopardy, then I would expect those
holding those views to tender their resignation.... While being
perfectly frank in the foregoing, I wish also to say again, how
much we are all indebted to your creative skills and to reaffirm
our desire to have you as members of our team as our consulting
architects...." [McTaggart-Cowan to Erickson and Massey, Jul. 15,
1966. CCA.] Massey said later, "he never really understood what
we were trying to do, and as a result he fought it." [Interview,
Jun. 28, 1997.]

Shortly before the station was scheduled to open in the fall
of 1966, an SFU student identifying himself as "ex-chairman of
the ad hoc committee" (that is, S. M. Steenhuus) published a two
page circular entitled "Special Shell Issue" to bring returning
students up to date and to ask them to boycott the station.

The feeling is still rampant among students and faculty
members that an autocratic board of governors making
policy decisions without ensuring that it knows the
academic community's wishes, or when it does know these
wishes, disregards them....

The Board met only with Shell representatives and
arranged for extra landscaping and a re-arrangement of
the station's service bays.

At a further faculty meeting it was decided that
these
modifications were inadequate.... The architects have
so far declined to comment on the situation and appear
most unhappy when the subject is broached. [CAA.]

In September student protests started again on a larger scale
than before. McTaggart-Cowan sent the Board a lengthy memorandum
on September 26, 1966 to bring it up to date:

The student movement to shift Shell is gaining
considerable support and is certainly well organized.
They are circulating a petition and I understand they
have some 1,400 signatures on it now, and expect to
have 2,000 by Monday.... On Friday the "Shift Shell"
Organization had a student rally in the Mall, at noon,
and the estimates are that upwards of 1,000 students
attended.... Opinion was not against the Board of
Governors or against Shell, it was for shifting the
Shell Station to another location.... Dean Bottomore's
assessment is that if a poll of opinion was taken among
the entire University community, about 90% [of students
and faculty] might indicate some degree of opposition
to the location of the Shell Station.... Dr. Rieckhoff’s assessment of the situation was broadly similar, so my assessment is that except for a small hard core of militant students, who have not been identified so the exact number cannot be assessed, the large majority of the student population will only support peaceful means of bringing before Shell their disagreement with the location.

On September 27 a group of six SFU students took a petition with 1,266 names to the Division Office of Shell in Vancouver and delivered it to the Administrative Manager in the presence of newsmen. Outside, 21 more students picketed Shell. Shell was not pleased. [J. L. Hayes, Division Manager, Shell, to McTaggart-Cowan, Sept. 30, 1966.]

On October 5, 1966 the Buildings and Sites Committee noted that the station was expected to open in about 10 days, but Shell was willing to move it to another site if it was reimbursed. "The Committee received this information."

45. Shell House

Zoltan Kiss received the commission to design the second student residence, and he presented preliminary plans to the Board on January 20, 1966. It was to be built on the southeast corner of the west peak near the edge of a 20-foot bluff and due south of Madge Hogarth House (fig. 45A). It was to be more than twice as large as Hogarth House with accommodations for 159
students in 119 single rooms and 20 double rooms. Kiss designed a four story building with a larger lounge, meeting rooms, a group of rooms for a don, and a large cafeteria on the ground floor for men and women students.

Instead of following the arrangement of rooms in suites as for Hogarth House, he arranged the rooms along corridors and included smaller lounges and washrooms on each floor. The single rooms are narrower in proportion than in Hogarth House and the windows are smaller, permitting less daylight.

The cost for the finished building with 46,900 square feet was estimated to be $1.2 million. That was $7,547 per student and so less than the $8,462 per student for Hogarth House, but the cost on a larger scale with the same arrangement as Hogarth House would have been equivalent.

Shell House was built at a right angle to the axis of the Mall rather than parallel to the Mall, as Hogarth House had been (fig. 51C1; coordinates N21 and H22). However, it was in nearly the position needed to form the east side of the residential courtyard shown in Erickson and Massey's competition plan (fig. 7E2). Kiss specifically planned to follow the edge of the bluff with the future courtyard in mind: "This garden, a counterpart of the landscaped area in the centre of the Quadrangle building, will be surrounded on the South side by further units housing male students. Female student housing will be built on the North side. Common rooms will be built in the central area." [Kiss, "Men's Residence, Simon Fraser University, Burnaby, B. C."]
undated information sheet prepared while Shell House was under construction; Shrum Papers.] Erickson/Massey later decided that it would be preferable for all of the residences to be on terraces parallel to the Mall (fig. 47B), and they already wanted Shell House to be parallel, but were overruled by the Board.

In its detailing also, Erickson/Massey felt that Kiss's design represented

a radical departure in materials and finishes from both the previous residence and also any other building on campus. We regret that the final appearance is more like one of the dormitories at UBC than anything else at Simon Fraser. This is due to several factors, including: 1. The use of a concrete eyebrow instead of the fins as occurred elsewhere in the University; 2. The use of a precast block which will be unique to this area; and 3. A radical departure in the railing details from a poured-in-place to a precast railing.

They also regretted that the suite system had not been followed, but accepted this as having been adopted as more economical (which it is not likely to have been, but the Buildings and Site Committee was convinced it was). They also objected to "a two-story vertical wall of precast block." They repeatedly asked Kiss to omit the block and to use fins, and since he repeatedly refused, they asked the Building Committee to intervene.

[Erickson/Massey to Hean, Jan. 31, 1966.] Kiss wrote Orr that "our cost studies show the fins to be more expensive." [Kiss to
At the February 7, 1966 meeting of the Committee, Dietrich said that "Erickson-Massey as architect planners for the University should make the final decisions." Other members disagreed, and the dispute was referred to the Board to decide.

On February 17, the Board voted (1) to use fins instead of eyebrows as requested by Erickson/Massey, but that (2) the use of brown concrete blocks be explored as an alternative to the wooden panels for Hogarth House, and if wood was chosen it should be made fire retardant and (3) to accept Kiss's proposal that metal railings be used instead of poured-in-place concrete railings. They also agreed that Kiss could use white fins (as he had on the Quad), rather than grey fins. Kiss revised his drawings, and on April 20, the Board approved them.

In designing Shell House, Kiss had worked almost entirely without the advice of Erickson/Massey. He submitted his designs for approval, and on the whole they were approved for he had designed a low, long, and narrow concrete structure with massing and materials similar to Hogarth House. Kiss wanted more color for the exteriors, and he was the only architect to insist on it—adding one color to the Quad and two to Shell House (figs. 45B-C). [Although the uniform use of grey concrete would have produced a more coherent overall design, it is true that the frequently overcast skies and frequently wet concrete tend to merge, and Erickson's own recent buildings for SFU use more color than Erickson/Massey recommended. On the other hand, a rock
46. Classroom Complex

Erickson/Massey's initial studies for classrooms on the north side of the Quadrangle were made in January and February 1965 without any assurance that the Classroom Complex would be built. They worked intermittently throughout 1965 on designs for the project "with the expectation that the university will be obliged to undertake the commencement of this project in the near future. Studies consist of preliminary drawings, showing typical layouts, siting, circulation patterns, etc." [Progress Report, 2-B, p. 20]. Since this work had not been commissioned by the University, it was not paid for, but by being able to present an immediately buildable Classroom Complex when it was found to be urgently needed, Erickson/Massey got the commission for working drawings.

The Board had voted that Kiss was to design the Classroom Complex, but when Erickson/Massey announced on February 15, 1966 in its Progress Report that the preliminary designs had been completed, the designs were considered and on March 17, Erickson/Massey was asked to do additional planning. On April 20, the Board approved the plans and gave the firm its first major planning assignment since September 26, 1963. Two-and-a-half years had passed with only Hogarth House being added to their work at SFU.

Shrum took the opportunity to lecture Massey by stating,
that the Board wished to give the contract for the design of the Arts [Classroom] Complex to Erickson & Massey; however, there was some reluctance in doing so because of the past performance difficulties as shown on the list ["of the problems encountered"]. The difficulties included problems of relation with the contractors, and design errors in the drawings. The Board were naturally concerned that the same difficulties may be encountered in the future. Mr. Massey said that he felt his firm had profited by past experience; changes had been made in the office organization, and he assured the Board that the performance of the firm in the future would be much improved. The Chancellor advised Mr. Massey that if there was a recurrence of these troubles the Board would take a very serious view of the whole matter. Erickson/Massey was given a copy of the list as a reminder:

**PROBLEMS WITH ERICKSON-MASSEY**

1. Tardy completion of working drawings and specifications.
2. Numerous design errors and omissions involving extra costs to the contract.
3. Inaccurate estimation of building costs.
4. Extremely slow follow-up on deficiencies.
5. More concerned about aesthetic than functional aspects of design.
6. Prefer to deal with the University at the Board level rather than at the executive level--this slows
execution of the work.

[This list is dated Apr. 19, 1966, and a copy is in the firm's papers at the CAA. Shrum had asked Orr to prepare a list of problems with Erickson/Massey at the BSC meeting on Apr. 14.]

On August 18, Massey presented plans and a model for the initial portion of the Classroom Block, which represented about one third of the intended group of wings on the north side of the Quad similar to those already built on the south side (fig. 46F). The first block was to have offices on the upper level and a language labs below. One lecture hall was to accommodate 500 students and another 100. Two additional halls for 200 students each were to be constructed in a later phase. The offices could be ready by September 1967, the language labs and 100-seat theatre by January 1968, and the 500-seat lecture hall by September 1968.

The estimated cost of $3.3 million worked out to $24.50 per square foot—nearly a fifth higher than the average for UBC when the Macdonald report had been completed in 1963, but lower counting what inflation had been in the construction industry. The relatively low cost had been achieved by making most spaces uniformly 20 feet wide. Labs in the Science Complex had needed to be wider and had more complex requirements.

The slope of the site made drops by half-story the most economical solution to utilize existing contours, and this enabled ramps to be used instead of elevators (figs. 46A-B). The Buildings and Sites Committee was so pleased that it approved
$43,500 for planning done to date and $108,000 to prepare working
drawings and specifications.

Erickson was able to talk the Board into flooding the roofs
to achieve a similar effect to terraced rice paddies when viewed
from above; they almost appear to be continuous water (figs. 46C
and F). Frozen drains later resulted in the roofs being turned
into terraces (fig. 46D).

Provincial funding was not approved until June 19, 1968
[Sun, Jun 20, 1968.] By that time SFU had 5,200 students using
facilities designed for 3,500. Classes were overcrowded and were
scheduled from early morning to late at night. [Sun, Mar. 9,
1968.] The much needed addition was completed in November 1970.

The work went so well that Erickson/Massey was authorized to
design a semi-octagonal lecture hall for 482 students. The
design work was done in 1971-1972, and Erickson completed the
design after the partnership was dissolved (fig. 46G). [Massey
said about the Classroom Complex as a whole, "I didn’t have much
to do with that." At the time, he was working primarily on other
projects (interview, Jun. 28, 1997. The partnership ended about
the same time the initial stage of construction at SFU ended, and
neither architect was rehired by SFU even though both submitted
proposals independently.]

The adjacent Multi-Purpose Complex with a group of similarly
terraced buildings was designed by Downs/Archambault in 1977
(fig. 51C1; coordinates F41). [Blueprints of working drawings in
SFU Facilities Management.] These wings include additional
classrooms, offices, an exercise room, and a museum.

47. Housing Development Plan

On April 6, 1966 the Buildings and Site Committee wondered if the cost of student housing could be reduced even further by building high-rises. "It was suggested that because of the lower [unit] cost of high-rise buildings, these be considered for future residences." This recommendations was again discussed at the Committee's meeting on April 14. At the Board meeting on August 22, McTaggart-Cowan described an eight-story concrete hotel which had been built in four months for US$11.44 per square feet. The structure was reinforced concrete, and the walls were concrete block. [Hean had given McTaggart-Cowan an article on the Hanalei Hotel Project in San Diego. McTaggart-Cowan sent a copy to Erickson/Massey on Aug. 30, 1966. Shrum Papers and CAA.]

The need for additional classroom space was so urgent that housing was little considered for another year and a half. On October 2, 1967, the "President's Committee on University Residences" met to discuss a site for the next residence to be built. Massey recommended that the residence be constructed somewhere within the 46.5 acre site at the west end of campus bounded west on Centennial Way, north by the line of Centennial Park, east by Gagliardi Way, and south by the Curtis Street extension. The Committee with R. E. Lester as Chairman accepted this recommendation.
Shrum was not satisfied with speed with which the President’s Committee was making decision, and he was sure he had a better way to ensure that cheap housing was constructed quickly. No matter how long a decision was delayed, it had to be implemented quickly. McNab said that Shrum called the architects together and said, “now, I want these residences built very quickly. There’s no time to do any drawings or anything like that. We will go to a contractor who has built the equivalent of residences and tell him to go ahead and build, and you as architects will see that he builds reasonably, and there will not be any plans, specifications or anything, but I’m looking forward to you to form a committee to supervise the building of these things.” And there was no mention of any money. This would just be off the cuff. So we had a meeting and said, "well, this would just be a nightmare." We had nothing to guide us on how to judge the construction of these buildings or anything so I recommended that we would not do this. It was completely against our architect’s code. So the other architects went to Shrum and said, "McNab is against doing what you suggest," and Shrum says, "make McNab chairman of the committee, and he’ll do it." So we never did it....

On October 4 Shrum tried to put his idea into effect by forming a "Representative Committee of the Board of Governors." He had its
first meeting at BC Hydro "to make the necessary decisions that would enable an advertisement to go into the newspapers in order to receive a proposal on the project." He wanted contractors to submit proposals and bids for the kinds of housing projects they were accustomed to constructing.

The meeting was attended by four board members, McTaggart-Cowan ex-officio, Erickson, Massey, and a student representative, Ian Joyce.

Dr. Shrum explained that the Board was convinced that a high rise structure is the answer at this time [to construct a residence for married students without children] and that row-housing would be contemplated when the University began to deal with married students with children.

Mr. Erickson and Mr. Massey expressed their view that they preferred a low-rise building, approximately three to four stories high, rather than a high rise building. They doubted that a high rise building would result in lower rents than a low-rise structure [with a less demanding structure and without elevators]. Erickson and Massey also stated that terraced housing could be constructed at approximately the same density as high-rise....

Dr. Shrum made it clear that Erickson-Massey were being asked for their advice on the site only and were not being retained as the architects for the proposed
building. [The minutes of these meetings to discuss housing are in the Shrum Papers.]

Several members of the Committee disagreed that a low-rise building would be as inexpensive, and Shrum disagreed that a high-rise would cost as much as the $15 per square foot Massey estimated for a four-story building.

Joyce, the student representative, suggested that the faculty and students be polled to see if they had a decided preference for a high-rise or a low-rise. Some objections were expressed to putting every question to the faculty and students and to the delay involved, but the Committee voted to have the poll made before the next Board meeting on October 19.

On October 13, the Buildings and Site Committee noted that both the Student Society (of undergraduates) and the Graduate Student Association had sent letters "indicating their preference for a low structure." Having been bypassed, the Committee recommended to the Board that residences of three or four stories be constructed unless a high-rise would cost significantly less to build and maintain. The Shell Station had just opened, and they did not want another controversy.

When the Board met on the 16th, it "unanimously favored the maximum height compatible with the aesthetic value of the area." In other words, it made no definite decision, but wanted Erickson/Massey, the faculty, and the students to be satisfied.

On October 26, "an urgent meeting of the Special Housing Committee of the Board" (the representative committee) met again.
at BC Hydro and discussed with three invited contractors and others what the specific requirements would need to be for "apartment type accommodations for single and married students without children--both undergraduates and graduates" (specifically excluding faculty or married students with children, who were to be accommodated elsewhere and later). This also represented a departure from the plan to openly advertise for proposals from any contractor.

The three invited firms specialized in constructing apartments, and Shrum asked their heads what was "the most economical height to build. They all agreed that a structure ranging in height from ten to twelve stories was the most economical...." Shrum asked Massey "if he would reconsider his recommendation," and "Massey repeatedly stated that he would not recommend anything higher than four stories."

Massey also recommended that the Architectural Institute be asked to approve a competition for the building. Shrum "stated that this was a builder's competition and not an architectural competition. Each builder will no doubt be selecting an architect to work with him on his proposal." This was Shrum's way of saying that the adopted plan for the campus was unadopted.

The Committee decided that the three invited contractors would be given until December 1, 1967 "to submit plans sufficient only for appraisal of their project" and that proposals submitted will be judged on the basis of cost per suite, quality and attractiveness..." with the provision that the residence had to
be ready for use by September 1968. The Board would make the selection after listening to "suggestions" from architects, students, and "all other interested parties."

One thing had not changed. Board members again had waited until the last possible minute to make a decision and then demanded extra effort to meet an arbitrarily imposed deadline.

The requirements adopted were for a four-story building with approximately 200 units--the maximum height and number of units Erickson/Massey had recommended. The building could be subdivided to conform to the site, and the specific site within the area Massey had recommended. "The number and arrangement of the buildings is to be left to the contractors." Approximately 70 percent of the apartments were to be one-bedroom and 30 percent two-bedroom. The two-bedroom apartments were intended to be large enough for four students. The material was to be concrete, and the buildings were to be fireproof. One elevator could be included in each building section.

Undaunted, Erickson wrote Shrum on November 3 proposing that Erickson/Massey be hired to undertake an intensive, one-month study of all housing needs for the University. The Conditions of Competition had called for separate accommodations for students and families (student and faculty), and Erickson and Massey had proposed placing single students near the axis of the Mall and families in residential areas scattered across the hillside. Now he say a way to provide further interaction. He wrote,

The student accommodation envisaged in the original
master plan followed the traditional
dormitory/residential provisions near the academic
core, with graduate and married student housing
scattered in areas away from the academic core.
However, the immediate need for all types of housing as
close as possible to the University core has led us to
reconsider the concept. Thus we believe we should
considering all types of University housing in one
place on the University on the site originally planned
for the dormitory.

Shrum could be depended upon to accept a practical proposal. The
proposed arrangement would place all housing closer and enable it
to be connected by covered walkways to the core of the
University. It would reduce the cost of extending services. It
would increase the number which could be accommodated in a
smaller area, leaving more room for expansion. It would provide
a more representative cross-section of the student population in
each building (and dilute the younger crowd). Erickson requested
$9,200 for two architects and two assistants, for additional
surveying, for an engineering consultant, and for a new site
model. [Erickson said Shrum "was the best ally I could have had"
(Shrum, Autobiography, xiv). Once Shrum was persuaded of
anything he was 100 percent for or against it.)

At the next meeting of the Special Housing Committee held on
November 3 (the date of Erickson's letter), Shrum read the
proposal, the Committee approved the study unanimously and agreed
also that the study should recommend a specific site so that the recommendations of the three contractors could be compared more readily. The Committee urged the contractors to proceed with as much preliminary planning as possible with the understanding that the site might be changed by the Board.

Any of the nine architects currently working at the University was free to work with the contractors, and any who did not would be invited to form a jury to make recommendations to the Board. However, Massey had written Hean on October 4 that "our governmental body [the Architectural Institute] had made it quite clear that all architects are prohibited from entering the type of competition presently being considered by the University." Shrum was incorrect that this would be solely a competition among contractors and not architect. For any architect to help any contractor, the President of the BC Architectural Institute had to approve the competition rules. He recommended a few changes, and the Committee accepted them.

The contractors were advised that their bids the separately designed buildings needed to include "services, landscaping, fridges, stoves, etc."—all costs the mortgage needed to cover, and all of them were not even specified.

Being a practical man, Shrum thought all of his own ideas were necessarily practical, and his idea was still to combine the bidding process with the design process in order to make architects more practical, more economical, and more hurried by forcing them to work under practically minded contractors. Each
contractor was to bid what he would be billing to construct his building for, and the designs and bids would be considered at the same time—perhaps saving a month if they had been able to start immediately, but the entire process mainly gave the Board more decisions to make over a longer period of time leaving even less time for construction and calling for decisions to be made which would not be comparable.

A contractor pointed out that since construction could now not start before February 1 (because of the University’s delays), it might be possible to construct only half of the 200 units by September 1, 1968. He suggested that the completion of the other half be scheduled for January 1, 1969. "The Chancellor was of the opinion that this was a reasonable suggestion and that there was no point in setting unrealistic targets."

Erickson/Massey's Simon Fraser University Housing Development Plan was completed on December 1, 1967. Its purposes were to provide a new development plan for the west end of the campus, to determine the maximum number of students who needed to be accommodated in the area set aside for housing, to indicate what facilities would be needed in addition to housing, to propose a sequence of development, to indicate what would be required to be eligible for mortgages, and to select a site for the first group of 200 apartment units.

The four architects who prepared the report were Erickson, Massey, Bain, and Rein Raimet. They worked with four engineering consultants, and they interviewed students, faculty, staff, and
housing specialists.

The provision of housing with kitchen units was intended in part to "remove the burden of the care and feeding of students from the university." The competition plan had intended to provide dormitories near the Mall with separate food service for most undergraduates and to provide housing with kitchens for graduates and all married students in more or less separate building scattered down the hillside. The new plan was to house all students and as many faculty as wanted to participate in apartment building all located near the Mall and connected to it.

This new plan for housing coincided with the growing insistence of students at universities worldwide for more choice and fewer restrictions. Erickson/Massey cited several recent studies which uniformly indicated that in Europe and in the United States, the prevailing trend for student housing was apartments rather than dormitories.

The idea basically was to provide accommodation which would be competitive with what students could rent off campus. Few students preferred dormitories to commercially available housing which varied in size and plan, which generally provided more space, which came furnished or unfurnished, which had kitchen, which were quieter, which were more private, and which were free from supervision. Students also preferred to be closer to grocery stores, restaurants, entertainment, and so forth. If the University was going to compete successfully, it would have to have to offer similar advantages.
Erickson/Massey proposed to construct permanent buildings which in the long run would provide savings by not needing to be replaced and by requiring less maintenance. They proposed concrete buildings which would be fireproof and which would be compatible with the overall design of the campus in materials, scale, massing, and siting.

Housing needs had been established in March 1967 by Howard Adelman's *Housing Study for Simon Fraser University*. The University was then providing housing for only 225 students, and a representative sampling of students indicated about three times as many (660) would want to live on campus starting in September 1968. Adelman proposed 156 more dorm rooms for single students, 20 one-bedroom apartments, and 107 two-bedroom apartments as soon as possible to enable the University to accommodate 681 students. This called for the addition of 283 new units.

A study of 3,242 students which had been conducted in January 1967 indicated that 35 percent of single male undergraduates, 22 percent of single female undergraduates, and 27 percent of married male graduate students wanted to live on campus. Overall, this corresponded well with the average of 30 percent of students who lived on the campuses of other universities.

When SFU students were asked by a school newspaper to indicate their preferences on November 8, 1967, too few responded to provide an accurate sample, but the ones who did respond wanted a variety of accommodations: individual dorm rooms,
bachelor apartments, one-bedroom apartments, and two-bedroom apartments. No one wanted to be assigned a roommate by the University. Most students needed parking. Erickson/Massey recommended a survey of all students during registration for the term starting in January 1968.

The development plan reproduced in the report for a 16 acre site was essentially identical to a plan with landscaping added (fig. 47B). There were to be three long, parallel rows of apartment buildings on the south side of the Mall and two on the north side of the Mall. Each of the five rows was to be irregular in outline and to be divided into blocks fitting the contours of the site. The ground floor levels were to conform to the established vertical grid with five ten-foot intervals from 1167.5' to 1207.5' (with the Mall extended at 1218').

The middle row of housing on the south side was to be the first group of apartments constructed, and eventually this site became the location of Louis Reil House, which has a similar, but not the same outline. McTaggart-Cowan Hall was later built nearby site indicated for the southernmost building, and it had an essentially identical outline, but was planned as a dorm.

Any of the five rows of housing could contain any combination of units needed at the time of its construction. This could be made possible by the uniform use of a structural bay of 21' 6", the size used to design the floor plans of every type of unit. Sections of apartments could be readily added at the ends of rows as needed. With reinforced concrete piers and
floor slabs, the buildings could even be readily altered to make more units of any type available as demand changed in the future.

The tallest rows were to have five stories including parking on the ground floor and were to be adjacent to the Mall. The rows away from the Mall were to be built on lower terraces and were to be lower in height with the southernmost being only two stories tall to keep light and views open (figs. 47C1-2). Future two-story units could also be built beyond the athletic fields and at the southwest corner of the ring road. The west end of the Mall was to be entirely unobstructed for a view to the Pacific Ocean. Parking would be mostly within the Mall and accessible through the Mall, and only service roads would extend from the Mall.

Together with the two existing residences (Madge Hogarth House and Shell House), the five rows of proposed housing would have completed the core of the campus and preserved it intact. Future buildings could not destroy the coherence of the design.

The report showed how 4,000 people and 2,500 cars could be accommodated at the west end of the Mall with a density on 250 persons per acre. Since the maximum student population was set at 18,000 and since housing might need to be provided for 30 percent, the total number needing housing was estimated to be around 5,400. In other words, to build high rises would be an unnecessary expense.

Because of the isolation of the campus, some provisions needed to be made for rental for commercial use, and other
facilities such as child care and a conference center were proposed. To reduce overcrowding at the east end of campus and to be convenient to residences, some classrooms and offices were to be constructed at the west end. The parking levels of the Mall were to have 10' ceilings so that they could be later used for other purposes as needed.

The report concluded with the recommendation that the University Erickson/Massey to "establish certain design criteria as directives or guidelines to other architects..."--that is, particularly if they were not going to be allowed to construct the first apartment building. They still hoped that designs by any number of later architects would be compatible with one another and with what had already been achieved (fig. 47A).

On December 5, Erickson outlined Erickson/Massey's Housing Development Plan for the Housing Committee. He stated that "apartments of various types" would be a less expensive solution to housing than single-occupancy dormitories, that about 30 percent of all students would probably want to live on campus, that housing for 4,000 students and parking for 2,500 cars could be built in an area of 16 acres if a total of nine levels was used, but for a group of building constructed on a series of terraces. A specially prepared model of the entire site showed how the residential area would relate to the buildings already constructed (fig. 47C1).

Shrum felt that if these low-rise apartments could indeed be built for $16 per square foot that the rental rates could be
afforded by students. Reasonable rates were considered to be $110 for one-bedroom units and $130 for two-bedroom units. He asked Erickson/Massey and the contractors and their architects to try to come to an agreement on a set of specifications which all contractors would bid against before the committee met again the following day. No agreement could be reached.

At the Committee's meeting on December 6, A. Weeks, the President of the Student Society, stated that the rental amounts proposed were acceptable to students and that more than enough were willing to sign 12 month leases. "It was the opinion of the students however, that aesthetic values in design should not be sacrificed for the sake of expediency of the project.... Mr. Weeks strongly supported the Erickson/Massey plan...."

McTaggart-Cowan nonetheless asked again if the buildings might not be constructed higher. Erickson said that an additional story might be added providing "that the terracing of the roof-lines be preserved.... He also stressed that on this site it is important that some type of profile be established."

After prolonged discussion, the Committee asked the contractors to base their plans, specifications, and bids "as much as possible within the cost limitations, conform with the building indicated in the Erickson/Massey study. Other arrangements of the buildings would be acceptable, provided they fit into the overall massing arrangement and general belonging of the rest of the University."
48. Louis Riel House

The University stipulated that the average cost per apartment was to be less than $12,000. The cost to house a comparable number of students in Shell House had been $15,600. The 140 one-bedroom units were expected to house 280 students, and the 60 two-bedroom units 240 students for a total of 520 students in 200 units and an average of 2.6 students per unit, and multiplying 2.6 times the figure of $6,000 per unit for Shell House produces a comparable figure. The new deadline for submissions was January 23, 1967.

SFU's Manager of Physical Plant and Planning, William De Vries, was instructed to prepare "Bidding Requirements," and on December 15 he stipulated that the site was to be the one selected by Erickson/Massey and that no part of the building or buildings be "higher than five stories above the 1218' elevation." Since this is the elevation of the Mall, no building was to be taller than the Library. Each entry was to included a site plan, floor plans of every level which was different, elevations, sections and perspectives as needed to make the scheme clear, and a "rough model" with the scale of 1"=50'. The contractor who won would receive a $40,000 award even though only $25,000 in commissions had been awarded for the design of the entire campus. [William De Vries to contractors and architects, Jan. 23, 1968. Shrum Papers.]

Despite the production of another exemplary planning document, while the entries were being prepared, the Board voted
on December 18, 1967 not to renew Erickson/Massey's contract as University Planners. On January 3, 1968, in his last year as President, McTaggart-Cowan wrote Erickson and Massey that the Board decided to broaden the basis of architectural advice we will receive for the year ahead, and to accomplish this we decided that instead of renewing your contract with us as architectural advisors we will set up a committee comprising one member from each of the five firms of architects--including yourselves--who were the winners of the original design competition. This committee will advise the Board of Governors with respect to matters pertaining to the future development of the University.

He wrote the other firms, "I think this new arrangement will have the advantage of not only retaining the services of Erickson & Massey but will enable the University to go on your combined judgements on critical matters of development. I realized that at the moment there is no money for further development...."

On December 21-22, 1967 about 7 inches of snow fell and blocked all drains on the campus. This was followed by 2 inches of rain which could not run off, and "leaks occurred in the Women's Residence, President's Residence, Gymnasium, Central Mall, and to a lesser extent in the Science Complex and Academic Quadrangle." [William De Vries to BSC, Jan. 16, 1968.]

On January 16, 1968 Shrum wrote DeVries admonishing him that
the identity of the contractors and their architects be kept an absolute secret. With the bids were opened on February 26, the Buildings and Site Committee recorded in its minutes only "that Stanzl Construction be instructed to proceed with working drawings for the proposed building."

Erickson/Massey’s new prize-winning design was for a single structure of 161,770 square feet. It ranges in height from three to seven stories (seven stories being the height of the Library and like the library it was to be built partly below the level of the Mall; figs. 48A-B). The final total was 148 one-bedroom apartments with 660 square feet each and 62 two-bedroom apartments with 1,030 square feet (figs. 48C-48D2 and 48E). Altogether the low bid for 210 units had been $2,664,989, but subtracting parking, it was $2,350,000. This worked out to $14.53 per square foot and so well below Shrum’s $16 maximum. The price also worked out to only $4,320 per student compared to the $6,000 per student for Shell House and $7,700 for Hogarth House.

The structural elements of Louis Riel House was reinforced concrete, including floor slabs and party walls. For sound proofing, insulation, and economy, concrete blocks were used on to line the corridors. The exterior walls are glazed from floor to ceiling with sliding doors, and the opening has a cedar grill. The floors of each unit have vinyl tile, and the corridors were carpeted also for sound proofing.

The mortgage application required the SFU to "explain why
existing students' housing facilities are inadequate." SFU responded that it had housing for only 4 percent of its present student body while the Canadian average for student housing was 25 percent. [An Order-in-Council approved a $2.4 million loan on April 3, 1968 at 6 7/8% for 50 years. The final contract price had been adjusted down to $2,035,000 with an additional $128,000 to extend services for a total of $2,163,000. The extra amount of the mortgage was spent to add carpeting, paving, and some other improvements (BSC Minutes, Sept. 13, 1966).]

Construction began in April 1968. Students started calling it Louis Riel House, and the University eventually accepted the name. [Soon after construction began, the Student Executive Council of the Student Society passed a motion demanding "that this university be re-named the Louis Riel University to honour the single man who by his actions to gain justice and freedom for Canadians of Indian ancestry..." did something they were proud of. He was contrasted with Indian traders in general and not excluding Simon Fraser. Shrum Papers.]

By September 12, 1968, a year before the building was scheduled to open, construction was still proceeding rapidly with 55 percent of the concrete poured, 40 percent of the rough carpentry completed, and 80 percent of the architectural and engineering drawings. The first portion was completed on time for students to move into in late August 1969.

By the summer of 1971 Louis Riel House (fig. 48F) was entirely leased and was so successful that even its minimal rents
produced a profit of $34,000. Since the smaller dormitories were not breaking even, the profit was applied to their mortgages. There was enthusiasm for more bid housing units, and on July 12 S. T. Stratton, the Director of University Services, established that there was an added need "to build at least 150 units at once." [Stratton to S. J. Brandy, July 12, 1971 (CAA). On September 29, J. C. Donaldson, Planning Engineer, authorized Erickson/Massey to prepare a "Family Housing Study" at a cost of $3,000, and on November 4, DeVries agreed to pay an additional $1,100 to fund the study.

Since the need was well established and the existing apartments had proven to be the best way to satisfy it, Erickson/Massey proposed two new buildings across the axis of the Mall to the north of Louis Reil House and to the west of Madge Hogarth House. The new buildings were to have been similar to Louis Riel House and were to be connected to it by covered walkways.

By 1975 no further housing had been built, and there was a waiting list of 1,500 students. [Sun, Apr. 12, 1975.] In 1981 Erickson proposed a third "master plan for student housing..., a mixed housing village carrying out the extended Mall but dissolving into a less formal village complex terracing down the slopes" (figs. 48G1-2). [Erickson to Waddell, Aug. 5, 1997.] Erickson said, "my whole aim was that it should be as much of a mixed community as possible" including open market housing. "I think the only thing that is missing which we put into our

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original scheme... was the village--that it [the University] should be a living community and not a commuting community."

[Interview, May 7, 1996.] In addition to proposing alternatives for housing, "there were also two updates of the Master Plan by Alan Bell from my office, one in the 70's and the last in 1990 for a 25,000 student enrollment." [Erickson to Waddell, Aug. 5, 1997.] None of these proposals resulted in any construction.

In 1982 Rick Johnson, Physical Plant Planner, announced that SFU still had "the lowest population of students based on campus of any university in Canada...." He stated that the University planned to have residences for as many as 8,000 students and faculty within the next decade. [Province, Mar. 11, 1982.] No additional housing was added until 1985. When SFU opened a Vancouver campus, the demand for housing on Burnaby lessened, but the isolation of the campus continues, and only a comprehensive plan offering many advantages could be competitive.

Even in 1997 only about 1,200 students were able to live on campus. Roger Ward, Vice President for Finance and Administration, said in 1997 that SFU was breaking even on the cost of student housing, but that the maintenance costs of some buildings had to be carried by others. [Interview, Jun. 27, 1997.]

The only subsequent additions to housing have been McTaggart-Cowan Student Residence, designed in 1985 (for 200 students); Hamilton House, designed in 1991; and the Townhouse Complex, designed in 1992. The present five-year development
plan for the campus includes very substantial additions for classrooms, the Library, and recreation, but no additional housing.

Having been led continually to expect more housing, students began to express their impatience that nothing was being done. The Conditions of Competition had called for housing for 2,400 students out of 18,000, but this had been a very low estimate of what the demand would be. Since first enrollment in 1965 had indicated that half the students needed housing, there was an immediate potential to attract 1,200 students to live on campus if comparable advantages had been provided at a reduced cost. By 1975 with 500 students living on campus and about 1,500 signed up for the available space, there was a well documented need for 2,000 student out of about 10,000. [Sun, Apr. 12, 1975.]

Afterwards, the demand began to decline, and the principal reason was that instead of trying to break even on housing, the University started trying to maximize the profit on housing to cover other expenses. It adopted a policy of charging the same rates as for equivalent accommodations in Burnaby regardless of what the housing was actually costing the University. Actually, the cost is a great deal less because there were no acquisition costs for land, a low interest rate, a 50 year mortgage, and no taxes to pay. The Board saw no reason why students should not pay the same amount they would have to anyway. Students did not see that the University was offering the same range of advantages as living off campus. [Sun, Aug. 4, 1983; Jul. 30, 1984; May 24, 1989.]
When the University celebrated its 25th anniversary, President William Saywell wrote "unfortunately we have been less successful on the residential front.... I remain convinced that a large residential community of students and faculty and others associated with the University, will change Simon Fraser University from a predominantly commuter campus into a significantly different university. Bringing this project to completion is probably the single greatest challenge that will be presented in the upcoming years." ["The Early Years" 25th anniversary publication in SFU Archives vertical files, p. 10.]

48. Shared Fates

Shrum, McTaggart-Cowan, and Erickson/Massey all lost their positions during 1968. The students and faculty got rid of Shrum and McTaggart-Cowan, but not before they had gotten rid of Erickson/Massey first as architects and finally as planners. The purpose of this section is to show why the architects as well as the students and faculty had further good reasons to protest. It provides the best documentation for the abuses of authority at SFU and an independent appraisal of who was responsible for them.

Since 1963 both Shrum and McTaggart-Cowan had continually made statements about how innovative and experimental they hoped SFU would be, but both had wanted to be the sole innovators. Many examples have been given, and two more will suffice: In 1964 McTaggart-Cowan wrote that he believed SFU would be "one of the most lively Universities that Canada has even known, with a
reputation for free thinking, willingness to try any good new idea and with an uncompromising goal of academic excellence."
[McTaggart Cowan to George C. Whalley, Jun. 29, 1964.] Shrum had "wanted SFU to be a place where new ideas would flourish and creative people would flock in." [Autobiography, 110.]

At universities worldwide during the 1960s the most basic question was how much authority boards and administrators could continue to exercise over faculty and students. SFU’s faculty was largely young because that is who applied most frequently and that is who was willing to work for the least. They also were best informed about the most recent advances in most fields. With disconcerting frequency, however, they did not understand the need for so much concentration of authority.

To a considerable extent, Shrum and McTaggart-Cowan were sympathetic to the unwillingness of faculty and students to put up with arbitrary and poorly informed decisions. Shrum wanted decisions to be made at the highest and lowest level with no one interfering in between. He tried to eliminate all vice-presidents and deans so that the decisions they made in many universities could be made by heads of departments and in some cases even by the entire faculty. McTaggart-Cowan stated in 1966 that he had "a high regard for the new university student: He is acutely aware of problems. He knows that universities have problems. He has ideas and he wants to be consulted. It’s not that he wants to run the world.... It’s a fine thing, I think."
[Maclean’s (Jun. 4, 1966), 41.]
The Shell Station controversy showed how far Shrum, McTaggart-Cowan, and the Board were willing to go to listen. So long as they thought they did not have to listen, they did not. They continued to hold secret meetings and to keep their reason for doing anything a secret to preclude discussion by uninformed faculty and students. By making a few concessions--expensive though they were--they got away with the arbitrary decision to put an incompatible building in a conspicuous location.

In March 1967 a 12th grade student at Templeton High School in Burnaby was suspended for writing, circulating, and refusing to retract a parody of some poetry which had been selected by a teacher and published in the school's magazine. When the suspension was reported in the Vancouver Sun, five SFU graduate students who were teaching assistants felt were outraged. They wrote the high school demanding that the student be readmitted, and they picketed with placards demanding freedom of speech. The principal stated to newsmen that the student was "one of the finest boys we have," but the teacher had demanded expulsion for "insubordination." [The student was Peter Haines (editorial in the Province, Mar. 21, 1967; Peak (Mar. 17, 1967), 2.]

The picketing by the teaching assistants had the desired result of getting publicity, particularly when the School called in the police and three teaching assistants were arrested for "disturbing the peace by shouting." Martin Looney, Thom Tyre, and Pat Javorsky were arrested, and Miss Javorsky was also charged with "assaulting a police officer...." SFU students
contributed to get Miss Javorsky out of jail, and forty students held a silent vigil at the high school.

The SFU Board held a special meeting on March 16 and voted to dismiss the five teaching assistants without a hearing. The Board issued a news release condemning the teaching assistants: "Their conduct was a negation of the democratic process and further in the letter they recommended contempt for the law and these actions reflect discredit on the University." [Shrum Papers, "News Release," Mar. 16, 1967.]

The Faculty Association passed a resolution that while its members did "not necessarily agree with the activities of the five graduate students, we do not believe their actions constitute academic incompetence and we therefore deplore the recent actions of the board." [Sun, Mar. 8, 1967.]

T. B. Bottomore resigned as the Dean of Arts in protest. He did not resign as Head of the Department of Political Science, Sociology, and Anthropology. He had brought some of the protesting graduate students including Loney and Huxley with him from the London School of Economics. [Doris (Mrs. Duncan) McNab interview, Jun. 28, 1997. Mrs. McNab was one of the first students in the PSA Department.] Shrum had hired him knowing he was controversial, but a respected scholar. Shrum let McTaggart-Cowan hire most of the faculty, but he said, "I warned him at the time that he could be getting into difficulty by appointing people who had been involved in disturbances at other universities, such as the University of California at Berkeley.

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But his reaction was that he could handle them." [Autobiography, 114.] Another professor to the opportunity to state, "I refuse to sit on committees when the views expressed by the committees are thwarted by the Board of Governors." Another said, "the Board has done more irreparable damage to the image of the University than these graduate students could possibly have done." Another said, "I submit the Board has acted in contempt of the democratic process." Other faculty members were both strongly opposed and strongly in favor of the Board's decision. The student reaction was even more outspoken and ranged from the observation that the Board was more concerned "about our image than the rights" of others to calls for the Board's resignation.

Shrum later wrote that "the T. A. incident was a mistake.... those people shouldn't have been fired by the board. . . ." He had opposed firing them and had been outvoted. He called this "...the first major crisis. From them on, there seemed to be an uninterrupted succession of student and faculty protests over a variety of issues. It was a period when students at universities across Canada were demanding the right to participate in the university governing bodies." He realized that the "cause of the whole difficult"—that is, the greater difficulty at SFU than at most other universities—had been that expectations had been raised so high. "...we wanted to experiment courageously, and I thing this attracted a great number of students and staff members who liked this idea. They, everyone was brought together who wanted to do things differently. But there is always resistance
to change." [The Bridge (Apr. 1969), 1 (no. 4): 1-2. Mrs. McNab said that "...the wilder ones turned up at SFU. I think that's because they kept saying it was going to be a new type of university" (interview, Jun. 28, 1997).]

The faculty passed unanimous resolution requesting the Board to restore the jobs of the teaching assistants. Students circulated a petition which quickly had 800 signatures. The Board realized it had to give the graduate students their jobs back, but had some difficulty deciding who to blame.

The Board had another special meeting on March 20, and for the record, its minutes stated that "the Board had acted quickly when faced with what appeared to be a clear-cut case of the Teaching Assistants carrying trouble among the secondary school students." This meeting lasted 10 hours, and as it began 2,000 students gathered in the Mall to listen to speakers from the lectern which had been designed and contributed by Erickson. [MacLeans 80 (Aug. 1967), 20. Erickson is shown presenting the lectern in the first SFU Annual. The lectern was later stolen or stored (Erickson interview).] The graduate students were represented by a prominent lawyer, and they were finally given the chance to defend themselves. At the end of what was by far the longest meeting in the Board's history, the Board announced that "a severe reprimand has been substituted for firing in each case." [Sun, Mar. 21, 1967].

The following day the Vancouver Sun ran captioned a "weary" McTaggart-Cowan and a "glum" Shrum were published along with the
five teaching assistants in coat in tie: Geof Mercer, Chris Huxley, Phil Stanworth, John Edmond, and Martin Looney. A month later, the Province reported that Looney and Tyre were fined $350, and the judge presiding gave them what the newspaper described as a "tongue-lashing." He stated, "there is ample evidence of Loney and Tyre shouting and waving their arms, and I find there was a disturbance. It was unfortunate that in this type of incidence, irreparable damage is caused to the image of universities." At this point there was laughter from the public gallery, which consisted largely of youths." [Province, Apr. 19, 1967. Shrum later said that Looney was the "main leader in all this.... I rather liked Martin Loney, and we got along well.... Once he told me, 'You know, when I'm finished with this revolution here, I'll have enough material for my Ph. D., because I've already been involved in two in England.'" Autobiography, 115.]

In addition to treating its architects like students and its student like children, the Board and Administration treated its faculty no better. On October 18, 1967 the Faculty Association passed a resolution requesting the Canadian Association of University Teachers (CAUT) "investigate the breakdown in communications between the Faculty Association and President." CAUT represented over 10,000 university teachers--70 percent of all Canadian teachers eligible to join. On November 25, the Executive and Finance Committee of the Association appointed a three-member visiting committee consisting of the Executive
Secretary of CAUT, a dean, and a law professor. This committee visited SFU from January 14-20, and in a 23-page, single-spaced report issued on February 9, 1968 concluded "our general impression from our many interviews is that the concern of the Faculty Association is justified." The committee did not limit itself to criticizing the President.

The committee noted that as of December 22, 1967 the 315 faculty members consisted of only 33 professors and 44 associate professors. Three-fourths of the faculty--160 assistant professors and 74 instructors--were generally younger and less experienced and less satisfied particularly with the intentional vagueness of the University's promotion policy. Overall, only one-fourth of the faculty came from Canada, and the other three-fourths from the United Kingdom and the United States. The faculty was highly disunified even in terms of its composition, but its principal concerns had a real basis.

Over 30 faculty member were interviewed, and McTaggart-Cowan was twice given the opportunity to respond to specific criticisms. The Board declined to be interviewed. In its report the committee,

concluded that there is a serious failure of communications at Simon Fraser University in the sense that there is strong dissatisfaction with the response of the President to communications, especially communications from various committees, received and understood by him. We think that this dissatisfaction
has its origin in the concept of administration at Simon Fraser, which, in a general way, is adversely affected throughout by absentee management [Shrum was named] and an undemocratic distribution of power along uncertain lines. We cannot stress strongly enough that a university is a largely self-governing community of scholars. While for many purposes it is essential to have individual academic administrators rather than committees, it is preferable that the administrators be responsible to the Faculty members, whether as a committee, a Department, or a Faculty, rather than in some vague way to the Board of Governors, independently of the Faculty members.

Specific recommendations included that the Board’s role be supervisory and that it not interfere in administrative decisions unless there was reason to suspect the "integrity or capacity to apply fair procedures"; that at least three members of the Board be faculty members elected by the faculty; that administrators have "short terms of office"; that the faculty be delegated real authority; that standard CAUT guidelines for tenure be adopted; and that a "modest role" be assigned to the Board of Governors. Overall, the committee thought that "the essential solution is the delegation of authority in clear fashion to various democratically established committees within the University community." [J. B. Milner, Chairman; Alwyn Berland; and J. Percy Smith, "Report of Simon Fraser University by the Special
Investigating Committee of the Canadian Association of University Teachers, 9 February 1968." Shrum Papers."

Shrum was enraged particularly at being referred to by name as absentee management, but also at having no input into the report. He assumed the visiting committee would confine itself to considering the role of the president and so had refused in advance to be interviewed. While the committee was at SFU, its members had again requested interviews with board members, and were rebuffed. [ibid., p. 9.] When Shrum found himself attacked, he counterattacked. He accepted an invitation from students who wanted to question him, and about 1,000 students filled the theatre beyond its intended capacity. He said "I got badly beaten up by the CAUT report and I think they should have been censured for it...." He complained bitterly that they "didn’t have the respect to come and question me to see if their criticisms were justified." He tried to divert attention from the specific criticisms with broad statements such as "we’ve made mistakes but at all times we’ve tried to act in the best interests of the students, the faculty and the university...," and he pointed out that as Chancellor for six years he had not received a dollar even for expenses. This was all unquestionably true and commendable, but it did not, as the thought it should, justify ignoring the legitimate concerns of the students and faculty.

Shrum told the students he was also incensed over an article which had appeared in the Sun on March 9. The article was by
Arthur Weeks, former President of Student Council, and it was entitled "What's Gone Wrong at Simon Fraser?" To illustrate what had gone wrong, it included four professionally drawn cartoons, two of which are of Shrum. One cartoon with the caption "a chancellor who won't let go" shows Shrum strangling a student with apron strings, and the other captioned "a board subservient to the chancellor" shows Shrum with four board members bowing at his feet and shouting yes. The second cartoon upset Shrum the most, and he said the assertion that Board members was subservient was "a scurrilous, libellous statement to make."

Actually, Weeks had written that the Board would probably do as well as any in Canada if it were "freed from the direction of the provincial government and the indicated inadequacies of the current chancellor...." He praised Shrum as "perhaps the only many in British Columbia with the dynamism and the singlemindedness of purpose to have built the university in 23 months....," but pointed out that "Dr. Shrum continues to be the most powerful man in the university" long after he should have turned authority over to others. Weeks praised McTaggart-Cowan for putting students on standing committees, and he condemned students who disrupted discussion. He advised students to continue to oppose the extremes of "either dictatorial or anarchistic methods" [Sun, Mar. 9, 1968.] Except for the clever cartoons, which Weeks did not draw, the article was evenhandedly distributed praise and blame on all sides, but Shrum condemned it roundly. [Shrum saved the clipping, and he save another one with
the same date, March 9, from the Financial Post. The Post quoted Clark Kerr, former President of the University of California, that "the job of a university president is to provide football for the alumni, parking for the faculty and sex for the students."

On March 20 Shrum wrote an angry letter to Howard McCurdy, President of CAUT, about the "misleading and defamatory statements in the Report.... These distortions, I am told, might even be construed as libellous." He also called them "false and malicious." In response to the charge of absentee management, he gave a long list of his qualifications to do so. McCurdy wrote back on April 1 that he did not know of anything in the report which was not well documented.

Not only students, but faculty members took their grievances to the public. The April 20 issue of the Province contained nearly a full-page article by Professor Allan Cunningham, the Head of the History Department and the first Dean of Arts. He wrote it was probably correct that only one-fifth of all SFU students were protesting, "but the same fifth also contains many of our best and most respectable students." Coming from Oxford, he added that "many of the faculty had been attracted to SFU" because they "had had enough of antiquated curricula, neglected students, the interference of politicians with the legitimate autonomy any good university must have, the obstructive practices of governors and trustees, and overmighty heads of departments." Both Weeks and Cunningham were mistaken that there was
"interference of politicians" except for the interference essential to get the University started, but Shrum was still considered a political appointee by most students and faculty. Cunningham praised Shrum and the Board for being willing to assume a greater share of responsibility than they should have had to bear when there was no one else to do what had to be done, but he condemned them for now not sharing the responsibility with persons better qualified to deal with it. He particularly criticized McTaggart-Cowan as a person who had been widely liked for identifying himself with the Board rather than the faculty and for taking "the managerial view of the university, a view more concerned with the cheapness than the quality of its human product."

Cunningham sided with students who were protesting everywhere, and he concluded that "the intelligent young have no obligation to listen to older people who have run their own affairs so incompetently and left such a terrifying mess." The message slowly sunk in and a year later Shrum himself said "adults must soberly regard student unrest for what it is--a rejection of our society and its standards." [Province, Jun. 7, 1969.] However, it was by no means limited to students.

There was almost unanimity among the students and faculty of SFU that no one should be able to dismiss others who disagreed with them, that no one should be able to disfigure a campus which belonged to the public but was treated as a private preserve, and no one should have so much unrestrained power. There was
appreciation for the past accomplishments of Shrum and McTaggart-Cowan and very little animosity towards them or the members of the Board, but the system had to be changed.

There was no change. On May 16 and 17 another CAUT committee visited SFU to see if there had been any of the situation had improved significantly. President McCurdy himself came with two members of the Committee on Academic Freedom and Tenure, and they interviewed Shrum and four members of the Board as well as McTaggart-Cowan and others. On May 27, McCurdy wrote Shrum that on the previous day the CAUT Council had "passed a vote of censure on Simon Fraser University.... I regret our necessity of carrying out this unprecedented action. It is the earnest hope of the Association that adequate measures will be taken in the immediate future which will lead to the lifting of the censure." The second visiting committee reported that it had come to the "firm conclusion that not only had the problems of the University not been dealt with, but that there was little prospect of their being dealt with effectively in the near future, and that in some respects the situation had worsened since February." The CAUT Council censured the Board "for its continued contravention of accepted principles of university governance through interference in the academic affairs of the university; the President of the University for his continued failure to carry on appropriate administration of the University; and both the Board of Governors and the President for their failure to take adequate steps to deal with the situation..."
described in the report of the investigating committee." The Council passed the motion for censure by a vote of 43 to 1. [There were five abstentions. Sun, May 30, 1968.]

McTaggart-Cowan responded with a news release on May 9 stating that all these matters were under consideration and that he hoped the CAUT action would "not jeopardize negotiations" with the faculty. He asserted that "it is unfortunate that C. A. U. T. wished to try to impose a fine scale on these deliberations that would not be possible at any other university." He added that even though the censure was unprecedented in Canada, other teaching organizations in other countries had censured "universities of international distinction."

The President of the Faculty Association, Kenji Okuda, responded by saying that "dealing with McTaggart-Cowan is tilting at a windmill...." The Sun noted that the censure "in effect calls on professors to boycott the Burnaby Mountain campus.... The SFU Faculty Association warned Wednesday night that censure will spark faculty resignations, trouble in recruiting teachers and deterioration of academic standards." McTaggart-Cowan countered that "he expects no resignations or hiring difficulties and insisted the university's status will not suffer." [Sun, May 30, 1968.]

McTaggart-Cowan met with the faculty for three hours and so angered them that the faculty members voted 125 to 61 to demand his immediate resignation. He said, "I wasn't going to resign under faculty pressure, and I said it loud and clear. I said the
Board of Governors would have to ask for it." [Globe and Mail, June 4, 1968. The Province stated that 190 of the 350 members of the faculty had attended the three hour meeting and had voted 125 to 65 (May 31, 1968).]

Shrum said that McTaggart-Cowan "practically told the faculty that they could not fire him because I would not permit it.... even if I could have prevented it.... he made it impossible for me to do so." When he opposed firing McTaggart-Cowan's, he said "I could not persuade a single member of the board to support me, so I went along with the majority decision. The board of governors decided to ask for McTaggart-Cowan's resignation...." [Autobiography, 118-119.] He said "it was brought about by, most particularly, the Faculty voting lack of confidence in the President.... part of the trouble was no doubt due to the Board, but it sort of focused on the President."

[Bridge (Apr. 1969), v. 1, n. 4: 1.]

On May 31, a headline in the Sun read, "SFU President Relieved of Job: Ordered to Take Indefinite Leave." McTaggart-Cowan later said, "I was told to get lost." [Sun, Oct. 17, 1997. Herbert L. McDonald provided this clipping.]

Shrum had announced only that McTaggart-Cowan "had been put on extended leave," but that "an interim president would be appointed at once...." When the Board appointed an interim president without consulting the faculty, the faculty was just as furious as before. [Globe and Mail, Jun. 1, 1968.] Eventually, Shrum admitted that McTaggart-Cowan had been a
mistake and his own mistake. He said it turned out he wasn't the right man--no doubt about it. He was a good man but he hadn't any experience.
Now that was foolish of me. He had experience with the meteorological people. Of course he had no problem with discipline there because if a fellow didn't toe the line he'd send them someplace in the north for 5 years.


In an official statement on June 6, the Board agreed to begin to take action on the recommendations of the CAUT report. Nonetheless, it asserted that "the board of governors believes that the censure motion of the CAUT has been used by some irresponsible elements of the university to create this present unfortunate situation. It has been used to foster an attack against authority, against an organized system and against the community at large." [Shrum Papers.]

In the two months following McTaggart-Cowan's firing, SFU had three acting presidents. One resigned after only three days. The Board planned to relinquish no real authority, and no one wanted the job. On June 4, the student body voted 1,361 to 289 for the entire Board to resign. [Province, Jun. 4, 1968.]
Finally, the Board realized it was incapable of handling the situation, and it asked the Faculty to recommend an acting president. By a vote of 157 to 3, the faculty nominated Kenneth
Strand, an economics professor. [Sun, Aug. 1, 1968.]

Shrum’s turn came next. On June 12, the President of the Faculty Association, Okuda, wrote Shrum that "at the last meeting of Joint Faculty on June 5, 1968, notice was given of a motion, the intent of which is to demand your resignation as Chairman of the Board of Governors and to ask you to absent yourself from meetings of the Board until the expiration of your term as Chancellor.... In our meetings with the Board of Governors and its Committees, we have found it extremely difficult to discuss problems freely when you have been present... It is quite clear that you have, on a number of occasions, undercut and weakened the effectiveness of President P. D. McTaggart-Cowan." [Shrum Papers.] Shrum soon resigned as Chairman and quietly served his final year as Chancellor until it ended on May 31, 1969. ["Shrum Steps Down," Bridge (Alumni Association of SFU) v. 1, n. 4 (Apr. 1969), 2.]

On October 27-30 a third visiting committee from CAUT found that "with one or two exceptions, there was general agreement that the effect of the censure had been to bring about improvement in the administration of the University.... The Board had taken actions on nearly all of the six points it promised to when it made its public statement in June." On November 16, the CAUT Council unanimously and unconditionally lifted the censure.

In 1969 the Board made Strand the second President of SFU, and he managed to survive by being a great deal more ruthless
than Shrum or McTaggart-Cowan. Instead of suspending students, he had students arrested. Instead of provisional contract renewals, he had faculty members fired. [Sun, Oct. 17, 1975.] CAUT reimposed its boycott of SFU for six years, but with the unwavering support of the Board, Strand kept control while reforms were gradually implemented. The administration building was later named in Stand's honor. It had been previously called the Student Services Building because "students don't like administration." [Harrison said that the administration told him not to put "administration" on his drawings for the building for this reason (interview).]

In some cases the reforms were unintentional. SFU intentionally became the first Canadian university to have student representatives in its Academic Senate, but in 1973 the Senate elected two students to represent it on the Board. [Strand, "Report," 14.]

In 1983, when 87 and two years before his death, Shrum said, "...what makes me most proud is that Simon Fraser continues to be more progressive and experimental than most other universities. New ideas get a better hearing at Simon Fraser than at other universities." [Autobiography, 122.]
F. FURTHER DEVELOPMENTS

49. MORE ACCLAIM

Shrum later acknowledged that SFU certainly established his [Erickson's] reputation as an architect. When it was completed, architects and university people came from all over the world to see Simon Fraser. Architectural magazines published articles and photographs about it. The design won a number of prestigious awards." [Autobiography, 104.]

By any standard it was an unqualified critical and popular success. Erickson/Massey continued to receive major commissions, and Erickson later achieved international acclaim on further work. Despite the success of the buildings and of the architects, the University did not give Erickson/Massey, Erickson, or Massey a chance to design another building for decades.

From 1971-1990, the Science Complex and Classroom Complex generally expanded along the lines of Erickson/Massey's plans, but to the designs of other architects. The few additions of housing wholly departed from Erickson/Massey's Master Plan and design principles. The acclaim SFU continued to receive was
based almost wholly on what had been accomplished prior to 1971.

On July 18, 1966 the Board learned that the Prestressed Concrete Institute's 1966 award was to Erickson/Massey for the "Central Mall and Transportation Center." The Board congratulated the firm and "agreed that the award should be mentioned in press releases. On December 14, 1966 "the Board was pleased to learn that the architects of the University, and the University itself, had received awards from the B. C. Architectural Institute for the architectural design of the University." On May 6, 1967 each of the five firms won Massey Medals out of the 26 awarded by the Royal Institute of Canada for the entire country for the previous three years. Erickson/Massey also won Massey Medals for the second Smith House and the Canadian Pavilion at the 1965 International Trade Fair in Tokyo, and no other firm in Canada won as many as three medals. [Journal of Commerce Weekly, May 6, 1967. Globe & Mail, May 8, 1967. Province, May 11, 1967.]

Education journals also took an interest in what architecture could contribute to the quality of education. The January 1967 issue of SPL Reports (School Planning Laboratory Reports) was entirely devoted to SFU. This journal was published by the School of Education at Stanford University, and the eight page report was widely seen by educators throughout North America. The author wrote, "if it seems miracle enough that this could have been accomplished at all, consider that it was accomplished with architectural brilliance and that the school functions according to the highest standards of academic
excellence." It added that "the emphasis on all instruction at the university... is upon showing students how to learn rather than upon simply transmitting information." [SPL Reports, v. 2, n. 1 (Jan. 1967), 1, 8.]

In 1968 L'Architecture d'Aujourd'hui published a six page article with 19 illustrations including photographs, plans, and sections. It reproduced the competition plan and perspective, two views of the model showing the revised design for housing, five views of the mall, six views of the Quad, two aerial views, and the exteriors and interiors of other buildings. The article stated, "le plan et l'architecture de l'Université Simon Fraser découlent davantage d'une étude approfondie du problème de l'enseignement, des rapports humains à l'université et de son rôle dans la culture en général, que d'une recherche esthétique particulière." The design concepts were discussed in detail. ["Simon Fraser," L'Architecture d'Aujourd'hui 39 (1968): 85.]

The British journal Architectural Review published a 14 page article in its April 1978 issue with 20 illustrations of SFU and an appreciation by Abraham Rogatnick. Again, the competition plan and perspective were reproduced along with the model showing the new design for the west end of the campus, and the Mall was well represented (by six photographs). Both the articles in L'Architecture d'Aujourd'hui and the Architectural Review treated the Mall as the most distinctive and architecturally significant feature of the entire design.

Rogatnick wrote that "the music of Beethoven should
accompany one on the climbing motor road to Simon Fraser University...." He described the assent and the climactic architectural sequence in detail, and he discussed the sources of the design and made comparison with other major buildings which achieved similar effects. He noted that "a sense of high euphoria pervades the air among the students and the faculty.... One can even imagine a quiet pride, an inner wish, to strive--at least a little--for a perfection, to deserve one's presence in this carefully created place." [Rogatnick, "Criticism," 264.]

Probably the most impressive single aspect of the Erickson-Massey design, which won the admiration of the competition judges was its elegant expansion scheme, which proposed construction of a robust spine of core functions along the ridge from which the other buildings, predicted and unpredicted, could spread freely out and down the mountainside. It was the accomplishment of this idea which established the undisputed quality of the winning scheme, and reaffirmed the deftness with which the architects had grasped the functional-aesthetic meaning of the site.

SFU has been the subject of films and the setting of films: "...there are a number of CBC and National Film Board Documentaries which feature the University. There have also been a few Hollywood films made there—the first and most comprehensive was 'The Ground Star Conspiracy' featuring George Peppard and Michael Sarrazin." [Erickson to Waddell, Aug. 5, 1997.]

The architect Philip Johnson characterized the 1960s as the period in which the building typology architects were most interested in was universities, and he said "Simon Fraser was the best." He also said that Erickson was easily Canada’s best architect and probably the best in North America. [Iglauer, Seven Stones, 12.]

51. ADDITIONS

Most additions to SFU between 1972 and 1997 have followed Erickson/Massey’s competition design and design principles in large part, and nearly all have observed at least some principles. Most have been parallel to and connected to the Mall directly or indirectly by covered passages. Most have been sited in proposed locations. Most have been built on terraces, and many have been built in concrete. There is still an overall coherence, but the design is incomplete, and a few buildings are intrusive.

The Science Complex and Classroom Complex have largely followed intended siting, interconnections, and materials.
Strand Hall (the Student Services Building) and McTaggart-Cowan House have most nearly followed the proposed siting and design principles. On the whole, the original building have been carefully maintained, and the University of 1965 has changed mainly on its periphery, largely as anticipated.

In May 1969, a year after McTaggart-Cowan’s departure and as Shrum’s term as Chancellor was expiring, Erickson/Massey hoped to persuade the Board to allow them to finally extend the Mall westward to the area of the residences. Louis Reil House was under construction and was soon to prove its profitability as well as its architectural excellence. Their revised plan for housing was capable of being almost immediately extended and fully implemented, and mortgages would provide the funding. The extension of the Mall would also provide additional covered parking to pay for itself.

The Board did not feel that Erickson/Massey alone was qualified. Permission to extend the mall would be granted if Erickson/Massey undertook the work jointly with Rhone & Iredale. Once again the Board had learned nothing. It wanted to impose the same unfair arrangement between two firms which had caused resentment for years. One firm would again have to do the designing, and the other the execution of someone else’s design.

It is true that Rhone & Iredale’s work on the Science Complex had set an outstanding record for being done within budget, on time, and with minimal deficiencies. On May 6 Massey wrote Rhone proposing a collaboration to extend the Mall with the
stipulation that "both parties will participate in all aspects of the architectural responsibilities... and all matters requiring a major architectural decision shall be discussed between the parties but with Erickson/Massey being primarily responsible for the design work and Rhone & Iredale being primarily responsible for the coordination, production & supervision of the work." Not surprisingly, Rhone & Iredale preferred to do its own designing.

On May 13 Massey wrote DeVries asking him to try to persuade the Board to agree to allow Erickson/Massey to extend the Mall, and he outlined how he felt the firm’s accomplishments should be viewed (Appendix IV). However, the failure of the Mall roof was still being studied by the Board’s consultant, and its long construction and numerous defects were considered disqualifying. Massey was unquestionably correct, though, that "...the arguments by the Board of Governors against retaining Erickson/Massey for this work were really more relevant to 1965 than they are to 1969."

Between 1965 and 1969 Erickson/Massey had established as one of Canada’s most acclaimed and successful architectural firms. Massey pointed out that recent projects involving immensely greater responsibility included the MacMillan Bloedel Building and the University of Lethbridge. DeVries wrote Massey on May 22 that the Board would not approve Erickson/Massey to undertake the project alone. [CAA.]

The extension of the Mall was a minor commission the firm did not need, but deserved and wanted in order to help ensure the
likelihood that its overall design for SFU would be executed. The firm was denied this opportunity at little cost to it, but at great cost the University.

In 1979 the New York Times architectural critic Ada Louise Huxtable wrote an article on SFU stating that "a new university can start fresh, and the Canadians have show the way.... The idea has been demonstrated with edifying brilliance at Simon Fraser." She called the Mall "one of the more magnificent socio-architectural spaces of recent years...." She was, though, appalled that such a design could have "a small slum of 'temporary' trailer" attached to it; "the disfigurement is brutal." Still worse, "the gas station went up--a cross between architectural travesty and planning blasphemy.... Still the plan and the idea are strong and they can survive these indignities." She also praised Lethridge and said that with Simon Fraser, "there are the new architectural and educational frontiers." [New York Times (Jun. 28, 1979).]

Following the Huxtable article, the Vancouver Sun published an article entitled "SFU development branded 'appalling--a slum.'" Two photographed helped to illustrate the point, and Erickson stated that "what she said is self-evident... I am distressed every time I go up to SFU, but the changes which she criticizes are not entirely the fault of the university administration. Most of them are due to the university's lack of funds and for that I blame the provincial government." [Vancouver Public Library clipping files: Simon Fraser University.]
University can be blamed for not completing a great design with needed housing which would have paid for itself.

The Provincial Government had shown unprecedented support of education in 1963 when the Universities Act was revised and three universities began to be supported rather than one. This support had continued beyond all promises of support until 1968, but afterwards only one major new building was added to SFU for nearly a decade and only two more in the decade after than, and none of the three was by Erickson/Massey. Only one of the three was by any of the five original firms of architects.

In 1968 the first building on campus was designed by an architect who had not been one of the prize winners, and it was also the first building which departed entirely from the adopted plan and which used different materials. The Education Center (location L47 on fig. 51C1; cf. 51C2) was designed by H. James White and was built of wood. [It was renovated in 1979 by Dalla Lana/Griffin and in 1990 by B. Gordon Hlynsky. Dates and architects for buildings constructed from 1968-1993 are from blueprints of working drawings in SFU Facilities Management.]

Most of the original architects continued to work at SFU for several years, but in most cases on buildings they had previously been working on. In 1968 Kiss designed his last building on the campus: a large food service court to the east side of the Quadrangle at the concourse level.

In 1969-1971 Harrison received his last building and the only major new commission by any of the original architects.
entirely new and separate commission to design the Academic Services Building (Strand hall; H44). This building was in much the same location and was of similar size and shape as the Master Plan had proposed, and it used reinforced concrete as its principal material, but it is entirely Harrison's own design (fig. 51E2). It fits well with all the earlier buildings except the wooden buildings diagonally opposite it.

In 1970 Rhone & Iredale designed a building for Facilities Management some distance from the core of the campus and well to the southeast of the Science Complex (U50). Rhone & Iredale also designed University Center No. 1 on the south side of the Mall and west side of the Theatre (fig. 51D). The initially small student body voted to have its fees used to pay 55 percent of the cost of a series of three small student centers of about 15,000 square feet each and to be constructed over a period of 20 years rather than to try to pay for the large student center with 50,000 square feet that had been proposed in the Master Plan. Other firms later expanded the Science Complex.

Erickson/Massey continued to work on Louis Reil House until it was completed, and Erickson completed the west wing of the Classroom Complex. Other firms later added to add more housing and more wings of the Classroom Complex.

The Gym was substantially enlarged by Duncan S. McNab and Associates in 1973. The Library gradually took over nearly all of its own building as the administration and facilities management moved out, and by 1973 had over a half-million books
(twice as many as planned). It was enlarged by Harrison from 1974-1976, and except for Erickson’s extension of Mall parking in 1981, that represented the end of the involvement of all nine of the original architects until 1991.

No entirely new buildings were begun from 1971-1974. In 1975, an Animal Care Unit (X42) for experimental animals was designed by Ronald Howard, and it was enlarged in 1977 and 1981. In 1975 a Daycare Center (G18) was designed by Bruno Freschi, who had worked with Erickson/Massey on SFU. The Daycare Center was enlarged 1994 by Larry McFarland Architects Ltd.

In 1976-1978 Downs/Archambault completed the Classroom Complex in two stages with a large wing called the Multi-Purpose Complex (F41). This wing is east of the original wing designed by Erickson/Massey, and like that wing, it connects to the Quad at the Concourse level. It includes spaces for various purposes ranging from classrooms to a museum.

In 1978 Robert Todd designed a wing for the east end of the Science Complex to house Kinesiology and Pestology (K Wing). The massing and siting largely followed Erickson/Massey recommendations for extending the Science Complex to the east. [The working drawings are by Todd, but SFU Archives has preliminary designs dated 1974-1975 by Henriques & Todd.]

Another period of relatively little construction followed from 1979-1984. In 1980 Kiss’s Shell House (N21) was renovated by Ronald Howard. In 1981 Downs/Archambault designed the Diamond University Club (B37), a membership dining facility north of the
Classroom Complex.

In 1985 Howard/Yano designed the first student housing begun since 1968, and it was named McTaggart-Cowan Hall (P18). It is a building similar in form and materials to Erickson/Massey's Louis Reil House, and it was built parallel on a terrace as Erickson/Massey had recommended, but afterwards, their recommendations for housing were largely abandoned.

In 1986-1987 Waisman, Dewar, Grout, Carter, Inc. added a fifth wing to the Science Complex as the Applied Sciences Building (P46). It is similarly sited to the other four wings, but has atriums in place of the courtyards.

Space for an addition still existed at the south end of the K Wing, and in 1990 Thompson, Berwick, Pratt constructed a building there between the P Wing (Physics) and the Applied Sciences Building. To the point, the Science Complex had grown by adding wings to the east and by extending the wings to the south, but Thompson, Berwick, Pratt also added in 1990 an entirely separate science building which is conspicuously different in its siting, form, and fenestration. This South Science Building (R37) would have added to the architectural excellence of most campuses, but it conceals much of the excellence which had been previously achieved at SFU.

In 1988 Dalla Lana/Griffin designed the George & Ida Halpern Center (G36), a multipurpose social facility between the Quad and the Library. Fred Dalla-Lana had also worked with Erickson/Massey on SFU.
In 1990 Howard/Yano designed the East Academic Annex (H61), a large concrete building similar in design to the earliest buildings on campus, but not within sight of them. Also in 1990, Thompson, Berwick, Pratt added the East Theatres Annex to the southwest corner of the Quad.

From 1990-1993 was the second most intensive period of construction in SFU’s history, and Erickson was the partner in charge of design for Aitken Wreglesworth Associates Architects Ltd. for the two major buildings begun in these years: the West Mall Center in 1991 (L26; fig. 51B) and the Magie Benson Student Services Building in 1993 (N33; fig. 51B). These had been preceded by Thompson, Berwick, Pratt’s 1990 additions for the sciences and theatres and by Howard/Yano’s East Academic Annex, and during this period also constructed were the another student residence and the West Parkade in 1991 and by townhouses and Busby Brideir’s Alcan Aquatic facility in 1992.

The new student residences were constructed at the west end of the campus along with the first four residences, which had all been built in concrete, but both of the new residences were constructed of wood and were designed by Matsuzaki Wright Architects Inc. Hamilton Hall (N13) is similar in form and sitting to the concrete buildings. The nine sets of townhouses which form the Townhouse Complex (P6-N10, L10-Q6) depart wholly from Erickson/Massey’s plans for housing.

Waisman, Dewar, Grout, Carter Inc. designed the West Parkade as an extension of the Mall, and it follows to massing, levels,
and material of the earlier sections of the Mall, but has parking on the upper level rather than actually extending the Mall. It extends to the residential area, beyond it is surface parking where the east courtyard was planned to be.

The West Mall Complex was designed in 1991 and completed in 1995 and is the first building since 1963 to be designed at SFU on the scale of the Quad, Library, Science Complex, Gym, and Mall Complex. Its three similar components (as in fig. 51A) fill the areas intended originally for a large student center, and its consists of a section of the Mall opposite the Gym with an adjacent block (L26) and with the Diamond Building (K25) at its west end and the Lohn Building (K28) at its east end. It houses the departments of Business Administration and Central Teaching Facilities and also contains offices and food service.

The Magie Benson Student Services Centre (N33; fig. 51B) was constructed from 1993-1996 and is opposite the Library and adjacent to the Central Mall and Theatre, and it incorporates Rhone & Iredale's University Centre No. 1. A glazed central court with a convex arrangement of glass concentrates light even to the lowest level on the most overcast day. Around the court are areas for registration, the student store, and various other university and commercial facilities. The Centre also includes a greatly enlarged bookstore and Archives (which finally freed all of the space intended for Library use) and a large cafeteria (which was intended by Erickson to be even larger, to step down, and serve as a dinner theatre and auditorium). [Interview, May 9,
Both the West Mall Complex and the Student Services Centre are built of reinforced concrete and are stepped down, but not actually terraced. The ground in both locations is relatively flat, and only the fronts of the buildings step down. Concrete is not emphasized as the primary material as in the buildings originally designed for SFU; glass set flush and without glazing bars becomes a surface as prominent or more prominent than the concrete of the West Mall Complex. Erickson regrets having given in to engineers who insisted that mechanical equipment needed to be placed on top of the Mall, blocking the view westward and dividing the campus in half. [Interview, May 9, 1996.] Instead of concrete fins, tinted glass fins and eyebrows are used on the Student Services Centre, and while the same purpose is served by more up-to-date materials, the visual coherence suffers. The concrete is more carefully finished, but lacks the rough hewn quality of the earlier surfaces, and even some color has been applied.

In 1964 Erickson said, "Simon Fraser may be rough at the edges.... But it will be vital." [Sun, Jul. 23, 1964.] In 1965, while the first phase of construction was being completed, Erickson/Massey designed a modern version of a log cabin to represent Canada at the Tokyo Trade Fair. The "massive, rough-cut lumber" was "piled up and crudely put together but vigorous, like Canada." [Erickson (1988).]
52. CONCLUSION

A. Competitions

Shrum set up two competitions, and in both cases he did not want real competitions. Both competitions could more easily have been disasters than unqualified successes. He set up the competition for SFU so he could pick and choose the individual buildings which caught his eye, and he planned to chop off any parts of them which were too expensive to construct. He was going to be the designer of SFU. The second competition was intended to get contractors to build utilitarian buildings like ones they had already built elsewhere, but a contractor selected Erickson/Massey after Shrum and the rest of the Board had rejected them. In both cases Shrum went along, but he would have made different choices if he had not boxed himself in unintentionally.

In 1969 Shrum was asked "what do you consider to be the major achievement of Simon Fraser University?" He replied, "I would say that the major achievement was the speed with which it moved from the first conception to the final opening...." He would have been even happier if another design could have been executed more quickly and more cheaply, and he intended to make his decisions based on speed and economy--practical considerations. Shrum deserved great credit for accomplishing what he was asked to do in an almost impossibly short time, but some of the real achievements such as the Mall roof were achieved
in spite of him rather than because of him. As Massey said, "it could not have been done without Shrum. With all his shortcomings, he made it possible for us to do it." [Interview, Jun. 28, 1997.]

Without Shrum there would not have been a mountain top to build on. He also deserves great credit for insisting on the combination of tutorials and large lectures; for proposing a compact, but readily expandable campus; and for requiring covered passages. Perhaps his greatest contribution was devising a competition which gave all architects an equal chance to win.

Although the competition was limited to British Columbia architects, it was more than nominally open to all of them, and it was a great accomplishment that a competition was created in which ideas and excellence were the criteria for selection rather than speed and economy. It is unlikely that many non-residents would have entered if the competition had been wholly open, and it is all but certain that the outcome would have been the same.

Shrum said he did not care who got the prizes. He wanted the judges to select architect, not designs, and he planned to tell them what to build. He set up the competition to create a better version of UBC rather than SFU. However, to his credit, he specifically encouraged ideas and when persuaded that the unanimously chosen winners gave him all he had asked for, he could hardly reject it immediately.

Everything called a competition ought to be open on as equitable as basis as possible. Any limitations on who can enter
enable a competition to be turned into a private selection process. An invited competition like the one for the three contractors was intended to eliminate architects rather than to select the best design. A limited competition is always a pretense of fairness.

A real competition as the SFU competition turned out to be despite Shrum did recognize talent regardless of experience, and it gave many young architects a chance to prove their ability. Iredale said that "it started Erickson/Massey as a firm. It was key to putting Rhone & Iredale in a category of having done major work, and it gave us the expectation that we could do really great buildings, and we went on doing many buildings which won prizes. It raised our expectations from being small provincial architects to being published in American journals and so on." [Interview, Jun. 18, 1997.] It also created Kiss's firm and gave Harrison his first chance to work on a large scale. It led to collaborations by Kiss and Harrison and the a partnership by Bain and Burroughs with Gary Hanson. Competitions are a good way to achieve excellence and to promote it, but only when they really are competitive.

Shrum wanted the competition to go on indefinitely. He put the five winning firms on as equal a footing as possible in order to make them continue to compete with one another, and they did and were judged accordingly, as he had intended, but largely on the basis of speed and cost. The commissions for new construction during Phases II and III were a closed competition among the five
firms, and the selection process was again based primarily on factors other than design. Consideration was given to deficiencies which were construction rather than design issues, to the ability to please the Board, and to problems generally rather than to excellence, which a design competition is intended to determine.

B. Visual Knowledge

Erickson said Shrum made the clearest decisions of anyone he had ever known. Shrum was intelligent and well educated, and his visual illiteracy must be blamed on the education he received.

Although a scientist, Shrum was probably better informed about architecture even in 1963 than most persons educated in the humanities. Architecture had been considered largely unnecessary in education for everyone, and general knowledge about architecture consisted mainly of slogans. Good design was considered synonymous with cheap design, and Shrum and most people—including most architects—believed it.

The real problem was that architecture was being evaluated primarily in non-visual terms. Considerations like cost are not secondary, but SFU cost one-third less than comparable construction, and the Shrum and most of the rest of the Board was convinced that if aesthetics could be cut out entirely the cost could be gotten lower still. In 1964, while working drawing were
being prepared, Erickson said,

they will try to get the cheapest thing possible
without respecting basically, that you have knowledge
at their disposal, that you are a professional. Most of
the arts, including architecture, are thought of as
decoration.... It is not thought of as absolutely
fundamental.... If you have a shoddy place, it is
treated shabbily, and if you have a good-looking place,
it is treated well. This has been proven time and time
again. ["notes from an Interview with Arthur C.
Erickson, architect, Jan 16," 1964. Typescript bound
with Speeches of Arthur Erickson. UBC Art Library.]

Erickson/Massey proved it yet again with Louis Riel House--that
good design did not have to cost more than mediocre design, but
if it had been allowed to cost only a little more, the difference
would have been far greater than the cost. Shrum could not see
the difference because he was convinced that there were more
important considerations.

Shrum's education must have been almost entirely verbal with
little if any visual component, as is true of education
generally. Putting a few pictures in front of students and
distracting them from looking by forcing them to make notes on
what they will be held responsible for does not improve the
situation. They are not held responsible for design, only for
information. Tests are of verbal knowledge almost exclusively.
No credit is given for what is seen and understood. Even in art
education, the emphasis is on biography and history and not on design and construction. Most art and architectural historians know very little about how excellence is achieved, and they do not attempt to educate students visually.

Shrum is not entirely to be blamed for believing what most educated people were taught by people they trusted. Erickson completed an architectural education without gaining any appreciation whatever for the architecture of other cultures or of earlier periods, and if he had not travelled extensively and consciously determined what was different about outstanding buildings, he would have continued to believe the same slogans.

Erickson said, "the problem is that you have to educate your clients all the time." [Interview, May 9, 1996.] As soon as some are persuaded, more new ones need to be. At SFU he continually had to persuade some of the same people over and over of the same things because they were convinced of simplistic nonsense. Education has utterly failed to teach architecture.

C. Regionalism

Erickson's travels made him aware that function in architecture varies greatly depending on climate and site. All buildings should not be built automatically of the latest materials, but of the materials best suited to a particular climate. All buildings should not try to look like engineering, but should be an expression of the materials which were most appropriate to use.
Most 20th Century architects have believed that their buildings should look alike. If they did not look alike, they were probably not "honest" expressions of function and "true" to their own times. However, it is neither true nor honest to pretend that regional differences do not exist and to build everything in the same way.

Erickson would have achieved even greater recognition if he had adopted a distinctive and readily recognizable style and had used it everywhere regardless of local conditions. He has not been content to copy himself any more than any other architect. At least as early as 1963, he had decided that "...the source of particular meaning can still be due to climate and terrain--those aspects of nature which stubbornly refuse to change." [Arthur Erickson, "Architecture--What is the Question?" Speech, Jan 14, 1963, p. 11; bound with "Speeches of Arthur Erickson," UBC Art Library.] He has not copied forms which have proven their ability to perform diverse functions in unusual climates, but he has determined what it is about the forms that works, and he has used the information to create distinctive forms.

When asked in 1964 "what are some of the problems of building in BC," Erickson said, the main problem is light--natural light--with the overcast skies. It has never been answered in architectural terms. It [architecture] needs a rich profile, and this has not been answered. And also, we need to get light into buildings, both light and
shadow. In most cases it is a drab, depressing light. I think the main problem is to use the rain, to take advantage of it as is done in Japan. Japanese architecture makes the rain beautiful. But no one else’s solution is adequate for this. An architect always imagines his buildings in sunlight and casting shadows. No highlights. In a sunny climate you are dealing with a white ground and a dark sky. It is the reverse here. You have a dark ground and a white sky. This means you see in silhouette without highlight, and psychologically it can be... melancholy.... [Interview, Jan. 16, 1964.]

This is not a structural problem, and most recent architecture deals almost exclusively with structural problems.

Erickson said the ground seems dark in British Columbia because the foliage is dark green and grey. The question is how best to deal with environmental conditions, and at SFU one of the principal solutions was to cover the focal point of the campus with a skylight. Many other outside spaces were created to function as outdoor rooms. The Gym’s walls almost disappear on the inside, and with so much glazing, the effect must be like being inside a Japanese lantern. The new Student Centre is luminous even on the most overcast day.

There are many other aspects of architecture which need to be considered in regional terms, and the most important is selecting a readily available and inexpensive material and
utilizing it effectively. What attracted Erickson to architecture was the way Frank Lloyd Wright took local stone and created Taliesin West out of it and made it part of the desert. To invariable use the same materials and particularly whatever happens to be newest is to ignore the most basic functional considerations.

D. Creating Problems

A clever idea by practical, but inexperienced people created innumerable unforeseen difficulties. When Shrum made a decision, he expected underlings to work out the problems. It was easy to decide that the five winning architects would execute one design, but immensely difficult to achieve a workable solution. When the architects had finally come to agreement after two months of negotiation, Shrum then overruled them and made another equally easy decision, and told them to get busy.

The only worse client than a clever, ignorant person is more than one. As soon as Shrum had been persuaded to build the design he approved, the Board, President, and Building Committee had ideas. No architect is capable of maintaining integrity who can be overruled by any number of people. McTaggart-Cowan said that if integrity meant more to Erickson/Massey than being part of the team, they should resign. Shrum asked them if they understood that they were employees of the Board.

No architect should be answerable to more than one client. Any number of people can decide what the purpose of a building
ought to be, but an architect cannot please any number of people. One person must be entrusted by the group with the authority to accomplish as much as is compatible and affordable.

The way in which excellence was best achieved at SFU in architecture and in education was when the smallest number of people were involved. When Shrum was the sole client, it was possible to persuade even him.

What is most needed is an equitable way to choose the best and an efficient way to ensure that the best gets built as designed. The best way is to select competent people and to trust them. Shrum was grateful that Bennett trusted him, but he did not see why he needed to trust anyone else. Nonetheless, as long as the architects had to satisfy only Shrum, the work went well. Continually adding people to the decision making process continually increases the possibility that all the clever ideas will not be stopped in time.

Massey later said that he asked Shrum, "'...are you going to appoint a board pretty soon?' He said, 'no--no board until I absolutely have to because everything will slow down.' We asked him what about faculty like heads of departments and so forth so we can get some feedback. He said, 'that's the last thing you want....' He didn't want faculty committees. He said, "once you get those, everything will come to a halt'--and it did."

[Interview, Jun 28, 1997.]

The decisions of committees are usually a watered down consensus which no one has any objection to or is so inoffensive
that no one cares, or the committee goes along with the most intimidating and opinionated member when no one else cares strongly one way or another. The purpose of committees are to provide anonymous support for something or anonymous people to blame. Its members are not answerable, yet all have to be informed. Although the architects of SFU had to answer for too much, they were willing to do so repeatedly, and they is why so much got done of real excellence rather than simply got done.

Shrum too was willing to take answer for his decisions, but only if he could run things. He despised mediocrity, and he believed that he delegated responsibility well. Most of the people he selected turned out to be highly qualified, but he not infrequently gave responsibility to people who did not delegate anything. As the Canadian Association of University Teachers concluded, the function of supervisors is to ensure that nothing is done contrary to established policy, not to decide what is done and how it is done. This should have applied to the architects as well as to the administration, faculty, and students. Individuals should have been trusted until incompetence or dishonesty becomes reasons to dismiss them. Instead, every individual was subject to an increasing number of persons saying what could be done and how it would be done.

E. Avoiding Problems

Shrum and McTaggart-Cowan’s usual solution for a problem was to get rid of the person causing it. The problem itself was
avoided. They saw problems mainly in terms of interchangeable people. They took for granted that there was nothing wrong with their judgement or with the system. Troublemakers were dealt with uniformly.

This is the way Shrum dealt with the architects when they wanted a different working arrangement. He would bring in other architects if they did not want to do what he told them to. He threatened continually to take thing out of their hand and turn them over to others. Erickson said, "we were always being threatened." [Interview, Apr. 3, 1997.]

The goal was not to solve problems as well as possible, but to make Shrum, McTaggart-Cowan, and the other members of the Board look good. They did not see their function as hiring the best people possible and trusting them; they did not limit themselves to ensuring that competence and honesty were maintained. They saw their function as being right in whatever they chose to decide by their collective wisdom until they were positively proven wrong. The sum of any amount of ignorance is ignorance.

The student who was expelled from high school provides a good example of what insubordination consisted of. The principal said he was one of the best students in the school, but he sided with the teacher. The protesting students at SFU were said to be among the best students there, but they were an embarrassment. They acted without authority, and it was up to authority to put them in their place from the Board which fired them without a
hearing to the judge who defended all of education by penalizing them. As Erickson said about the dressing down he and Massey got when the University opened, this was the mentality they were dealing with.

By mentality, there is no implication that the individuals involved were unintelligent, but that they felt entitled to be authoritative and as arbitrary as necessary to get things done and to defend their authority. There were plenty of precedents, and Shrum had been well trained in the army and in his university to obey. He had done what he was told, and he expected the system to keep working the same way once he was in a position to tell others what they had to do. It had not been fair, but it was how thing were done. The students, faculty, and architects merely needed to be told what the Board's decisions were, and to tell them why would be to ask for their approval. The use of words like "insubordination," "insolence," and "petulance" indicate exactly the mentality which the architects were dealing with.

Boards serve essential functions, but they should be limited to those essential functions as the Canadian Association of University Teachers had to made plain repeatedly. The surest sign of competence is to find and trust competent people. The surest sign of incompetence is to get rid of competent people.

F. Concept

Did the principal architectural concept work? Have students
and faculty interacted in ways they would not have without a design which facilitated interaction?

My own conclusion after spending only a month on campus is yes. The public spaces are well used by students and faculty and are enjoyed and appreciated. There are few places where everyone is not welcome and few places where someone does not utilize.

From the beginning the Administration was dismayed at how easily students assembled to hear dissent expressed and how quickly the faculty joined in. Putting the students and faculty together on a more nearly equal footing does work. It does facilitate the exchange of ideas and opinions, and the more ways of doing it the better. Separation of faculty and students better preserves authority, but preserving authority has never been a goal of most SFU students and faculty.

When SFU opened, the male residents were put on one side of the Mall and the female residents on the other side. A house mother and a don were installed to ensure that what happened in Burnaby apartments could never happen in SFU residences. By the time McTaggart-Cowan Resident was built in 1985, it contained single rooms for men and women, but on different floors. Certainly one of the reasons on campus housing did not flourish was that the University felt that students on campus were to be treated like children and students off campus could get away with acting like adults. The parents willing for young adults to live off campus without regulations would be willing for them to live on campus without regulations. The parents who do not trust
their children should keep them home where they can continue to treat them as children.

Despite numerous promises, housing is still the principal unmet need of students and faculty. Housing created decades ago would have saved hours of commuting every day for tens of thousands of students. This is not an inconsequential consideration, and the cost and study time lost should have continued to be as much of a concern as it was initially. The campus was made to be usable all year, but not all day or night.

If interaction is to be encouraged and hypocrisy discouraged, the University needs to adopt a policy that it is solely responsible for maintaining academic excellence and that parents are solely responsible for creating adults before they become of college age.

Shrum was unwilling to continue the hypocrisy of giving athletic scholarships under the table, which was a widespread practice throughout Canadian Universities. He introduced the first athletic scholarships at SFU, and athletic scholarships are now a more widespread practice.

The Administration alone is isolated in its own building at SFU. This was a mistake in Erickson and Massey's Master Plan which did not occur in its competition plan. Originally, they overlapped the administration building and the Quad, and this was a better arrangement. While the Administration was in the Library, it was less isolated, and it knew perfectly well what mattered most to faculty and students and still ignored it for as
long as possible.

The single purpose buildings constructed at SFU since Phase I have inevitably causes more and more students to learn less and less about all that is being taught at SFU. They have been the exception, though, and SFU had fulfilled the academic goals set for it and more. Shrum never hoped it would be considered Canada’s best university by any criteria. He would have been more than happy with the maintenance of the highest standards, but it has so exceeded everyone’s expectations both academically and architecturally that it has to be considered an entire success.

G. Experimentation

Massey later said, "you push the state of the art, and you put your neck out. Every now and then something goes wrong. You read the architectural magazines and see this happening all the time." [Interview, May 9, 1996.] This is not how it needs to be.

As is usual in architectural controversies, the client blames the architect; the architect blames the engineer; the engineer blames the contractor; and the contractor blames the manufacturer. Since the blame never gets securely established, nothing definite is known that can be used by other architects except to overbuild every element which is suspect.

The cause of the glass failure in the Mall roof has never been experimentally determined. Experiments should have been
conducted before an experimental roof was installed, and they should have been conducted after part of it failed, but in neither case were they conducted. It has not been established that the failure could recur or even whether it was the glass or the glazing bars which caused the failure. This could be readily established through the kinds of controlled experiments the testing firm suggested making at the time, but it was convenient to blame the intractable architects.

Shrum had encountered a similar problem with the BC Hydro Building, and as a scientist, he should have insisted on adequate experimentation, but instead he insisted on no delays and no extra costs. The Hydro Building was constructed in 1955-1957 and by 1963 all its glass had to be reinstalled when "new chemical sealants" proved defective. [Liscombe, New Spirit, 175.]

Architecture progresses through the development of new materials with new potentials, but only when experiments have proven their potential. A building is not an experiment. Testing is not experimentation, but measurement. When something goes wrong, a building is usually too complex to isolate the problem. An experiment requires two examples differing in only one respect. Very little scientific experimentation is done in architecture.

Testing is not without its uses, and the Board of SFU made a serious error when it refused to pay to have a pair of trusses built to test an "experimental" roof. The test would not have proven what experiments could have (such as the actual size of
H. Trees and Parking

One of the principal reasons to justify the inconvenience which was created when SFU was put on top of Burnaby Mountain was to take advantage of its incomparable views. Trees have been allowed to block panoramic views of the entire Fraser Valley and far beyond it. Only glimpses of the views can be had and only in some directions in a few places rather than all over the entire campus. As Erickson said, "alders are like weeds." [Interview, Apr. 13, 1997.]

The Erickson/Massey plan called for scattered trees coming close to the buildings in many places, but not hedges. It called for mountain meadows with wildflowers native grasses and not a lawn. A lawn is expensive to maintain, and where it is not maintained, trees grow rather than being kept from getting stated by tall and thick grasses. Erickson said, "one of the things that antagonized me was I always wanted the landscaping to be wild and to have the wild grass coming right up to the university." To try to prevent the grass from being cut, he and a group of about 50 students planted California red poppies in a spring rite, but to no avail. [Interview, May 9, 1996.]

SFU can have both trees and meadows in even greater
abundance than it does if for every acre of acre of trees cut, an acre of parking is planted. Even two-story parking buildings would reduced the area used for parking by half, and, as Shrum intended, it would almost eliminate having to walk through rain and snow to get to classes. Covered parking would pay for itself and should not cost more than it takes to pay for itself and should be free afterwards.

Erickson/Massey's parking solution was implemented and was not a good one. Massey admitted, "we never really tackled the whole parking problem.... We never faced up to the visual aspect--which is pretty frightful." [Interview, Jun. 28, 1997.]

The lake which was initially planned would add still more variety to landscape which in 1997 consisted mainly of lawn and hedges of trees. It would come closer to realizing a well thought out plan which still deserves to be realized. Erickson said that "the one thing I always regretted was that they never put the lake at the bottom. That was to be the edge of the forest." [Interview, Jun. 13, 1997.]

I. Design Process

A design is not simply the best ideas which have been proposed, but a selection and combination of the best ideas which can be turned into a coherent whole. Turning ideas and data from many sources into a coherent design required much further work, and it was at this point that the process became increasingly more creative than analytical. Erickson wrote about his "work
...the one important aspect of it is to bring out the unconscious rather than conscious responses to a subject. This becomes sometimes confusing and disturbing to those working around me since it means postponing decisions and pursuing exploration for as long as possible without making any emotional, intellectual or sensible commitments. Very "zen" as some might conclude.

[Erickson to Liscombe, Oct. 20, 1978.] Elsewhere, he stated succinctly, "I leave everything to the last minute, and it somehow comes together." [Inglauer, Seven Stones, 62].

There is nothing unconscious about gathering ideas and about mentally combining and recombining them and selecting what is most important to include in a design. In 1969 Erickson called this process the search for a "central idea, as the sort of basis, the basic approach for the building." [Takanishi, "Interview," 20.] Adopting too many ideas and adopting incomparable ideas do not ordinarily produce coherent designs. In the case of SFU, however, the central idea was a combination of two ideas which are ordinarily incomparable: axially and terracing.

A computer could try every combination, but could not select the best ones. Making value judgements is fundamental to the success of any design, and there is no substitute for a wide context in which to make them. It can seem like shooting an
arrow into the center of a target without aiming, but no beginner
does so consistently. When there are innumerable possible
combinations which might work, one person can best decide what is
most important to include and best evaluate the consequences and
start over at the right point when things do not come together.
By no means do they always come together under the pressure of
the last minute, and if they come together at all, it is only
after the process of analysis and evaluation. Most frequently
they come together when a decision proves to so necessary that it
must be adhered to regardless. Every decision that can be made
without doubt makes every subsequent one far easier. As Bain
said, SFU did not start to come together until decisions were
made about what was most important.

Even so, the result can be many good parts which do not form
a coherent whole, and unity is not achieved through consensus.
It is only created when everything most essential comes together
within a single mind in a way that nothing can be omitted or
rearranged without injury to the design. There is no question
that the design of SFU is as good as it is because of good ideas
contributed by many people from Shrum to Massey and other members
of the design team, but no team of archers can shoot an arrow
into the center of a target. Good designs are more than good
ideas.

It is easy to see how each member of a group of creative
individuals could contribute valuable ideas and to see why each
person would feel that he had contributed something essential to
a design if one or more of his ideas was incorporated. However, the design is the new whole created from the parts, and the same parts in a different arrangement or at different scales would probably not be a coherent design. Thus the most important contribution to any design is the combination rather any part or parts. When the design process is looked at in this way, it will become possible to see why some architects could disagree about the relative importance of their respective contributions to a design as all five prizewinning firms were later to do when they had to work together.

In the case of Erickson and Massey, it is possible to see how Erickson could be convinced when he said, "I did it all." It is also possible to see how Massey was correct when he said that he designed a lot of SFU, and the same was true of the other seven principal architects and of many of their assistants, particularly Bain and Burroughs. The coherence of the design—by far its most important feature—was achieved by Erickson. Massey has never claimed to be as talented a designer as Erickson, and Erickson has never claimed to be as talented a manager as Massey. The two of them were literally an unbeatable combination as competitions repeatedly proved.

J. Aesthetics and Function

By designing his own house, Shrum showed a greater than average interest in architecture. As a member of the building committee of UBC and as the principal client of SFU, he learned a
great deal about architecture, and he continued to be a major client of architects with the Peace River Dam and the Robson Square Project. However, he was nonetheless convinced that aesthetics and function were mutually exclusive.

The list of "Problems with Erickson-Massey" included the statement that the firm was "more concerned with aesthetics than functional aspects of design." When, to Shrum's amazement, buildings which were widely acclaimed as major works of architecture cost less than buildings which were not acclaimed, he said "beauty, why not?" Soon, though, he was again thinking that the cost could be gotten still lower by leaving out aesthetics.

To give the same materials a better arrangement costs nothing. A design is coherent when no part overwhelms the whole. No part should distract attention from the whole.

Knowledge makes all the difference in this case, and with conspicuous exceptions like Le Corbusier and Frank Lloyd Wright, most Modern architects were as willfully ignorant of proportion as laymen like Shrum. Erickson admired Le Corbusier and Wright both before and after he saw a good cross-section of the world's architecture.

Although proportion usually costs nothing, it can cost a great deal, and when it does, the people who have to allocate funds must be convinced. Erickson/Massey went to great trouble to explain clearly and repeatedly what their principles of design were. In their first planning document, the Development Plan,
the firm listed the principles it would follow in the execution of the design.

For example, the entire campus would be treated as if it were a single building proportioned to the entire site. This cost extra, but the connections were largely the covered passages Shrum had called for in the *Conditions of Competition*. These were functional spaces, and this was fine. A one story roof above the acre would have provided an adequately protected space, perhaps an even better protected space, but not one the largest acres in architecture.

The Mall roof provides a space only three stories tall, but because its elements are thin and the roof is a story tall by itself, it appears to be four stories tall, and because it is skylighted rather than opaque like level of parking, it appears to be far higher. Being four stories overall, it relates well to the Library, which is little taller overall. If the Mall roof had been made two stories taller, it would have been the height of the Quadrangle, and there would have been a five story space underneath, but it would have been poorly proportioned to the Library, which being adjacent, it needs more to relate to. Good proportion is not theory. It is common sense.

This is the sort of decision which architects are best qualified to make on the basis of having the widest experience to draw upon. They do have to argue for it, but they should not have to convince an endless succession of people, and they should not have to convince the same people over and over.
Another principle of design was that the same principal material would be used throughout the campus and that it would be used in a way which emphasized that it provided the structure of the buildings. Concrete was consistently made to project, and glass is intentionally recessed. Within the framework of concrete, glass becomes an integral part of the whole.

There was general agreement that a permanent, low-maintenance material, and inexpensive material was a good choice and that the choice could be appropriately emphasized to make all of the buildings seems as if they were one building. This was the one of the most basic considerations of the design. The texture would be varied, but the muted and subtle color which tie the buildings to the site and to one another would be maintained.

Even during Phase I, another color of concrete began to be used with the approval of the Board, and during Phase II, yet another color. Soon concrete was being replaced by wood. Soon wood was being replaced by metal-clad trailers. Excellence and permanence were continually being ignored for speed and initial cheapness.

On the whole the Board was surely as appreciative of the architecture as the students and faculty. Mean "delighted" in seeing the campus as he approached it, and Dietrich felt that Erickson/Massey were best qualified to make aesthetic decisions about the campus. However, the Board considered that its principal responsibility by far was to get as much as possible for as little as possible. It did not define always define
"much" as long-range savings and advantages. It made short sighted decision like refusing to spend $1,600 to substitute plexiglass for glass and then spent $10,000 for heating cables to reduce the weight of snow on the glass. This was a case of accepting the advice of an engineer over that on an architect, and the Board consistently had more regard for the expertise of engineers (despite the fact that they disagree as much as architects and rarely design two bridges which look alike).

Erickson has contributed to the confusion by making contradictory statements. In 1971 he wrote, "at Simon Fraser University, we were not interested in what the structure looked like." [Quoted in Ede, Canadian Architecture, 1960/70, 36.] In 1975 he wrote, "...I have never let structural veracity interfere with aesthetic purpose." He argued that "structure must be a means, not an end." [Erickson (1975), 81 and 41.]

At the time of the opening, Erickson said that "we run short of funds and build for use without beauty.... We are mean; we begrudge our most important buildings the space they need and then we wonder why our cities are not beautiful." [Burnaby Courier (Sept., 2, 1965), 2.] Here is a clear statement which specifies that space is an important aesthetic requirement. He says nothing in this statement about how a building or a city looks, but only that it cannot look well without sufficient space. Six days later, he wrote that "the plan and architecture of Simon Fraser University derive more from a basic approach to education... than from a particular aesthetic approach. This
latter is least important...." [Bulletin (Sep. 8, 1965), 7.] In this second statement, he wrote about function and aesthetics as if they were mutually exclusive rather than essentially the same thing.

Aesthetics in architecture is not either/or. It is both space and form, and it is inseparable from function.

Essentially, aesthetics is what people are used to seeing, and what they are used to seeing is function. Like plants and animals, architecture must function to survive. This does not mean that aesthetics and function are identical, but that architecture has to have a functional basis. Anyone can easily become accustomed to whatever architecture is being produced at a particular period, but that does not mean that architecture in two different periods or places can look wholly different and be equally functional.

Modern architecture needed to develop a new aesthetic for new materials, but it did not need to declare that every other material and the aesthetics which grew out of their functional requirements were obsolete. It did not need to declare that non-Western architecture was irrelevant to design. It is true that the strength of materials was poorly understood until modern testing methods were employed, but a purely structural approach is not a functional approach.

Concrete structures needed to be thicker than steel structures, but both materials continued to be used at the same time as appropriate for inherently different materials. Both
esthetics survived alongside one another. Since steel did not make concrete obsolete, there was good reason to have more than one aesthetic in Modern architecture—for it to look as different as designs for concrete work of Le Corbusier and the designs for steel by Mies, but every proponent of one material or the other was certain that the truth had been discovered. Curtain walls were dishonest. Steel hidden in concrete is equally dishonest.

There are as many different aesthetics as functions. A bird does not need to look like a mammal, and a mammal does not need to fly to be functional. What is necessary is that a relevant combination of functions is provided for. Any one function, including structure, is a simplistic approach to a complex problem.

Shrum thought of aesthetics entirely in terms of decoration added at extra expense rather than in terms of space, massing, and the arrangement of needed design elements. Good architecture is deceptively simple. Bad architecture is just simple.

Shrum eventually admitted, "I wouldn’t have selected their [Erickson and Massey’s] drawings as the winner. They were so plain that they would never have caught my inexperienced eye.... But if we had chosen anyone else’s design, people would never have come from all over the world to see the University, because they could have seen any of the other designs any place." [Iglauer, Seven Stones, 64-65.]

Instead of having a second space equivalent to the Quad courtyard, the University chose to spread more parking lots
across the west end of the campus and to scatter buildings around them. The effect is worse than when the Quad was still a parking lot ((fig. 52A), and it might as well be converted back into a parking lot as to leave the design uncompleted.

In 1963 Erickson said, "it seems the architect's role has become confused with that of the inventor--perhaps because of the high status of the innovator in this age. But the architect has traditionally not originated forms so much as invested existing forms with a new significance. The palaces of the Florentine Renaissance were no more than the common Tuscan town house invested with grandiloquence. The Greek temple endowed the indigenous farm house with such enviable majesty that we have not forgotten it yet. it was the ordinary ennobled...." [Erickson, "Question?" p. 6.]

To a large extent this is what Erickson attempted to do with the design of SFU. Without copying any form or details, he utilized ideas in new ways. He took an ordinary town square and used its blandness to create the extraordinary Quad. He use the effectiveness of prehistoric sites and hilltowns to create the very different visual effectiveness of the Science Complex and Classroom Complex. He made the Gym a temple without using any element of a temple. Erickson's greatest contribution to 20th Century architecture has been to show how ideas can be separated from forms to generate new forms. Simon Fraser shows how.
CHRONOLOGICAL LIST OF PUBLICATIONS PRIMARILY ABOUT THE
ARCHITECTURE OF SIMON FRASER UNIVERSITY

N. B.: This is a comprehensive list compiled using the three
bibliographies which have been published on Erickson (listed here
at the end), two bibliographies from publications prepared by
Arthur Erickson Architects, and articles on file in the UBC Art
Library, the SFU Archives, and other sources.

1963

Jan.--Higher Education in British Columbia: a Plan for the
Future by John B. Macdonald. In this monograph, the President of
UBC called for the creation of a new four-year university with
Burnaby as one of the proposed sites and indicated how quickly
buildings would be needed in stages for approximately how many
students.

Jun.--Conditions for Competition: Simon Fraser University. June
by the Council of the Architectural Institute of British
Columbia; all entries had to be submitted before 1 August 1963.


--Simon Fraser University Development Plan [1963]. Mimeographed and sent to the other architectural firms to coordinate their work, but only the copy owned by Massey is known to survive).


--"Young Architects Win University Competition for New University Near Vancouver." Progressive Architecture, v. 44, p. 82.


1964

Mar.--"Instant University." Saturday Night, v. 79, pp. 16-18, 42.
May--"Simon Fraser University, Burnaby, B. C."; part of "the Campus in Canada." Canadian Architect, v. 9, pp. 54-55.


1965

Dec.--"On Burnaby Mountain--'a Miracle of our Times.'" Business and Financial Chronicle, v. 1, no. 2, pp. 25-34.


(year only)--"Simon Fraser University, Burnaby, B. C." Canadian Architect Yearbook, pp. 62-64.

1966

Feb.--"Simon Fraser University, Burnaby, B. C." Canadian Architect, v. 11, no. 2, pp. 35-83.

--Simon Fraser University, 1963-1965: Progress Report by Erickson/Massey (mimeographed and submitted Feb. 15, 1966 to the Chancellor, President, and Board of Governors of SFU, but only
the copy belonging to Massey is known to survive).

--"Simon Fraser University." Interbuild, pp. 12-17.


Apr.--"Space Frames Wall at Simon Fraser University." Architectural Review, v. 139, p. 245.


Oct.--"Simon Fraser University, Burnaby, B. C."; part of "Universities." Architecture Canada, v. 43, pp. 60-62.

(year only)--"Project I: Mall Skylight"; part of "Space Structures as a Preoccupation" by Jeffrey Lindsay. International Conference on Space Structures, 1966 (held at the Department of Civil Engineering, University of Surrey), Blackwell Scientific Publications Ltd. (pp. 2-5 of offprint).

1967

Apr. -- "Simon Fraser University, Burnaby, B. C." Royal Institute of British Architects Journal, v. 74, pp. 149-150.

1968


Jul. -- "Simon Fraser University, Burnaby, B. C." Progressive Architecture, v. 49, pp. 122-123.

Sept./Oct. -- "L'Université Simon Fraser en Colombie Britannique" by E. H. Architecture Actualités (Brussels), v. 85, pp. 249-254.

1970

1971


1975

June--"Canada': Due Universita'; universties designed by Arthur Erickson; Espaces Reunis dans une Megastructure." Domus, issue no. 547, pp. 9-16 (SFU and Lethbridge).

(year only)--"Simon Fraser University"; part of Architecture of Arthur Erickson by Arthur Erickson (Tundra Books, Montreal), pp. 128-155.

1988

(year only)--"Simon Fraser University"; part of Architecture of Arthur Erickson by Arthur Erickson (Thames and Hudson, London), pp. 32-37.
Sept. 7--"Daring to Be Different" by Arthur Erickson. Simon Fraser News, p. 4 (part of a speech at the State University of New York, Albany in 1994).

Bibliographies on Erickson


I. COMPETITION STATEMENTS BY THE FIVE PRIZE WINNERS

A. First Prize: Arthur Erickson and Geoffrey Massey:

A campus plan can be based on a variety of policies and reflect several assumptions about the nature of a university. Oxford and Cambridge reflect a cohesive philosophy of education; American universities indicate the departmentalization of university administration and curricula; Montreal or Columbia, the exigencies of the metropolitan site; Rangoon, the overbearing factors of climate. Site, climate and circulation are important factors in our proposal as well as an approach to education not suggested in the program; however, our design derives more particularly from a study of each space type that makes up a university and the arrangement of these according to the educational approach. We replace the usual campus layout of separate buildings with a single complex built up from the differing necessary spaces. This kind of plan makes possible more efficient accommodation for each type with respect especially to services, light, orientation, structure, equipment etc. The grouping of like types into building sections facilitates both interdepartmental time tabling and the extension of any section.
by any number of necessary units. Departments would exist as
administrative units rather than building entities except where
unique requirements would necessitate distinct accommodation.

It is assumed that at the present rates of growth the university will reach maximum size within a relatively short time
so that conflict between all differing styles of building is not
a major consideration. However, we have need to provide a strong
enough framework to allow for some variations and departure.
Since the buildings expand from the centre out, the necessity of
leaving enough gaps in the initial campus is minimized. The
buildings requiring continual expansion such as classrooms, labs,
and residences, are terraced to expand along and down the slope.

This generalized use-space is organized into three distinct
zones differing in character, facilities and usage.
(1) The teaching-research zone (faculty-student contact) centres
around the Academic Quad visually closed by the periphery of
faculty offices and seminar rooms where the more immediate
interchange of experience takes place. Falling away from these in
terraces to the north side are the lecture rooms taking advantage
of view and north light, and to the opposite side labs relying on
baffled skylights for best light conditions. The administration
building connects to the upper faculty offices completing the
administrative hierarchy and frames the formal processional
entrance to the university.

(2) Adjacent: to this is the campus heart, The Mall flanked by the
library and bookstore on one side, the auditorium, playhouse,
exhibition area, cafeteria on the other side. The Mall, furnished with notice boards, speaker’s lectern, stage, benches, etc., is open to the air but covered as a "galleria" with a weatherfast translucent roof. This is the meeting place of the university, the point of arrival from the bus stop, the place for rallies, and in spring and fall the termination for the convocation procession from the Academic Quad. The library is zoned horizontally, stacks at the top; peripheral carrels in the lower stacks; reading and study rooms, video and audio, etc., in the centre floor; vaults, offices, work rooms, below. The centre floors would be open as a night study centre directly connected to the student centre on the main concourse. The main floors connect horizontally under cover with classrooms and lab blocks and the student centre.

(3) Student Centre consists of: A. M. S., offices, club rooms, campus newspaper, lounges, meeting and banquet rooms, cafeteria and banquet hall-ballroom at the main concourse level; card and billiard rooms, bowling alleys, squash and badminton courts, steam, shower and locker rooms, connecting to gymnasiums and indoor pool, infirmary, barber and college shops, on the lower concourse.

Separated by gardens beyond the Student Centre is the student housing, terraced to either side of the Common Block; at the other extremity of the campus is the faculty club, faculty housing, and President’s residence.

The campus is linked by a two level pedestrian concourse
providing sheltered or indoor connectors to all parts of the campus. It runs on an east west axis along the ridge of Burnaby Mountain taking advantage of the prospect to the north and south, descending by stages to the west to highlight the dramatic distant prospect of the City of Vancouver.

Bus traffic and visitors enter and leave by the Centre Gate and transport depot, parking for the theatres, library, gym and play fields being provided there besides a limited amount of covered parking under The Mall. A scenic drive circumvents the university to give access to the mountain summit. All other traffic enters by the east gate and is dispersed to faculty, student or administration parking or service areas. The expansion of parking beyond 7,500 cars allowed is possible but costly, and better solved by public transportation. The parking areas are terraced. Those adjacent to the buildings are arranged to accommodate future building extension. All major spaces are open ended and continuously connected for easy snow removal.

The landscaping would be mainly a process of clearing for open space and play fields, retaining evergreens and thinning the stands of deciduous trees as groves to protect the lower edges of the campus and gulleys from run-off. Specimen trees and more desirable natives would be dispersed amongst these in keeping with the park-like aspect of the site. Trails would lace the peripheral forest of the lower site from which one emerges into the upper site, opened up to enhance its plateau nature. Open fields would merge into terraces and these in turn into the inner
quads of the university proper to which special planting would be limited. The south side boating lagoon as well as other ornamental water systems would collect run-off water from the campus. The site is not "dressed up" by landscaping but rather its existing character enhanced.

B. Second Prize: William R. Rhone and Randle W. Iredale:

Because the eventual 18,000 enrollment envisaged for the Simon Fraser University represents a large and unwieldy body, equal to the combined enrollment of Cambridge, Harvard and Oxford, we chose to divide this campus into nine colleges. It is hoped in this way to preserve the identity of the individual without losing the advantages of an extensive library, comprehensive research facilities, or other characteristics of a major institution of higher learning.

This is a college scheme similar to Oxford or Cambridge, modified to mid-twentieth century needs and based on an academic program similar to that proposed for other North American Universities. Each college will be autonomous but each faculty will be organized on a total university basis. Each college will contain all basic disciplines but will partially specialize. For example, the college with the major theatre and television studios will have the largest enrollment in performing arts, and the college adjacent to the cyclotron will specialize in physics. In this way, it can be assumed that the student will spend approximately two-thirds of his time in his home college and one-
third in others.

Individual plans are varied to allow for changes in the curriculum and college specialty. Two unifying elements are proposed to establish continuity: the siting of the buildings around open courts and covered walks and arcades of repetitive domed precast concrete elements. The use of enclosed radiant-heated walks will permit the student to leave outdoor clothing in his locker at the student union and travel under cover to any part of the campus.

The first stage of the growth program (7,000 students), will require three complete colleges with future growth satisfied by the addition of one college for each 2,000 new students. As each college is physically and visually separate, great variation may be allowed in the design and character of these colleges without destroying the total unity of the University.

A park drive surrounds the campus with parking provided near viewpoints. The peaks of the mountain which form a crest running east and west, have been preserved as natural elements and a public walkway across the mountain top and through the University has been provided.

Traffic is separated to colleges near main access, and all traffic is one way. There are neither stop signs nor do not enter signs. Parking for 10,800 cars is arranged on roads (not parking lots) for ease of snow removal and economy of construction. The maximum walk from car to home college is 700 feet. There is no pedestrian traffic over major access roads.
Service roads are under buildings where the sloped site makes this economical. Bus stops are provided at each college and in the centre of the Campus.

Residences are provided with the Student Union at colleges on the north slope furthest from access with less area for parking. A residential subdivision is proposed on the south and west sides of the mountain below the University similar to U. B. C.'s University Hill for faculty homes, etc.

Three sites for research institutes have been indicated on the plan but more are available around the periphery of the Park Drive.

It is envisaged that the existing radio and television masts will be combined together with Channel 10 (Educational television), in a major tower—a symbol of the University throughout the Lower Mainland.

C. Third Prize: Zoltan Kiss:

The concept shown represents an open-plan walking campus to allow for:

Harmonious growth.

Flexibility to adjust to educational advances.

Short distances.

Maximum unitization of the best land available.

The centre of activity and the connecting arteries are defined in the first stage. Growth is visualized as a concentric pattern without a rigid perimeter.
The topography suggested an introverted spinal plan focusing at the saddle shaped plateau at the 1,200 ft. level. Here, the natural focus of the site and center of campus life will fuse in a forum visible from all parts of the campus. Students have covered access from this central point to the academic buildings as well as to the means of transportation.

The Arts and Sciences complexes rise in step with the gentle slope to east and west coupled to the spinal walkways.

Each complex is planned around intimate courts defined by groups of low laboratory-lecture hall structures and tall conventional classroom blocks. Staff offices are located in the classroom units to bring close contact between professor and students.

Precast concrete with integral finishes is suggested as a basic exterior material. Well protected areas such its ceilings of walkways and high interior walls will have wood finishes.

Surface parking follows the contours and avoids excessive vertical climbs in favor of easier (but longer) horizontal walks. While the required parking space is provided within the campus the use of a funicular railway is suggested on the north slope from a parking lot at the site of the present shooting range to the nucleus of the campus. This adds alternative parking without snow problems, and opens the north slope to students and visitors.
D. Fourth Prize: Robert F. Harrison

The University, located between the two main promontories allows maximum land use for expansion east and west. The natural depression determined the core with bus terminal facilities and automobile loading and unloading at this central location.

Three buildings are designed as high rise units because the interior organization of their space requirements lend themselves to this form of planning: (a) Administration building (primarily office space). (b) Library book stock area. (c) Student union (future requirements, meeting rooms etc.).

Their use determined location by function, servicing requirements, and a strong visual definition of the campus centre from within and without. All students in the course of an academic day will either pass, use, enter or leave the campus at or near the core buildings where open spaces providing seating, statuary, fountains, and panoramic views will provide a strong sense of community.

Radiating along the ridge from the core are the individual faculty buildings in a forest environment each grouped around a court yard suggesting many possibilities of pleasant little gardens, malls and arcades providing meeting and relaxing places, short cuts, variety and surprise. At the extremities are the student housing and the faculty housing adjacent to the park and within walking distance to the playing fields. To the east married student housing is located adjacent to the future
colleges and post graduate facilities.

The existing park land is continued around the north slope where pedestrians may choose to visit the University or the television and radio observation tower visible from the whole of Metropolitan Vancouver.

The building materials will be stone in the low garden walls and retaining walls. The building structural elements are primarily precast concrete using exposed white quartz aggregates with spandrels a similar colour in varying textures.

E. Fifth Prize: Duncan S. McNab and Associates:

We selected the crown of the mountain for four reasons: to give prominence to the university; as a visual inspiration for the students; to allow the university to be visible to the people living in the areas it serves, and finally, to allow parking on the university periphery.

In the initial design, we adopted the premise that the most efficient and economical operation of the university would be afforded by compact arrangement of the building, in close proximity to the parking areas. The formation of the mountain’s crown with the two prominences separated by a small valley suggested two rings of buildings intersecting at the valley; the west ring serving as the academic centre and the east ring serving as residences, supporting buildings and future building.

The academic clusters on the west ring are joined by a pedestrian gallery. Standard classrooms and instructors’ offices
are accommodated in the high rise buildings, and the specialized areas of instruction accommodated in the irregular shapes of the low buildings.

The domed social building, auditorium, cafeteria, student centre combination and the administration building join the east and west rings.

Playing fields, residences and future research buildings are located on the east ring – with the playing field on the relatively flat summit.

All buildings on the campus are unified by a common method of construction: precast concrete forms with the panels slightly faceted and with exposed aggregate finishes.

The inner campus of the academic ring which overlooks the low buildings has landscaping compatible with a mountain summit, and vistas framed by the towers and the sculpture court.

The periphery circles the mountain, and contains a series of courts, patios and spaces changing in shape and size, some sheltered. Parking is restricted to the inner ring, and is thus screened from the campus.

For the future, any addition of a building to its respective cluster can be done with the minimum amount of disruption in the university life.

[Canadian Architect (Oct. 1963), 72-77.]
Dear Doctor Shrum:

Since the Mall Roof has come under serious question, we feel that it is our duty to bring to your attention some of the factors that should be considered in any discussion on the roof.

The concept of Simon Fraser University was based on many factors. Among these areas, the most important was the arrangement of classrooms, labs, offices, library, theatre, gymnasium, etc. in a unique way, so as to:

(i) allow for a flexible and easy expansion from a central core which provides the main facilities of the University:

(ii) provide those spaces on the campus which are not directly related to the formal teaching facilities but nevertheless are essential to the learning process and campus life: and

(iii) allow for access to and between all parts of the university under cover.

The most important space of (ii) is the meeting or gathering place--the heart of the university. At break periods in the academic schedule it provides for the exchange of opinions, the meeting and making of contacts between student of differing disciplines and the relief from study pressures. An interior space in a Student Union can only partly fill this function and has basically a different purpose. The more casual, freer and invigorating atmosphere of the outdoor is more suitable and such spaces have always played an important role in communities in all climates. The Covered Mall is this kind of space.
The Mall, with the theatres on one side and the bookstore and library (where the greatest number of students collect) on the other, and the cafeteria at the end, was seen as an ideal gathering place. However, a gathering place in a temperate but wet climate needs a roof and a roof over an outside space, unless it transmits light, can make a space seem damp and cold. The Mall Roof was, therefore, designed to be a handsome, luminous cover to provide a comfortable, sheltered place as the focal point of campus life.

With a view to the climate of the area, the Covered Mall would be used extensively as a meeting place, for casual gatherings, for informal student activities, summer dances, etc., and also, during six to seven months of the year, for important university ceremonies. The arrangement of steps and galleries in the Mall thus takes into account not only audience viewing, but the possible pageantry of academic processions.

The Covered Mall was never visualized as acting as an auditorium for meetings, lectures and concerts of a specific nature which would properly take place in an enclosed theatre, nor was it seen as a place where people attending formal ceremonies or informal gatherings would take off their coats and expect heated interior temperature conditions.

The anticipated conditions of rain and cold are shown in the enclosed table compiled from information received from the Department of Transport Meteorological Office. From these tables it can be seen that it is possible to enjoy reasonable
temperatures from early March to early November. The number of days of precipitation indicates also that during this same period approximately 41% of the days the Central Mall can be used when otherwise gatherings would not be possible.

Beside the basic consideration of protection from rain--people will gather in the cold but not in the wet--it has been confirmed that the roof would probably reduce wind currents through the Mall. Professor G. V. Parkinson of U. B. C. has examined the large scale model of the university and states that the surface friction created by the roof surface would effectively diminish wind currents through the Mall.

Our office conceived of the structure of the Mall roof as a light space frame. We wished to reduce the size of the structural members as much as practicable to give a lightness of appearance and maximum diffusion of light. The budget figure was set on January 1964 at $250,000 after discussion with our engineers for this part of structure and this is the figure they have worked to since then. Our intention was to find an economical structure consistent with our criteria for lightness of appearance and luminosity. Many schemes were studied by this office and no less than four scaled models were made before a decision was reached.

The various materials, both for surfacing the roof and supporting the roof, were carefully reviewed and the final decision was based on the best materials for maintenance and for economy, consistent with the overall appearance of the roof in context with the surrounding buildings. Although plastic was
considered at first for the roof surface, it was discarded because of greater cost and inadequate guarantee of performance. Glass and standard skylight sections were chosen because of cost and because they have been proven effective for over fifty years. The final design combines a continuous skylight and a gutter in a combination that has been standard practice in factories, stations, market shelters in many places in the world, especially in Northern Europe where conditions are equal to and worse than Simon Fraser University. The truss was studied in aluminum and in steel and in combinations of these, but wood was chosen over aluminum for economy, and over steel for maintenance. The same configuration could be built in either wood or steel. The configuration was selected on a basis of lightness of appearance. Standard trusses or beams would effectively reduce the light transmission and give the appearance of an ordinary factory roof.

We are asking for alternate proposals for glazing when the roof is put out to bid. This allows us to be open for other methods of glazing which we are not reviewing and which we hope will be cheaper and have a superior appearance to standard glazing. However, the effect of the roof should not be judged from the small scale model. Only if the model is duplicated 230 times does one have a real sense of the scale of the roof design.

The members of the jury for the Simon Fraser competition chose this particular scheme largely because of the feature of the Covered Mall. They requested that the University be realized as we had conceived it. We have heard from them and from other
architects that this was one the features that won the competition for us. Architects, planners and educators from all over the world have observed and commented enthusiastically on the Covered Mall as a most important asset in any University. Phillip Johnson, a very famous America architect, is now designing glass roofs between the buildings at New York University. Simon Fraser University is now a leader in many aspects of university design. It is already affecting the design approach in University planning elsewhere in the world. It is our opinion that if the roof does not go on the Mall the university will not be an achievement that will live up to its advance publicity, nor will it gain the international recognition that it will if it proceeds as originally planned. Publicity and recognition does not have a tangible dollar return but it does have an effect on the spirit in which the students and faculty will embrace the new institution.

To postpone the roof now would involve greater costs eventually and a serious disruption in the university schedule when it does go up. Nor would the university function with covered access to the main buildings without the roof. It must be emphasized that the library has no covered connection to it without the roof.

If, initially, the university had been planned without this roof, it would have been planned quite differently. If that had been the case, there would be no resemblance to the present layout. The location, traffic pattern, orientation size and
configuration of buildings would have been drastically changed. We must emphasize that the roof is not an appendage that can be taken off at will but one of the most essential parts of the University complex. A southern mansion without its porch or a man without his hand would be fair comparison. They can survive, but with a great difference in function as well as appearance.

Finally, we plead with you to support the decisions that were made a year ago. Buildings during construction always raise many doubts. It is impossible to visualize the final effect in an intermediate stage of construction. In our experience, a fundamental change in mid-stream has always been disastrous. The general public have been led to believe that there is a Covered Mall. They would be disappointed if the University did not live up to its promise. Simon Fraser University is in the spotlight. The consequence of decisions made now will not only affect this community but will have repercussions in many places in the world. It is well on its way to becoming a great University world-renowned. You have been courageous in supporting our ideas to this stage because they are not ordinary ideas. We ask for your support a little longer. Assessment should be made on the completed institution and not at the halfway stage.

Yours truly, (signed) Arthur Erickson

Geoffrey Massey
[Enclosure:]

Climatic Statistics for Burnaby Mountain

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Average number of days of precipitation

Mean Monthly Temperature

36 39 43 49 55 60 64 64 58 50 43 38

These figures were supplied by the Department of Transport, Meteorological Office Weather Department.

August 7, 1965  [Addressed to Dr. G. M. Shrum, Chancellor. Shrum Papers.]

III. ERICKSON TO HEAN ON LANDSCAPING, FEBRUARY 14, 1967

Dear Mr. Hean:

I am writing to express my profound concern over the possible consequences of the recent decision to hold a competition for the overall landscape of Simon Fraser University.

I respect that this decision was motivated by the wishes of the Board to obtain the best possible advice for the University. You, and other members of the Board, have often expressed to me your pride in the University and your anxiety to see that the initial concept is preserved. I am writing in appreciation of this and to offer my services or advice where we might help in furthering the spirit and intention of the Simon Fraser plan.

The success of the design of Simon Fraser University is largely due to its siting and to the setting which has been created for it by judicious landscape design. We have had acknowledgement and praise for his concept from prominent landscape architects from the United States. The simplicity of
the concept is deceiving and, of course, because it is only one year old, it does not show its potential at this point.

If I may outline the concept to you: The effective siting of the University on the mountaintop is due first to the principle of terracing which is applied to buildings and to landscape alike. Just as the theatre, laboratories and the proposed classroom block step down the hillside, so do the playing fields, parking lots and the grounds around the buildings follow the same principle. The application of this principle to both the grounds and the buildings is the reason why the University lies so harmoniously on the hillside.

The second principle was to create an openness to the site that would give the University a greater sense of its elevation on the mountaintop. That is, by keeping the tree belt well below the University grounds, one has, on approaching the University, the impact of breaking out of the trees into the open space of a mountain meadow where the University sits. The boldness and drama on approaching the University comes from its stark setting in an open field, recalling the classical acropolii which were similarly sited. To preserve and intensify this effect, the planting plan for the south slopes is to seed the meadows with narcissus and wild poppy, setting the University in flowered meadows for 75% of the year.

The final principle of the concept was to bring as much planting as possible within the buildings themselves; eg., on the Mall, in the Quad, in the Courtyards of the Science Complex.
These were to have as rich planting as possible to create a kind of hanging gardens, but nevertheless to be the kind of planting associated with the mountaintop. Thus we have kept only heather in the planters around the roof of the Transportation Centre and close cropped pines at the top of the stair so the Quad. Since the budget was limited, there was not sufficient planting brought into the Mall or into the Science Courtyards, but this is to be supplemented as the landscape develops.

Thus, for a landscape architect's advice to be of value, he would have to understand and be in complete sympathy with the initial concept. He would be contributing advice on plant materials and extending the basic concept to new areas of development. If he would introduce a new concept--no matter how worthy in itself--it would inevitably conflict with the present concept and thus disrupt the harmony that now exists between site and buildings.

We have nothing against bringing in new landscape architects. In fact, we would welcome it if he were of equal calibre to Lawrence Halprin, Sasaki, or a Thomas Church. These are among the few who have the taste and imagination to gain renown for landscape designs. The lack of major Canadian contribution in this field is due to the fact that it is a comparatively new profession with the only training available in Canada in a course at Guelph University initiated in September, 1965. The few existing professionals in Canada have been trained in the United States where there are accredited schools and of
such qualified persons, there are only three in Vancouver.

Since you are as anxious as we are to obtain the best advice possible, we would suggest that a choice be made after reviewing the work of the top half-dozen Canadian and American landscape architects. This would ease our concern that the University is not saddled with amateur advice which would only be detrimental. Unfortunately, both locally and elsewhere on the Canadian and American scene, there are many persons who style themselves as landscape architects or designers who are qualified only by a knowledge of plant behavior and plant types, but not as designers. If such a person be considered, it is absolutely essential that they be consultants to a qualified landscape architect or to ourselves so that the overall design is maintained.

If the problem is that local groups are anxious to have a hand in the University, a competition is hardly necessary. A competition is usually held to find a concept, not to gain advice on detail, and the concept already exists! On the present basis, it is quite possible to delegate areas, ie., the Courts in the Science Complex, those between the Residences, the north slope park, etc., which could be handled by separate consultants within our overall plan.

We would hope that whichever choice is made--either consultants working on differently designated areas, or an overall consultant of international repute, or some other arrangement--that the Board of Governors would decide to involve
us as co-ordinators or advisors. We trust that you appreciate that only with our active participation in this way can the original concept be realized.

Yours truly, (signed) Arthur Erickson

[Addressed to Dr. Arnold F. Hean, Chairman of the Building Committee. (CAA.)]

IV. MASSEY TO DE VRIES ON ERICKSON/MASSEY, MAY 13, 1969

Dear Bill,

Subsequent discussions with Rhone & Iredale have indicated that it is not possible for our two firms to come to a satisfactory agreement with regard to a joint venture for the extension of the Central Mall. I feel that the arguments by the Board of Governors against retaining Erickson/Massey for this work were really more relevant to 1965 than they are to 1969. The following is a list of points which might be brought up which would possibly enhance the case for retaining our firm for this project.

--There seems to be no fault with the planning of Simon Fraser--at least we have heard no valid complaints except of a very minor nature.

--The Central Mall was designed and built in an extremely short time period. Our firm, admittedly, was at that time in a formative period. However, we were probably, insofar as the
extent of exposed paving in the Central Mall, and its consequent caulking problems, ahead of the existing knowledge and technology available. Although some of the detailing is, admittedly, dubious, a large amount of the problems, as pointed out in the Spratt report, are due to poor workmanship by the contractor. The constitution of our firm is now considerably different from what it was at that time, and we are now in a position to bring to bear expertise which previously was not possible.

--The Mall Roof problems are difficult to answer at this time and perhaps should not be commented on until the Swan Wooster report is out (which by the way I anxiously await). The extreme climatic conditions which prevailed last winter, however, were undoubtedly a factor and should be borne in mind.

--The landscaping problems are attributable in part to an inadequate budget, and other design and supervision problems of which you are as well aware as us.

--Insofar as cost estimating is concerned, on all major projects we retain an independent cost estimator, whose record with us has been excellent.

--Our firm has undertaken recently the following projects:

MacMillan Bloedel building--design--$13 Million

Canadian Government Pavilion. Expo '70, Osaka complete architectural services--$2.3 Million

Urban Housing Development in Montreal--joint venture with equal responsibility all phases of the work, with a Quebec firm--$70 Million.
Bio-Sciences Building, University of Victoria--complete architectural services--$2.4 Million (tenders closed $4,000 under the budget)

University of Lethbridge--Planners and Architects, complete services - $10 Million.

Low-cost Housing Project for Richmond Credit Union--complete architectural services--in design stage--$1 Million.

High-rise Apartment House Project, West End, Vancouver for private client--construction due to commence immediately--complete architectural services--$3.2 Million.

Apartment House Project for private client, University Endowment Lands--in design phase complete architectural services--$1 Million.

We have recently obtained two-commissions which we are starting work on shortly: Bank of Canada Head Office complex, covering two city blocks in Ottawa (joint venture with equal responsibility for all phases of the work); and West Seattle Freeway Project ($70 Million), joint venture with a Seattle engineering firm) responsible for architectural and urban design.

The SFU Architects' Committee recommends on retaining of architects for various projects for the University, and has recommended Erickson/Massey for the extension to the Central Mall.

--Erickson/Massey were responsible for the 1970 Non-Academic Space Needs Study and are more familiar with the needs and overall planning objectives of Simon Fraser University than any
other firm.

--Erickson/Massey designed the new Married Student Residence, which has been built with a minimum amount of problems and to a very low unit cost.

--Erickson/Massey designed and are supervising the construction of the Northside Classroom Block, which appears to be being built also, considering the contractor, with a minimum amount of problems.

--The significant planning and architectural work at Simon Fraser has attracted world-wide attention and continues to do so. The extension of the Central Mall is a vital component in the overall plan, and if this project is not handled with extreme care by architects who are completely conversant with the philosophy which lies behind the planning of Simon Fraser University, the result could be most detrimental to the future growth of the University.

--If the University still doubts our ability at this stage of our development to carry out a project of this nature to a satisfactory conclusion for all concerned, we are quite prepared to have our work, at any time, criticized and inspected by any professionals whom the University might wish to look to. The Board may feel that if they used another architect they would get the advice of Erickson/Massey via the Architects' Committee. The Architects' Committee is a less than satisfactory way of achieving good planning in architecture. The Committee approach to professional services, and especially the design aspects, just
does not work for obvious reasons. We can make a very limited contribution through the Committee, but I must stress that it really is limited. It is only with real authority that we can have a real influence on the end result.

I trust the foregoing points may have some bearing on the Board of Governors' deliberations.

Regards, [unsigned file copy marked "GM.bp."]

[Addressed to Mr. Wm. De Vries, Director of Physical Plant and Planning. Marked "personal and confidential."