

DOCUMENT RESUME

ED 031 885

EF 002 707

By-Rounthwaite, C.F.T.

Ideal Relationships Between the Architect and Physical Plant Personnel.

Pub Date 2 May 67

Note-11p.; Speech presented at NAPPA Annual Meeting (54th, Universite de Montreal, Quebec, Canada, April 30-May 5, 1967)

EDRS Price MF-\$0.25 HC-\$0.65

Descriptors-*Architects, *Architectural Programing, Construction Needs, *Construction Programs, Institutional Personnel, School Planning

Identifiers-NAPPA, Natl Assn Physical Plant Administrators of Univ

Topics discussed include--(1) assumed operational definitions, (2) communicative links, (3) resource allocations, (4) growth planning, and (5) positive functional development. The format of the speech emphasizes key concepts and factors. A forum discussion follows. (MH)

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IDEAL RELATIONSHIPS BETWEEN THE ARCHITECT AND PHYSICAL PLANT PERSONNEL.

By C. F. T. Rounthwaite, Architect.

Since everyone here is fully conversant with the problems related to the maintenance of university buildings and grounds and all the complexities associated with the planning of new buildings and facilities, I am hopeful that a few terms of reference and definitions will help prepare the ground for our panel discussion.

INSERT 1

If you agree, the discussion can be conditioned by the following statements: -

- (A) "Many things which an architect can do to help a university client is only likely to be of interest to the newer institutions. The older universities have become so sophisticated in their approach and carry such a staff of professionals for planning purposes that it would be presumptuous for any architect to offer them anything more than a normal service."
- (B) The university client cannot be defined in the singular - it is multi-headed.
- (C) The architect is a word by which we refer to a service industry.
- (D) Comprehensive communications are essential.
- (E) The time element associated with the need for instant universities has changed the rate of pace for the architect and the university client.
- (F) Time and funds for architectural research of any particular problem are both in short supply.
- (G) A good well defined programme and statement of policy requires a great deal of detailed work.
- (H) The growth rate of universities is phenomenal.
- (I) External and internal competition is obvious.
- (J) In view of the above, can we also agree it is a wonder how well both the physical plant administrator and the architect have performed to date.

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LET US RETURN TO THE WORD IDEAL:

Presumably the word "IDEAL" is intended to be a humorous way of describing a relationship between the architect and his client which is perfectly satisfactory to them both. This utopian state is sometimes difficult to achieve but well worth striving for.

Aside from competence, the ideal relationship is composed of three essential elements - enthusiasm for the project, confidence, and understanding. While it is often the case that the physical plant administrator and the architect are well known to each other (indeed they are often personal friends), there are many factors which affect the "Ideal Relationships" between the two over which neither has any control.

If you left the administrator and the architect, who mutually respect each other, completely alone with a comprehensive programme, a realistic time table and an adequate budget, I am sure that you would get as close to an "IDEAL" situation as one can ever do this side of utopia. This is not the case. The administrator of physical plant usually represents the university client as an agent.

THE UNIVERSITY IS A MANY HEADED ANIMAL -----

Each head with a mind of its own. We will define the administrator as a person skilled in reading these many minds. The architect must be able to read the administrator's mind.

In addition to the internal attitudes of the various university powers and authorities, there are other external forces at work. These include all the government rules and regulations at all levels, the various codes and standards, opinions held by the alumni, the wishes of generous friends of the university, the concern of the press and practically anyone else who chooses to busy himself with the project in question.

By mentioning these things, I have tried to show that the university is not a simple client or a singular client.

THE ARCHITECT

What about the architect?

The architect has changed over the last several decades as well. No longer do we see the architect as the individual he was 50 years ago. Then, when some generous family was giving the university a building, he knew personally the member of the family who was administering the estate, the type of architecture he admired, how much money was

available and that unless he was run over by a street car, he was the one and only logical member of his profession to do the job. His relationship with the donor and the university was intimate. If he needed any indications as to which way he should proceed, he seldom asked for it officially. He could gather all the background hints required during lunch at his club. His office did fewer jobs and all large projects were accomplished over a longer period. He employed a handful of assistants and, as a principal, not only pocketed a much higher proportion of his fee, but paid a negligible income tax on his year's earnings.

Today the architect represents a service industry. His assistants are numerous and highly paid. Either in the architect's office or engaged for each project are other specialists, such as engineers, quantity surveyors, specification writers, accountants, field supervisors and all the rest of the team which are necessary to undertake a major project. Along with the architect, these assistants pay taxes and contribute to the economy.

Thus, the architect -- like the physical plant administrator -- is also an agent. His prime purpose is to take instructions from the client (or his agent), interpret these, and coordinate the efforts of his technical team in the production of a building which he thinks is aesthetically and practically suitable for the conditions which the physical plant coordinator believes are what the university needs and wants.

COMMUNICATIONS

Obviously a vital necessity between these two groups (I use the word "GROUPS" since neither can be considered as individuals) is proper communication. It sounds rather simple to say this, yet there is so much which can go astray due to the lack of communication or the mistaken understanding of an instruction.

History is full of examples. At Hastings, Harold's Saxons thought they had been ordered to leave their stronghold and pursue the Norman knights and their cause was lost. The Light Brigade charged the Russian guns due to a misunderstanding, Nelson ignored a signal by putting his telescope to his blind eye (a thing which no architect or administrator would dare to do in this age).

TIME FACTOR

Another element which plagues the administrator and the architect is the "TIME FACTOR". Architects feel that few clients appreciate how long it takes to do things properly. They also realize that time spent in planning is not waste time -- it is the time which avoids major blunders and makes for a satisfactory programme. Going back to the

architect who practised in the traditional manner, his time schedule was virtually of his own making. On major projects, he was allowed years. Much of the material was prepared on the site. This slowed the progress of the work to a point where it was very easy to know exactly what trade was doing what and when. The mechanical and electrical proportion of the work was low. Today, many items are not made on the site or even in the same city, or country or state. Considering how all of these elements must be brought to one place and fitted together into one building, it speaks well for both of us with respect to awareness to logistics, organization methods and management ability. Is it possible that the users, i.e., the academic staff of the university, fully appreciate what happens after they have apparently made up their minds as to the requirements?

A recent calculation indicated that our office would require 2,000 man weeks to produce the drawings for a major project. At 50 weeks a year, this allowing for holiday of 2 weeks per year, reaches the astonishing total of 40 man years. A lifetime's work! The client required this project to be ready for construction in 18 months. By simple mathematics, we can divide 18 months into 40 years and get an answer of $26 \frac{2}{3}$ people. But it doesn't work that way -- for every 5 technicians, there will be one supervisory person, making the total 32 plus all the back-up specialists such as engineers, etc. Close to 60 people will be involved before going to tender. Hundreds more will be employed after construction starts.

Should any key information be lacking or should major changes be requested once the production team is well underway, the loss of efficiency and the possibility of human error is enormous.

ARCHITECTURAL RESEARCH

In the aircraft industry it is permissible to design an aircraft, build full sized mock-ups, test fly a prototype, modify it and finally commence to produce the finished product. University administrators and their architects seldom get the chance to make more than relatively small scale models and rarely a prototype. Despite this, the users want the final product to be dead right the first day it is put in use.

PROGRAMME

The architect cannot perform to advantage in the absence of an accepted programme. Some months ago, I saw a curious old iron chest at Cambridge. King Henry VI simply filled this box, which was about 12" x 18" x 30", with gold, sent it to Cambridge and issued orders that they build a university. The chest is still there and so is the university! This is an example of definite, well defined programme, i. e., here's the money -- now get on with the project.

Now the programme as we know it is basically derived from academic requirements. The academics who advise on these matters also have their problems. They, too, have seen great changes over the past decade. They try to "Play it Cool" and make provision for all eventualities as they see them. Unfortunately this may have no realistic relationship with the available funds or the time schedule.

GROWTH RATE

Of interest is the fact that the U.S.A. annually creates new accommodation for 250,000 university students. Britain's total facilities cater to about 200,000. Canada annually spends twice as much as Britain (whose population is 3 times as great) on new university building programmes. The haste and scope of such programmes places a hectic load on the physical plant administrator, particularly in the case of the new or the young and growing university where back-up planning and programming personnel team has not had time to be fully developed. The wonder of it all is that so much has been achieved without complete chaos.

INTERNAL COMPETITION

While the programme may emanate from academic needs as well as the stated policy of the university, there are even more internal competitive forces at play. In the large universities it is a question of which campus will receive the next building dollar. In other universities there is the possibility of competition between faculties and departments. This can cause one programme to be restricted so that say the serious condition which a dean of arts reports in his faculty can be given some remedial assistance. Deans in themselves can be competitors for facilities and buildings within the university itself. By digging further, we can see evidence of this between department heads within a faculty. These facts do not make the job of the physical plant administrator any easier. You can be damned if you do and damned if you don't at the same time.

SUMMARY:

Now that we have looked at some of the major factors which influence the relationship between the architect and physical plant administrator, we can perhaps turn our minds to ways and means of making their working partnership as enjoyable as possible.

THESE SUGGESTIONS ARE: -

1. First the establishment of a well defined chain of communications which will be maintained throughout the project without exception or variation. Included in this should

be the identification of the person in charge on both sides of the partnership and their assistants in order of authority and terms of reference.

2. The establishment of a realistic budget is essential.
3. A comprehensive critical path schedule is essential, It should contain all target dates and define "Critical" persons and operations. It is useless to draw a critical path schedule and fail to update it regularly and systematically.
4. Some joint research time and budget should be allowed. Mock-up models, prototype studies, etc., may seem like kindergarten exercises but they can clarify many complex things and save money in the long run.
5. The university must be resolved as to both the nature of their programme and the policy which will govern it.
6. Growth factors do affect planning. One may have to design the ultimate scheme and then work backwards. This is hopeless if the client cannot describe the ultimate limits or has not the funds to provide the ultimate chassis. (I.E. ultimately we want a 400 bed teaching hospital but we will only construct 100 beds now. However all laboratories must be expandable.) The work "FLEXIBILITY" is too frequently and freely used. Nothing is less flexible than special use space. There are some short cuts the architects can take to help in such cases. Buildings can be so designed that growth can occur on both a vertically and horizontally ----- in a geometric pattern.
7. Finally the client must be at Peace with himself as to what will and what won't be provided in the construction programme. This requires a very high standard of skilled leadership and internal discipline. This suggests that the physical plant administrator must be completely unemotional about any project. He must be the impartial adjudicator between all factions. Above all, he must have the courage to act once he is personally convinced that he is right. The physical plant administrator must protect his architect, should the situation arise. The architect must also be ever ready to produce strong evidence supporting every decisions of the physical plant administrator.

At the beginning, I said three ingredients:-
Enthusiasm, confidence and understanding are the essential elements for the ideal relationship between the architect and the physical plant administrator. Once one leaves, little remains and no ideal relationship is possible.

I would like to show you 15 slides which represent the what I have been talking about.

<u>SLIDES</u>	<u>TOPIC</u>	<u>PURPOSE</u>
#1	singular - Architect versus client	Relationship in old days.
#2	group - Architect versus client	Today.
#3	Architect - Organized team	Today's architect is supported by a team of specialists.
#3A	(Optional) The many headed client (agent)	Client represents a group of people with individual requirements.
#4	(The client in an architectural organization) (Group of 5 slides)	
#4 - 1	Client - Senior Partners	The client's participation in various stages of the project (Frequent contact leads to importance of communication)
#4 - 2	Client - Management & Control Group	
#4 - 3	Client - Design & Pre-tender Group functions	
#4 - 4	Client - Project Group	
#4 - 5	Client - Post Tender & Construction functions.	
#5	Ingredients of good communication	Regardless of media, there are basic ingredients for effective communication
#6	<u>CHART:</u> Growth rate of several established universities <u>NOTE:</u> U. of T. and U. of California are presently growing children campuses.	Universities are growing bigger & bigger in less & less time.
#7	<u>CHART:</u> Growth rate plus enrolment & facility requirement.	Do we have to develop instant campuses?
#8	<u>CHART:</u> Comparisons - U.K. spending vs Can. spending - U.S. enrolment vs U.K. enrolment	Facts worth noting.
#9	<u>CHART:</u> Enrolment in Canada projected to 1975.	Shows what we will be faced with!

<u>SLIDES</u>	<u>TOPIC</u>	<u>PURPOSE</u>
#10	<u>CHART</u> : Enrolment in U.S. projected to 1975.	Shows what we shall faced with.
#11	Wood blocks in space relationship	Research work can ^{lead} be to more comprehensive programmes.
#12	C.P.M. Diagram	Together with modern programming technique
#13	Space grid scheme	The architect is also tackling growth & expansion.
#14	Horizontal growth spine scheme	May be an instant ^{campus} ca that grows.
#15	More models of expanding design.	

MR. MILNE: Thank you very much for your address. I am sure that the minutes will be shown to our people as the pattern as to what should be done.

FORUM AND QUESTION PERIOD

CHAIRMAN: Howard Milne, University of Toronto.

PANELISTS: C.F. Rounthwaite, Architect.
John K. Armour, York University.
D. Dimakopoulos, Architect.
Arthur Webb, University of Victoria.

MR. MILNE: Before we start the question period may I ask each member of the panel to give their views on the subject.

MR. DIMAKOPOULOS: I wanted to ask Mr. Rounthwaite first if he knew what happened to the architect of King Henry? I agree with what Mr. Rounthwaite had to say and especially with the last slides that he has shown us. It is in my opinion a very important part. I feel that the problem falls into two categories: one is the initial stage of planning, and the other is the long range planning. Emphasis must be placed on what goes on in the university: the lectures and the activities. The problem to-day is that we should be able to add a unit or remove one.

MR. ARMOUR: Mr. Rounthwaite has touched a subject that is very current in all walks of life, especially universities, and that is communications. We all know our own problems. The architect is also responsible in communicating with his various consultants. Mr. Rounthwaite showed some of them on slides. Some consultants do not get into picture early enough. Another problem that should be dealt with, in the early stages, is the one of noise. We are all becoming more sensitive to noise and I feel that architects should be retaining noise consultants in addition to other consultants. This might help to get rid of noise emanating from mechanical and other types of equipment. In communications between the architect and the client, the architect should have a greater sympathy to the Physical Plant personnel, who have to live with the plant for many years to come. Operating costs are extremely important.

Sympathy with the architect comes through communication with the plant administrator in understanding his problems of operations; the use of materials in buildings, that will allow the physical plant personnel to maintain them in an efficient and economic manner. This is extremely important.

MR. WEBB: I feel that there are a member in the audience who would be more qualified to sit on this panel than I am. I have had the rather unique opportunity of starting in on two new campuses. In one situation I was working in an organisation set up where the Provincial Government, in the shape of the Department Public Works, did all our architectural design and supervision of constructions. This created many problems and I always felt that it would be nice to deal directly with the consulting architect. I moved out to Victoria, where we have a new campus, and I have seen the other side of the picture.

The topic I put down as most critical is communication. Mr. Routhwaite has covered this point quite well. He has got enthusiasm. Where the architect gets into trouble is when he is to present his drawings, of the proposed building, to the Principal and the campus planning committee. The architect becomes a super-salesman. He presents his very well-drawn and accurate drawings of the building and he addresses the Principal, the client, the university representatives as a group of laymen. He very often uses architectural jargon so that everyone, at the presentations, is almost afraid to criticise because he will have to admit that he did not understand the meaning of some of the words. Then the next confrontation of the board is when the building is about three-quarters finished, and it seems that this is not what they approved and that somewhere along things have changed.

To me, the ideal relationship with the architect would be to set up some type of procedure where these things do not happen. I sympathize with the architect; it does seem that somewhere the lines of communication fell down.

MR. MILNE: I now invite questions from the audience and ask you to stand and identify yourself.

MR. ADAMS, OREGON STATE UNIVERSITY: I would like to ask Mr. Rounthwaite if the slides will be include in the minutes. They were very useful.

MR. ROUNTHWAITE: We just put those slides together in our office but we would be glad to submit them.

MR. CLARKE, MCMASTER UNIVERSITY: You talk about architectural research. Do you sent teams out to buildings that have been completed to review some of your tests.

MR. ROUNTHWAITE: Yes, we do. What we have been trying to do is to have teams follow up on what we call maintenance program. We do come back if you wish and we are more than happy to furnish a maintenance program. And the people who do give us the greatest opportunity, in this regard, are usually the hardest business people, mostly bankers, insurance companies, and similar types of institutions.

MR. SIMON, MICHIGAN STATE UNIVERSITY: We have been using a contractor for some work. The contractor has to include this in his price. One of the problems we found is that the contractor himself does not seem to make good use of it. If you cannot get the contractor to do it, do you still consider the critical planning program worth while?

MR. ROUNTHWAITE: I think it is worth while. I regard it as an absolute necessity. The critical planning schedule should be kept up to date. If you find that the people are ignoring it, the best way is to have a meeting every week with them, go over it and ask for a date and time that has some relationship with reality.

MR. WEBER, UNIVERSITY OF MARYLAND: I would like to ask an architect if they have any set form that helps a client know the architectural requirements.

MR. DIMAKOPOULOS: Speaking for our firm, we do have previous examples of procedure, that have been followed successfully. We have a formula with dates, including the critical path method. We should also accept that there could be an overlap of the different demands from the client, the architect, the consultants and the construction. So that from time to time you can review and re-adjust. I do not say that it would be wise to follow a formula, but there should be points of reference.

MR. MCKAY, UNIVERSITY OF TENNESSEE: Communication is my problem. We all realise that there are horizontal and vertical paths of communication. Most of us can handle the horizontal. But the difficulty lies with communication between two organisations. Can you furnish some guidelines?

MR. ROUNTHWAITE: I think the first thing you have to decide is that you are going to have a communication system and, having decided that, you have to discipline yourself to work within the boundaries of the system. Once you have established a line of communication, a method of communication, it must be kept going. In other words, if you say verbal instructions must be confirmed within 24 hours, at least you get something started, and the individual who received these instructions should be identified. The armed forces have a very good system of communication.

MR. CUNNING, BELOTT COLLEGE: I would like to ask Mr. Dimakopoulos how he feels about the use of specialised consultants for certain of the buildings.

MR. DIMAKOPOULOS: I am all in favour of using consultants in the areas you have mentioned, if we do it in terms of this parallel exchange.

MR. MILNE: Are there any more questions? I would like to thank the panel for their participation.