

search has indicated some deterioration in this value when models have been applied to new data.

- iii. A maximum number of variables should be included in the model (12) in order to reduce the amount of data required initially and the time and cost required in collecting future data.
- iv. There should be no discernible patterns in the residuals.

(NOTE: The figures in brackets represent an indication of the likely values to be achieved).

Two tests that can be adopted to justify the use of the model in practical project estimating might be as follows:

- i. Comparison of the model's predictability against the actual values obtained from further projects.
- ii. Comparison of these predicted values against estimates prepared using any of the traditional methods.

CONCLUSIONS

If the full potential of the computer is to be harnessed for the benefit of the quantity surveyor then it is likely that cost models will have some part to play. The time consuming task of calculating algebraic formula has in the past discouraged this approach. The computer, however, has an appetite to perform repetitive and complex arithmetic without effort and is particularly suited to this task.

The development of cost models and their application to the wider aspects of estimating have the following advantages.

- i. Cost information can be provided more quickly.
- ii. More information is generated so that more informed decisions can be made.
- iii. The information will be more reliable introducing greater confidence in the decision making process.
- iv. Suitable cost information is able to be produced at an earlier stage in the

design process.

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'When will They Ever Learn?' (Re JCT 80)

By D. Phillips, FIQS



D. Phillips

Those members of the Construction Industry who have, like myself, spent a lifetime principally on the contracting side protecting Contractors' interests and/or preparing and pursuing claims on their behalf will, I feel sure, as and when they have studied the JCT 80 and considered the application of the Terms and Conditions relevant to the practical carrying out of the works and the consequential financial affect which will arise therefrom, be asking the question which is the heading of this article and having the sentiments expressed in the well known song from which this heading is a line.

Although many articles have been written and published and Seminars given, these have in the main been written and given by people with a legal background or other professionals who regard themselves as contract specialists, but both of these

categories of persons who have expounded upon JCT 80 would appear to have failed to appreciate the practical rather than the theoretical application of these Conditions to the day to day running of the contract, and in particular the considerably increased responsibilities placed upon the Architect so that any failure by the Architect to strictly comply with same affords to the Contractor a much wider avenue for presenting claims to ensure the successful financial outcome to the contract. Contractors who are properly

The objections which have so far been put forward by the Architects to the use of this Form of Contract do not fully anticipate the difficulties which will be encountered in the operation of JCT 80, and I feel it is also in the interests of the Quantity Surveying Profession for the members thereof to be made more aware of what will be the practical application of this Form of Contract, rather than the theoretical interpretations which have been placed upon same in the many articles which have so far appeared in the various Trade Journals.

organised and who have learnt the lesson of what has been described as "THE HIGH COST OF UNDER-ORGANISATION" will not be slow to note that JCT 80 requires continuous notices to be given to the Architect, and that in respect of each of same the Architect must take specific action either without delay or within a certain specified period so that it can be anticipated that there will be a considerable increase in the amount of correspondence with which the Architect will be required to deal and take such action as is required by the Conditions, knowing always that unless action is taken in the manner and within the proscribed periods of time as laid down, the Employer can be

placed in a situation of fault and thus be unable to operate any rights due to him under the contract. The article by Tay Moxley in "Building", 23rd January 1981, shows that the Architects have appreciated the difference between practical and theoretical applications of the Conditions of JCT 80, whilst the counterpart article by John Sims only further illustrates the difference of approach, and this can be seen quite clearly when he compares Clause 26 of JCT 80 with Clauses 11(6) and 24(1) of JCT 63, because the conclusion he draws therefrom does not take cognisance of the fact, as any Architect knows, that for a properly organised Contractor the giving of prior notice of likely disruption of regular working is no difficulty whereas for the Architect to take remedial action so as to avoid this situation may involve extra work in re-designing and/or production of drawings at a much earlier date than would have been anticipated, but in any case is likely to involve additional costs and time and may in fact cause delays on the contract.

Whilst quite a lot of publicity has been given to and have highlighted the provisions in respect of nominated Sub-contractors, and it seems that the consensus of opinion is that there are unlikely to be ever correctly implemented, there is a very much wider reason for discontent with JCT 80 in that it incorporates too many changes at one time so that even those persons fully conversant with the intricacies of a building contract are unable to assess the relevance of each clause in relationship to the other clauses, and this factor together with the revised format whereby the Condition Clauses have a large number of sub-sections and sub-sub-sections makes this JCT 80 a Form of Contract which can only present very big problems for the Architect in the day to day running of the contract and if it is used will, without doubt,

incur considerably increased costs and extra time spent by the Architect and/or his staff, whilst the possibility of error in reference to the correct sub-sections of a Condition Clause are very high and therefore if the Architect is to protect himself and the Employer's position there will be a necessity to use the services of senior staff in dealing with all correspondence on any contract let under JCT 80 which cannot but incur extra costs and take architectural staff away from their primary purpose in life which is the designing of the works. In addition to what has been stated heretofore attention must also be drawn to the fact that JCT 80 is based upon the use of the SMM6 under which, as I feel most people are now aware, the Architect is required to provide to the Quantity Surveyor sketches and other drawings at the stage of the taking off of the Bills of Quantities, whereupon the Quantity Surveyor need only to refer to same without fully describing the works required. In an ideal situation this system may be perfectly satisfactory, but the ideal situation so rarely exists and in very many cases the time allowed for preparing the Bills of Quantities and getting the documents prepared and sent out for tender is not as long as either the Quantity Surveyor or Architect would desire, so that again a factor has been introduced which has a high probability of the Bills of Quantities and the associated sketches and drawings being amended or altered in some manner as and when the Architect settles his final design require-

ments, because with all due respect to Architects and after, as I have stated, a lifetime in the Industry it is only rarely that the Architects' drawings are absolutely correct in every detail and thus the sketches and drawings to comply with SMM6 only need to be slightly different to the final details and immediately you have a prime area for claims to be generated, the responsibility for which will of course then rest upon the Architect and his staff rather than upon the Quantity Surveyor, as was the position prior to the issue of SMM6.

The reaction so far expressed to this JCT 80 indicates that it is not loved by the Architects and up to the present time shunned by the major Quantity Surveying Practices, whilst the well organised Contractors and Sub-contractors can only in my opinion regard any estimate given under this Form of Contract as being only a notional figure to which the final account will bear no relationship, so that when one hears that the DOE is actively encouraging Local Authorities to use JCT 80 it is only possible to express amazement, because the use of JCT 80 indicates that it is not loved by the expenditure by increasing the architectural staff of such Local Authorities although this is directly contrary to the Mandate on which the Government was elected and is entirely contrary to what we have been led to understand is the objective of the Right Honourable Minister responsible for the DOE.

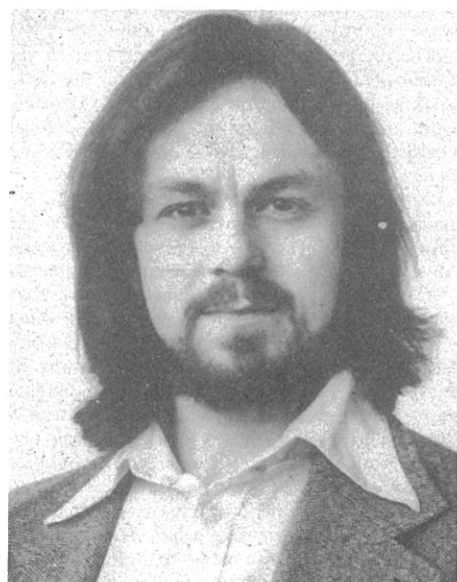
With Architects needing to increase their

costs in order to attempt to cope with the JCT 80 and SMM6 and the Contractors improving their organisations to be able to comply therewith there will be some rise in cost of building operations, but the real total cost of the use of JCT 80 will not be shown for one or two years after the first contracts on this form are entered into, and it is as and when the final account comes towards settlement stage that the real extra costs incurred by the use of this Form of Contract will come to light, and it is at this stage also that it will be begun to be appreciated that although the JCT 63 might have been the subject of adverse comments by the Courts, including it being described as "notorious for its obscurities" such expressions will be very mild compared to those which the Courts use as and when they have to consider JCT 80.

In conclusion and to give your readers the benefit of my many years of experience in dealing with contracts of all types I would state that in my opinion whilst JCT 80 may be operated by people like Local Authorities who have a bottomless purse and can just throw the cost on the ratepayers it is not a Form of Contract which can be for general use, so that in the event that it does come into general use I as a Contractors' Claims Consultant would be only too pleased knowing, as I do, the scope and opportunities which would then be afforded to me in representing my Clients.

Postgraduate Courses in Construction Management

By R. F. Fellows, BSc(Hons), AIQS



R. F. Fellows

During recent months the technology gap, between those who design building and civil engineering projects and those who perform the construction activities at the workplace, has received a considerable amount of attention in the press, prompted by failures of buildings.

This situation is compounded by the

fragmentation of the industry producing

As an avid reader of "The Quantity Surveyor", I have noticed that whilst the Journal has carried many articles of current importance and interest upon a wide variety of subjects, quite naturally certain problem areas of our profession and the construction industry in general have not received such attention.

In my perception and experience of the industry (such as it is), the basic and probably increasing problems of a widening "technology gap" between designers and operatives at the workplace and the ever more complex communications networks for the proper and accurate transfer of information have been the subject of comment in the popular press but not to any significant degree in the relevant specialist journals.

I have therefore drafted my own views regarding a realistic and practical solution to these quite basic (and acknowledged) problems in the hope that consideration of these issues might be stimulated.

I consider this to be a most appropriate forum, as the following article clearly demonstrates, for it seems to me that the quantity surveying profession may well hold the key to resolving the technology and communication dilemmas.

exceedingly complex chains of communi-

cation between the parties concerned with any project. Such points were succinctly expressed by Dr. William Allen as part of an article, discussion problems of the Scotland Yard building in "The Guardian", 18th September 1980.

The question which springs from the basic premises of necessary technology and its advancement leading to a "technology gap" and the problems of adequately communicating the requisite information from the designers to the builders is, "How can the technological aspects be accommodated and the associated communications problems overcome?"

Education, I would suggest, is the answer. The purposes of education are numerous but in the field of higher education two major purposes must be:

1. to produce experts in various subjects, and
2. to ensure those experts appreciate their role, the roles and problems of people with whom they work and the ultimate effects of their actions. Communications is thus a vital part of higher education.

Already many first degree and equivalent courses in Building disciplines exist. These are filling a vital gap in Building education. Many are of the "broadbased", sandwich type giving a wide appreciation of the