

## THE FEE SENSITIVE RISK EXPOSURES OF PROJECT AUTHORIZED PERSON IN HONG KONG

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### Introduction

Design and construction of buildings are heavily regulated in Hong Kong. The most important piece of legislation exercising building control is the Building Ordinance. Other supporting regulations include the Building (Administration) Regulations and the Building (Construction) Regulations. The government department responsible for the implementation of these statutory building control measures is the Buildings Department. The director of Buildings, head of the Buildings Department, exercises his power vested with him by virtue of the Building Ordinance, in the name of Building Authority.

In essence, the Buildings Department operates a central plan processing system, thereby controls private building developments through administrative procedures and statutory powers. As economy grows and increases in private building developments, pressure on the Government department for checking of building plans began to mount. To alleviate the burden on government department, a professional licensing system called the registration of Authorized Persons was introduced in 1974 (Ho 1998). This system has been used in Hong Kong since then and is quite unique for Hong Kong. Reported study on project AP is limited. Discussion on legal liabilities (Chan and Leung 1997) and professional indemnity (Chan 1997) are the few found.

The intensity of construction activities in Hong Kong for the last two decades is phenomenal. The AP system contributes to the rapid growth, especially in sharing the control responsibilities with the governmental authorities. Under this licensing scheme, professionals registered with the Buildings Department shall be held responsible for ensuring building

works are designed and constructed in compliance with the statutory requirements. Three lists of AP are kept by the Buildings Department. List I is for Architects, List II is for civil or structural engineers, and surveyors are grouped under list III. Applicants for inclusion in the register must possess the relevant qualifications, experience and competence assessed through interviews conducted by the respective registration committee constituted under the Building Ordinance.

The importance of AP can be evidenced by the fact that a project AP must be appointed to coordinate a proposed building works (excepted those exempted from this requirement under the Building Ordinance). "Building works" is defined very broadly under the Building Ordinance and includes any kind of building construction, site formation, foundation works, repairs, demolition, alteration, addition and every kinds of building operation. In this paper, the major responsibilities of AP under the Building Ordinance and the allied regulations are outlined.

Furthermore, a project AP is also often appointed by the project owner as the project team leader thus assumes further responsibilities towards the owner, contractor, third parties and their fellow team members. The study reported in this paper seeks to identify the risk exposures that critically affect the fee of project AP. The risk exposures of project AP are first discussed. With the use of a questionnaire study, practicing APs then assessed the riskiness of the exposures. Using the project remuneration level as grouping factor, the significance of the various risk categories are compared.

Responsibilities of AP under the Hong Kong Building Ordinance

Under Section 4(1) of the Building Ordinance, whoever wants to carry out building works, an AP has to be appointed to coordinate the proposed works. If structural elements were involved, a Registered Structural Engineer (RSE) would also be appointed as a consultant to the AP. Section 4(3) of the Building Ordinance summarizes the duties of an AP and provides that: "An AP appointed shall (a) supervise the carrying out of the building works; (b) notify the Building Authority of any contravention of the regulations which would result from the carrying out of any work shown in any approved plan; and (c) comply generally with the provisions of the Ordinance".

The duties of a project AP therefore are wide-ranging. Broadly speaking, the duties can be examined in three stages of the development; pre-construction, construction and post-construction.

### **Pre-Construction Stage**

Approval of plans by the Building Authority is central in the statutory building control process. This process serves to ensure that the design of the project complies with the relevant regulations. Any person intending to carry out building works is required to obtain approval of plans by the Building Authority (section 14(1)(a) Building Ordinance). Section 11 of the Building (Administration) Regulations details the types of plan required.

Under section 12(1) of the Building (Administration) Regulations, all plans submitted for approval shall be prepared and signed by an AP, and his signature shall be deemed to be his assumption of all responsibilities for the plan, structural details or calculations as the case may be. This is onerous, as other designer instead of the project AP may have prepared some of the design. Nevertheless, under these provisions, the project AP assumes all responsibilities.

Furthermore, under section 18A of the Building (Administration) Regulations, in submitting plans for approval the project AP certifies that the plans were either

prepared by him or under his supervision or direction; and to the best of his knowledge and beliefs that the plans comply in all respects with the Building Ordinance and the allied Regulations. Before physical works can be started on site, even with plans approved, it is necessary to obtain Consent to commencement of works (section 14(1)(b) of the Building Ordinance and sections 31 & 32 Building (Administration) Regulations). The application for such a consent is also the responsibility of the project AP.

### **Construction Stage**

Under section 36 of the Building (Administration) Regulations, it is the duty of the project AP to supply plans approved by the Building Authority to the registered contractor. It is also incumbent on the project AP to give such periodical supervision and make such inspections as may be necessary to ensure that he building works are being carried out in general accordance with the provisions of the Building Ordinance and Building (Administration) Regulations section 4(3)(a) Building Ordinance and section 37 Building (Administration) Regulations. During the late 80's and early 90's, several significant building defects on completed projects were discovered.

These include faulty foundation and severe structural cracks. As a result, tighter control on supervision was instigated in 1996. It is now necessary to have the project AP, the registered structural engineer, the registered building general contractor and the registered specialist contractor jointly prepare a supervision plan (section 39A Building (Administration) Regulations).

It is also the duty of the project AP to appoint such number of technically competent persons as appropriate to give such supervision as may be required. The Building Authority may order cessation of building works if there has been a material deviation from the supervision plan.

## Post-Construction Stage

Within 14 days of the completion of any building works the project AP shall certify that the new building has been erected or the building works carried out in accordance with the plans approved in respect thereof by the Building Authority, and that the new building or such building works, as the case may be, are in his opinion structurally safe and shall, within the said 14 days, send such certificate to the Building Authority (section 25(2) Building (Administration) Regulations).

The project AP also need to certify that water supply has been connected and the water fitments etc. have been completed in compliance with the relevant regulations in connection with plumbing and drainage works (section 25A(1)(2)). It is also incumbent on the project AP to liaise with other Government departments to obtain the relevant certificates. For example, a fire certificate issued by the Fire Services Department certifying completion of the Fire Services Installation is a condition that must be fulfilled before an occupation permit can be issued.

**Other Responsibilities of project AP**  
As project AP is often appointed by the project owner to be the project team leader, thus the project AP assumes other responsibilities other than those from the Building Ordinance, towards Project owners, Contractors, Third Parties and Fellow Team members. The responsibilities of the project AP towards the project owner are mainly governed by the contract of engagement. This often imposes duties and standards such as maximizing development potentials. Putting the project briefs into drawings and specifications is a challenging job.

In Hong Kong, the project team leader is often the contract administrator of the construction contract and hence is liable in contract and tort if he fails to perform entrusted by the project owner. These include the quasi-arbitral roles such as certifying practical completion and assessing extension of time. In exercising

these functions, the contract administrator also owes a duty towards the contractor. The project AP could also be liable in tort to a third party for personal injury or damage to property. Normally, he owes a duty of care to the adjoining owners to ensure their interests are not affected by the construction work. He also owes a duty of care to the general public for the safe execution of care of the proposed works, save for the negligence of the contractor. Whether a breach of such a duty is judged by a professional of equal experience and knowledge would do in similar situation. It is the one of the main duties of the project team leader to co-ordinate the works of the other consultants, in this context; the project AP may attract liabilities arising from failure to discharge this duty in a professional manner.

In summary, in discharging his duties as project AP and project team leader, an AP may be exposed to risks due to:

- Liabilities arising from duties of an AP under the Building Ordinance at the pre-construction stage.
- Liabilities arising under the Building Ordinance at the construction stage.
- Liabilities arising from duties under the Building Ordinance at the post-construction stage.
- Liabilities towards the client.
- Liabilities towards the contractor.
- Liabilities towards third parties.
- Liabilities towards his/her fellow project team members.

## The Study

Having identified the types of risk that APs are exposed to, this study further seeks to examine the impact on risk exposures with different fee level. As information on remuneration is considered as commercial secret and it is unlikely that the respondents will disclose the actual fee percentage charged, the respondents were instead asked to indicate the remuneration level in three ranges; below 3%, 3-5% and above 5%, taking into

account the usual remuneration level falls in the range of 2% to 8%.

For the seven types of risk exposures identified as aforesaid. Each risk category is separately measured by a number of questions. The risk exposure is assessed by a Likert scale of 1 (very low risk) to 7 (very high risk). The measurement of each risk category is calculated by the following equation:

$$X_i = \frac{\sum_{j=1}^m Q_{ij}}{m}$$

Where  $X_i$  = Risk score for liability type  $i$ ;  
 $Q_{ij}$  = Risk measurement questions under liability type  $i$ ;

$j$  = number of questions under  $X_i$ .

Under each of the risk categories, a number of questions setting out the scenarios under which risk may arise are included. This enables more thorough assessment of the risk categories. The following details the risk assessment questions:

- $X_1$ : Liabilities arising from duties of an AP under the Building Ordinance at the pre-construction stage due to:
- \* Statutory role as an AP.
  - \* Submission of building proposals & endorsement of building proposals.
  - \* Endorsement of structural stability.
  - \* Endorsement of building plans prepared by subordinates.
  - \* Endorsement of demolition plans.
  - \* Endorsement of site formation plans.
  - \* Endorsement of compliance of statutory test.
  - \* Temporary absent of AP without notification to the Building Authority.
  - \* Acting as a temporary AP.
  - \* Explanation to the client on the grounds for disapproval of the building proposal submitted.
- $X_2$ : Liabilities arising under the Building Ordinance at the construction stage due to:
- \* Carrying out of amendment works without a valid consent for commencement of works.
  - \* Submission of further particulars to the Building Authority.

- \* Periodic supervision.
  - \* Inform contractor on works that do not comply with the approved plans and corresponding building regulations.
  - \* Fail to advise the client on the need to appoint additional specialist consultants.
  - \* Ensure timely amendment plans submission and consent application for all changes.
- $X_3$ : Liabilities arising from duties under the Building Ordinance at the post-construction stage due to:
- \* Certification of completion of building works.
  - \* Certification to Building Authority on the advice from other consultants.
  - \* Liaise with other government departments for the relevant certificates which affect the issuance of the occupation permit.
- $X_4$ : Liabilities towards the client due to:
- \* Fail to achieve full development potential.
  - \* The brief requirements cannot be achieved.
  - \* Fail to give proper advice on the implications on innovative design approach.
  - \* Delay in giving necessary information to the contractor.
  - \* Delay due to variation order.
  - \* Fail to give proper advice on the specialist items.
  - \* Fail to control the site progress and construction cost due to inadequate supervision given.
  - \* Improper issue of the Certification of Practical Completion.
  - \* Improper certification on the saleable floor area in sale brochures.
  - \* Defects due to design fault.
  - \* Certification of the substandard work.
  - \* Fail to give proper advice on the effect of variation works.
  - \* Acting ultra vires to the contract provisions.
- $X_5$ : Liabilities towards the contractor due to:
- \* Late issue of drawings.

- \* Delay caused by client's approval.
  - \* Late respond to request for information or approval of shop drawings.
  - \* Biased contract administration.
  - \* Feasibility of the construction details.
  - \* Fail to provide proper technical support in related to the building control matters.
- X<sub>6</sub>: Liabilities towards third parties due to:
- \* Duties of care towards the adjoining building owners.
  - \* Duties of care towards the general public safety.
- X<sub>7</sub>: Liabilities towards your fellow project team members due to:
- \* Fail to lead consultant & control of the programme to achieve design brief.
- \* Fail to give proper advice on your design in related to the requirements of the Building Ordinance.
- Data was collected by a questionnaire survey. A total of 150 questionnaires were sent out to the practicing APs randomly elected from the List I AP register. List I register is for architects who typically assume the dual capacities of project AP and team leader. A total of 42 responses were obtained, nine of them were incomplete and hence not used in the analysis. As a result, 33 data sets were used for the ANOVA study. The numbers of project for the low, medium and high fee group are nineteen, seven and seven respectively.
- The SPSS programme (SPSS 1993) was used to perform the ANOVA. For this purposes, the notation used are:

Remuneration level: 1= Low fee (below 3%);  
 2= medium fee (3%-5%);  
 3= high fee (higher than 5%)

- X<sub>1</sub> = Risk score for liabilities arising from duties of an AP under the BUILDING ORDINANCE at the pre-construction stage;
- X<sub>2</sub> = Risk score for liabilities arising under the Building Ordinance at the construction stage;
- X<sub>3</sub> = Risk score for liabilities arising from duties under the Building Ordinance at the post-construction stage;
- X<sub>4</sub> = Risk score for liabilities towards the client;
- X<sub>5</sub> = Risk score for liabilities towards the contractor;
- X<sub>6</sub> = Risk score for liabilities towards the third parties;
- X<sub>7</sub> = Risk score for liabilities towards his/her fellow project team members;

## Discussions

The analysis of variance is a procedure to test the hypothesis that several populations have the same mean. In this study there are three groups, the low fee, the medium fee and the high fee group. The ANOVA result can be used to examine whether there exists significant differences in risk exposures among the three groups. The null hypothesis in this case is that the population means for all three groups are the same. That is, there is no difference in the average risk scores for projects in the three fee level groups. The alternative hypothesis is that there is

a difference. The ANOVA Result is provided in Table 1.

In ANOVA, the observed variability in the sample is divided into two parts: variability of the observations within a group about the group mean (Within-group variability) and variability between the group mean (Between-group variability). The F value is the ratio of the two mean squares. If the null hypothesis is true, a F value close to one can be expected. A large value of F indicates that the sample means for the groups exhibit significant differences. In addition, the significance level (Sig.) value also helps to determine whether the null hypothesis is to be rejected. For example,

as in Table 1, risk category  $X_2$ , the F ratio is 7.787 with Sig. value of 0.002. That means the probability of obtaining a F ratio of 7.787 or larger when the null hypothesis is true, is 0.002. Therefore, a high value of F with a low Sig. Value, would suggest the null hypothesis is to be rejected.

With the objective of the study in mind, the ANOVA results for the seven risk categories are discussed in descending order of the F ratio. The risk category for liabilities arising under the Building Ordinance at the construction stage gives a F ratio of 7.787 with Sig. of 0.002. This suggests a significant difference in the group means among the three fee groups.

In fact, the group mean risk scores are the highest among the seven risk categories. With a low fee, the AP will need to keep his expenditure under control and in this circumstance supervision is an area that is often compromised. Less frequent visits by the project AP or delegation to junior staff may be a result. Another way to curb expenditure is to adopt a lean staff strategy. Each of these strategies will increase the chance of the project AP failing to fulfill his obligations during the construction stage of the project. A higher fee level obviously has a positive effect against the potential pitfalls due to compromising acts.

**Table 1: ANOVA Results**

Risk Category	Group	Mean	F	Sig.
$X_1$	1	4.4211	1.652	.209
	2	4.1429		
	3	4.0000		
$X_2$	1	6.1579	7.787	.002
	2	5.8571		
	3	5.2857		
$X_3$	1	4.3158	2.440	.104
	2	3.7143		
	3	2.8571		
$X_4$	1	6.0526	2.619	.089
	2	5.8571		
	3	5.2857		
$X_5$	1	2.7368	1.901	.167
	2	2.2857		
	3	2.1429		
$X_6$	1	4.5789	4.727	.016
	2	4.000		
	3	4.000		
$X_7$	1	3.1579	.858	.434
	2	2.8571		
	3	2.4737		

The next highest F ratio is found in the risk category related to liabilities towards third parties. This can be viewed as an extension of the lack of supervision, thus allowing the contractor chances to engage in hazardous acts. In this circumstance, the project AP may be sued jointly with the contractor. Fortunately the group mean risk scores are around four, being in the

middle of the seven point Likert Scale, suggesting that the risk level is not that high. Again, a higher fee will lower this risk exposure.

The third highest F ratio relates to the category of risks arising from liabilities towards the client. The group mean risk scores are also quite high, all above five in a scale of seven for all three groups. This

can be explained by the fact that in Hong Kong, the land costs are very high. The clients are anxious and in fact aim at utilizing the full development potentials. Nonetheless, building developments are subject to many constraints imposed under various regulatory frameworks. These include the Lease Conditions, Outline Zoning Plans, Development Permission Area Plans, and provisions under the Building (Planning) Regulations. A building proposal should meet all these constraints as well as the client's brief.

These tasks require a good level of experience and expertise. A project AP is likely to face actions from the client if the design fails to make full use of the development potential, such as permitted plot ratio and site coverage. As project team leader, the project AP will also act as the contract administrator of the construction contract. A typical construction contract empowers him to issue change instructions. If the changes are initiated due to the fault of the AP, the contractor can seek an extension to the contract period as well as loss and expenses resulting there from. The client may in such circumstances, turn to the project AP for the loss suffered. In terms of site supervision a project AP is not expected to be permanently on site.

However, in the case of *East Ham Corporation v. Bernard Sunley & Sons Ltd.* [1966] A.C.406, it was ruled that the project architect (in the context of our analysis, the project AP assumes such a role) needed to periodically supervise so as to control the site progress and the construction cost. In another case (*Wharf Properties Ltd. & Another v Eric Cumine Associates Architects Engineers and Surveyors* (1991) 52 BLR 1) the contractor successfully obtained compensation from the project owner due to a delay for which the contractor was not responsible. The project owner alleged that the project AP had failed to properly supervise the contractor, and sought to recover losses of rental income from the project AP.

In the capacity of project team leader, the project AP often has to exercise quasi-

arbitral functions. These include assessing extension of time, loss and expense, and certifying project completion. The House of Lords in *Sutcliffe v. Thackrah* [1974] A.C.727, rejected the argument that architects, as certifiers, enjoy an immunity from actions in negligence, akin to those of an arbitrator or judge. A project AP, in exercising these duties owes a duty of care to the client for the proper exercise of his professional discretion. If they fail to exercise proper care, project AP's could be concurrently liable to the project owner in contract (arising from the engagement agreement) and in tort for negligence.

The F ratios for the other four risk categories are not high and the Sig. value is comparatively high, suggesting that there is no significant difference among the group means. For those risks arising from the design and submission for approval ( $X_1$ ) and completion procedures ( $X_3$ ), the duties of the project AP are spelt out in the Building Ordinance and failure to fulfil such duties are clearly the direct responsibilities of the AP. Hence, although the risk can be considered as medium, and even the fee is not enough, the project AP will not risk his own professional reputation. As for the liabilities towards the contractor ( $X_5$ ) and his fellow team members ( $X_7$ ), the low group mean risk scores for all three groups suggest that the respondents do not consider these risks are critical. The low F ratios also suggest small group mean variances for the risk scores among the three fee groups.

### Concluding Remarks

As Building is a basic necessity, building developments need to be closely monitored. In Hong Kong, the Building Department is charged with the job of ensuring building works comply with the requirements of the Building Ordinance and the associated regulations. The system of the use of APs serves as privatizing such responsibilities to qualified professionals. A project AP is therefore personally responsible for the design and construction of building works under this licensing system. Among the seven risk

categories identified in the reported study, the risks due to liabilities arising under the Building Ordinance at the construction stage and those towards third parties and the clients are found to be fee sensitive.

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