

HKIA / ARB Professional Assessment 2010
Paper 1 - Statutory Controls in Building Works

STRUCTURE OF PAPER

Paper 1 is a closed-book examination comprising multiple-choice and short-essay questions.

The MC section has 40 multiple-choice questions. Each MC question carries 2 marks. The passing mark is set at 65%.

Candidates need to answer 1 compulsory short-essay question and 2 out of 3 other short-essay questions. The compulsory question carries 30 marks and the 2 other questions each carries 15 marks. The passing mark is set at 50%.

Questions on all topics, as detailed in the syllabus of PA Handbook, included:

- (a) Buildings Ordinance
- (b) Submission of plans to the Building Authority
- (c) Other related Ordinances and Codes of Practice

The questions were set to test candidates' knowledge, skills and maturity to handle their day-to-day work as an Architect.

ASSESSMENT OBSERVATIONS

FOR THE WHOLE PAPER

282 candidates took Paper 1 and 119 candidates (42.20%) passed.

Question 1 (Compulsory)

The first four parts, (a) to (d), of the compulsory question require candidates to determine the development potential (including allowable plot ratio, site coverage and building height) for the combined lots under different sets of conditions. It calls for an understanding of a number of basic concepts, namely, that of specified street, classification of site, allowable building height, provision of service lane and right-of-way and its implication on site area. It also tests the application of the First Schedule in Building (Planning) Regulations, and the conversion of domestic and non-domestic plot ratios for mixed-used development. In general, candidates performed better in these parts than in the last part. Candidates failing these parts made some or all of the following mistakes:

- (a) They did not understand right-of-way and its relationship with site area;
- (b) They could not correctly classify the site;
- (c) They miscalculated the building height;
- (d) They missed out on the requirement of a non-domestic podium with plot ratio 2;
- (e) They misquoted the applicable data from the First Schedule.

The last part, (e), of the question tests candidates' more in-depth knowledge regarding designation as specified street, distinction between surrender and dedication, determination of the street width in relation to configuration of the lots concerned, and acceptance criteria for dedication of an area for public passage in exchange for additional plot ratio. It also requires candidates to compare the development potential before and after setting back from the lot boundaries. Most candidates performed poorly in this part.

Question 2

In this question, candidates are required to demonstrate their understanding of the objectives of the Buildings Ordinance and how they are achieved.

Though based on factual knowledge, the question demands a good understanding of how the Ordinance and regulations are intended to work, together with organized thinking on the

candidates' part to present their answers in a logical and orderly manner.

68 (33.7%) out of 202 candidates who attempted this question attained the passing level of 7.5 marks. 59 candidates (29.21%) achieved only 0 to 4 marks out of 15.

This generally indicates that about one third of the candidates had a fair understanding of the subject asked, another third has some, but grossly inadequate, knowledge and the remaining third, again as pointed out in previous years' observations, only came to try their luck and familiarize themselves with the way the paper is set.

Question 3

252 candidates attempted this question and 145 (57.54%) passed. The passing rate of Q3A (82.94%) is much higher than that of Q3B (40.87%).

Section 16(1) of Buildings Ordinance is a "must study" item; therefore candidates generally get good marks. Candidates with experience in statutory submissions should be able to do well.

From the answer scripts, one may conclude that the main reasons of failing Q3A are:

- (a) Some candidates failed to allocate sufficient time to answer the question;
- (b) Some candidates listed several disapproval items on similar grounds: such as mistake in plot ratio calculation as one "ground", mistake in site coverage calculation as another "ground".
- (c) Some candidates did not know the answer and put down incorrect "grounds", such as omission of safety plans, non-compliance with lease conditions etc.

Answers to Q3B could only be found in Paragraph 4 of the Code of Practice for Site Supervision. Therefore, candidates who did not study this section would not easily gain marks. Many candidates put down and elaborated the duties of AP, as prescribed in Buildings (Administrative) Regulations 36, 37 & 38. Surprisingly, quite a number of candidates were able to quote from memory the whole section of the Code of Practice concerned and obtained high marks.

Question 4

103 candidates attempted this question and 64 (62.14%) passed.

In Question 4A, candidates are expected to demonstrate a basic knowledge of the circumstances requiring submission of master layout plans for certain developments, and of the information required to be included in a MLP submission.

In Question 4B, candidates are expected to be informed of statutory controls, as routinely exercised by the Building Authority for developments within the 'Scheduled Areas.'

Both questions are simple and straightforward; they do not require candidates to give any analysis of an actual or hypothetical situation, nor are they designed to draw on candidates' actual practical experience to enable them to provide correct answers.

Comments on performance of candidates on Question 4:

- (a) Most candidates lack basic skill in tackling an essay-type question and this is reflected in the sketchy answers the majority of them have provided;
- (b) Most of them have not encountered similar and related problems in their practical training;
- (c) Those who failed or scored under 11 marks either were not sufficiently attentive in the Professional Assessment seminars or had not revised adequately well for the tests.

RECOMMENDATIONS TO CANDIDATES

- (a) Attend the lecture series, seminars, conferences and workshops arranged by HKIA and other tertiary institutes or professional institutes.

- (b) Get on-job experience in particular areas of interest.
- (c) If the candidates do not have on-job exposures as mentioned in (b) above, reading what other teammates have done would also help.
- (d) Keep abreast of the times ---- through reading, and use of audio, video or internet resources.
- (e) Take initiative in going through specifications, material/ equipment submissions, shop drawings, method statements etc., even though they are within the scope of work of Building Services Engineers.

Panel Chair: Anna Kwong; Deputy Chair: Franklin Yu

HKIA/ARB Professional Assessment 2010

Paper 2 - Building Contracts, Professional Practice, Professional Conduct, Conditions of Agreement & Scale of Charges

STRUCTURE OF PAPER

Paper 2 is a closed-book examination comprising multiple-choice and short-essay questions.

The MC section has 100 multiple-choice questions. Each MC question carries 1 mark. The passing mark is set at 65%.

Candidates need to answer 1 out of 2 short-essay questions for Part A Professional Practice, Code of Professional Conducts and Conditions of Agreement and 2 out of 4 short-essay questions for Part B Building Contract. Questions for Part A carry 20 marks while questions for Part B Building Contract each carry 15 marks. The passing mark is set at 50%.

One and half minutes were allocated for each multiple-choice question and 30 minutes for one short-essay question. We had received feedback from candidates that the 4-hour test, without any break, was too intensive.

ASSESSMENT OBSERVATIONS

FOR WHOLE PAPER

277 candidates took Paper 2. After reviewing marginal cases, 163 candidates (58.84%) passed.

RECOMMENDATIONS TO CANDIDATES

Candidates are strong in giving factual answers, but very poor in discussing rationales, which usually are the main themes of the short-essay questions.

They tend to give superficial answers with no detailed discussion on the implication of certain decisions and exercise of judgment on practical situations.

In multiple-choice questions, candidates selected strong distracters for some quite straightforward topics. It reflects that many candidates have some fundamental misconceptions for some common issues. After receiving the standard deviation on individual questions by HKEAA, 2 questions have been taken out of the paper and the passing rate has been adjusted accordingly.

Panel Chair: Agnes Ng

HKIA/ARB Professional Assessment 2010
Paper 3 - Building Structures

STRUCTURE OF PAPER

The paper consists of 60 multiple choice questions. The passing mark is set at 65%.

Questions covered various aspects of building structures, including general structural principles, different structural forms and systems, load paths and force diagrams, practice and construction, and a case study. Diagrams were included as appropriate for better understanding of the questions. About two-third of the questions were new questions, while the remaining one-third of questions were re-modeled from past papers.

ASSESSMENT OBSERVATIONS

3 questions out of 60 were deleted from the paper according to the analysis and comment from HKEAA.

117 out of a total of 280 candidates passed the paper, at an overall passing rate of 41.79%, compared with about 57% in PA2007 and PA2008. This year's paper had similar structure and type of questions covering similar aspects as in the past few years. Therefore, the steady decline in passing rate may be seen as an indication of weakening in the abilities of the candidates.

From the statistics and analysis, it was observed that about 1/3 of the questions were relatively easy (with over 70% correct response), another 1/3 of average difficulty (with 50% to 70% correct response), and remaining 1/3 relatively difficult (with less than 50% correct response). There was a suitable mix of questions of different degrees of difficulty to test the abilities of the candidates.

The mean is 58.9%, which is below the passing mark of 65%, with a "standard deviation" of 11.8%. This indicates that the average candidates' performance was generally below the required standard. However, a reasonable "standard deviation" indicates that the assessment had generated a broad range of marks, and was fair, and effective in differentiating the abilities and depths of knowledge of the candidates.

It was observed from the results that the candidates were relatively weak in certain areas, including the less common and less conventional structural systems (such as shell and membrane structures, trusses, etc), and construction and practice (such as material properties, etc). It was also observed that the results and general performance on the questions on the basic structural principles and concepts (such as simple bending moment diagrams, load paths, concept of stiffness, etc) had also weakened, which means the candidates' understanding on the subject had generally fallen behind expectation.

RECOMMENDATIONS TO CANDIDATES

- (a) Candidates are recommended to attend the Professional Assessment Seminar / Lecture Series organized by HKIA.
- (b) Candidates are encouraged to get more on-job experience and learn through better communication / coordination with structural engineers at work.
- (c) Sharing of knowledge and experience with fellow colleagues and graduates is also encouraged, and should be helpful if job exposure is limited.

Panel Chair: Jerome Wong

HKIA / ARB Professional Assessment 2010
Paper 4 - Building Services and Environmental Controls

STRUCTURE OF PAPER

The paper consists of 60 multiple choice questions. The passing mark is set at 65%.

Questions were simple in wording, straightforward format, and questions with combination choices were avoided as far as practicable. Topics tested as detailed in the examination syllabus (viz. Basic Principles, HVAC, F.S., P/D, Electrical, Lifts & Escalators, Acoustics and Environmental aspects) were included with emphases as described below:

- (a) Different disciplines for building services (both the fundamentals and real-life applications that a practicing architect should know);
- (b) Issues concerning hygiene, human comfort, acoustics;
- (c) Greater emphases were put in recent years, on the non-services matters related to sustainable design and environmental issues.

Candidates were also tested on knowledge that spans across the building service disciplines and energy conversation / sustainable design.

All in all, the questions were set to test the candidates' knowledge, skills and maturity to handle day-to-day works as an Architect.

As in the previous year, quite a significant portion (about one-fourth) of the paper was based on "re-used questions". The intention of including more re-used questions is to encourage candidates to study more thoroughly similar topics that appeared in past papers for better knowledge enrichment.

ASSESSMENT OBSERVATIONS

128 out of 281 candidates passed the Paper. The passing rate for the Paper is 45.55%

Both the "mean mark" and "standard deviation" this year (56.4% & 10.1%) are comparable with those of last year (57.4% and 10.3%). It is an indication that the performance of candidates has not been significantly affected with slightly more "re-used questions" being included. The performance of candidates on the re-used questions was not particularly outstanding.

As in previous years, particular focus on non-services matters related to environmental issues was made in the lecture series, and the recommended reading list was extended to include literature on the topics. However, similar to previous years the candidates' weakest part was still in the questions on "Environmental & Miscellaneous".

As before, candidates performed better on the academic-based questions (i.e. theory, fundamentals and basic knowledge that were taught at universities or found in literature) and were weaker on job-based questions (i.e. those practical knowledge gained from architectural practice and its real-life application).

RECOMMENDATIONS TO CANDIDATES

Broadening the candidates' exposure is the key to success. On top of the literatures and the recommended reading list, we opine that the following means would also assist in broadening the enhancing the candidates' knowledge in the area:

- (a) Attend the Paper 4 lecture series and related seminars, conferences and workshops

arranged by HKIA and other tertiary institutes or professional institutes.

- (b) Get on-job experience, closer coordination with Building and Environmental Consultants in design development stage of projects.
- (c) Have hands-on experience on OTTV, IAQ, BEAM Plus or other environmental assessment schemes.
- (d) If the candidates do not have on-job exposures as mentioned in (b) & (c) above, reading of documentation on the work done by other teammates would also help.
- (e) Keep abreast of the times ---- through reading, use of audio, video or internet resources.
- (f) Take initiative to go through specifications, material and equipment submissions, shop drawings, method statements etc. even though they are typically within the scope of work of the Building Services Engineer.

Panel Chair: Kevin Ng; Deputy Chair: Denise Woo

HKIA / ARB Professional Assessment 2010
Paper 5 - Building Materials and Technology

STRUCTURE OF PAPER

The paper consists of 60 multiple choice questions. The passing mark is set at 65%.

Topics for the assessment include trades of building materials commonly used in Hong Kong: ranging from concrete, steel, waterproofing, carpentry, windows, curtain wall, cladding, stonework, painting, plastering etc., workmanship for various trades and working sequence, related building regulations and PNAP, construction works associated with preliminaries items and comprehension of detail drawings in construction stage.

Candidates are tested for their knowledge of building materials and technology as applied in the profession of Architecture in Hong Kong, with understanding of various trades of works, construction procedure, specification, legal restriction exercised by the Buildings Department and presentation of information in the architectural details.

ASSESSMENT OBSERVATIONS

This paper has used all NEW questions. 221 candidates took the Paper. The passing rate for the Paper is 63.8%. The standard deviation of Paper 5 is 9.8%.

The candidates were rather weak in topics of concrete works and external finishes as well as tests for components of construction.

The candidates were rather good at general meaning of specification, prefabrication, common selection and application of materials and building systems as well as their function in various building components.

RECOMMENDATIONS TO CANDIDATES

Candidates are recommended to study the literature in the recommended reading list for the understanding of specified materials and workmanship, and associated building regulations and PNAP for the comprehension of legislative control on construction. Job experiences in construction such as preparation of architectural details for tender and on-site experiences in supervision are valuable source of knowledge.

Some suggested actions in brief:

- (a) Attend the lecture series, seminars, conferences and workshops arranged by HKIA and other tertiary institutes or professional institutes.
- (b) Get on-job experience in specification, detailing, relevant building regulations and construction procedure.
- (c) Have hands-on experience on actual site construction works whenever possible.
- (d) If the candidates do not have on-job exposures as mentioned in (b) & (c) above, they can consult their seniors in the office and visit completed projects.
- (e) Keep abreast of the times ---- through reading, use of audio, video or internet resources to get to know the latest building technology.
- (f) Take initiative in going through specifications, material/ equipment submissions, shop drawings, method statements etc.

Panel Chair: Dr. Wong Wah Sang; Deputy Chair: Jerome Wong

HKIA/ARB Professional Assessment 2010

PAPER 6 - SITE DESIGN

STRUCTURE OF PAPER

The test case is an **artists' village** in the New Territories. The site is bounded by a traditional village development to its north, a stream with a bridge to the east, a park to its south, and an 8-storey institutional building across a street to the west.

Candidates are required to provide a site layout to accommodate around 6 blocks of artist's units of 6-storey high, a small visitors' centre, and a linear shaped hotel of around 12-16 storeys high. In particular, candidates are required to incorporate in the design the following features:

- (a) A pedestrian street, minimum 5 meters wide, connecting to the existing village to the north, and to the park to the south;
- (b) A public open space of specified area;
- (c) Preservation of an existing tree.

Typical floor plans of an artist's unit and the hotel were given to candidates for reference; minor adjustments are allowed at their discretion.

Candidates were expected to demonstrate their competence in coming up with a sensible site arrangement, that would generally meet statutory requirements and the design brief.

The Answer Scripts

Given the relatively generous site area, a considerable number of layout options are possible. The panel considers the performance in this year's paper generally satisfactory. As in the 2009 Paper, the problem largely requires straightforward solutions. This explains why the passing rate is maintained at a similarly high level.

Key Indicators

The detailed layout of each paper was carefully scrutinized by the assessment panel, who did not look for perfect answers and absolute compliance with regulations, but a sensible approach and reasonable execution of architectural site planning with general understanding of statutory requirements. The panel looked into the following key indicators which can revealed the competence of the candidates in their sensibility, depth of technical knowledge, understanding of statutory control, and skill of implementation:

- (a) General compliance with development parameters – compliance with design brief, permitted site coverage and building height;
- (b) General compliance with major statutory requirements – including prescribed windows, EVA, ingress/egress points;
- (c) Sensibility in disposition of blocking to exploit views and to avoid major overlooking;
- (d) Sensibility in the arrangement of vehicular and pedestrian circulation, demonstrated by internal roads and pedestrian paths, car park, drop off and access to each components;
- (e) Specific to the Paper of 2010, sensibility in the provision of pedestrian street and the public open space/landscape, and spatial responsiveness to the preserved tree.

It is noteworthy that many candidates missed out on the requirement of a pedestrian street. Some candidates took the easy way out, by placing the pedestrian route next to the promenade, or providing pedestrian crossings at major road junctions. These are unsatisfactory solutions in response to the specific brief. In all these cases, the assessment panel closely examined other merits of the scripts, to convince themselves that the candidates did possess a certain level of competence to warrant a passing mark.

ASSESSMENT OBSERVATIONS

154 out of 222 candidates passed the Paper. The passing rate for the Paper is 69.37%.

Principal weaknesses

Despite the generally satisfactory performance in this year's paper, the panel would like to share with interested parties the following weaknesses observed:

- (a) Insensible array of building blocks, which resulted in major overlooking despite the generous site area available.
- (b) Unsatisfactory arrangement of pedestrian street, with little opportunity for interactions between visitors, users, and the Artist's Units (refer to key indicators);
- (c) Poor vehicular circulation arrangement including :
 - (i) poor road junction design such as excessive provisions of roundabouts, loading/unloading from roundabouts, and acute merging of roads,
 - (ii) grossly excessive provision of internal roads taking up most of the site, and at the expense of open spaces;
 - (iii) unauthorized additional ingress/egress points and drop-off points from public road;
- (d) Non-compliance with the general principle of EVA and prescribed windows.

Panel Chair: S S Yim; Deputy Chair: Raphael Ying

HKIA/ARB Professional Assessment 2010
Paper 7 - BUILDING DESIGN

STRUCTURE OF PAPER

The Paper comprises of two sections: 7a (Construction Details and Documentation) of 2 hours' duration and 7b (Building Design) of 8 hours' duration.

Paper 7a Construction Details and Documentation (20%)

Candidates are expected to demonstrate their competence in the organization and development of simple construction drawing packages. This year, they are required to provide a tender drawing schedule of a public toilet, a staircase section and a railing detail.

The Answer Scripts

As the question is relatively simple and direct; the performance is generally satisfactory. However inadequacies in technical details were still observed.

ASSESSMENT OBSERVATIONS

159 out of 257 candidates passed the Paper. The passing rate for the Paper is 61.87%.

General Weakness

The following general weaknesses were observed:

- (a) Wrong scale in the details;
- (b) Unawareness of the need of hoarding plan/ details for construction;
- (c) Dimensions not well integrated; and
- (d) Poor draftsmanship in line drawing.

Paper 7b Building Design (80%)

This year's Paper is designed to examine candidates' competence in the design of a community centre cum residential home for the elderly. The site is within an urban area with a sloping topography roughly divided into two platforms. There is an existing historic building in a park adjoining the site.

The design brief includes a community centre with a multi-purpose hall and other function rooms, and a residential home for the elderly with 48 rooms and associated supporting facilities.

Specific requirements include the provision of separate access for the two entities. Candidates are also required to provide connection between the community centre and the historic building by means of a covered walkway.

Provision of loading/unloading space and ambulance parking is also required.

The Answer Scripts

The Subject Panel agreed that the design brief and the site constraints were more complex as compared to previous years. There were more issues to be resolved, posing greater challenge to the candidates. As a result it was hard to find an answer script that could be considered free from major flaws.

Key Indicators

The detailed layout of each paper was scrutinized carefully and jointly by the assessment panel. The Panel did not look for brilliant architectural design, but a sensible solution that could meet the design brief, respect the site constraints and generally in compliance with the Buildings Regulations.

The Panel looked into the following key indicators which revealed the competence of the candidates in their design sensibility, level of technical knowledge and skill of implementation:

- (a) General compliance with development parameters – including permitted site coverage and building height;
- (b) General compliance with major statutory requirements – including prescribed windows, fire escape and EVA.
- (c) General compliance with specific site constraints – including provision of separate access, vehicular and pedestrian entrances, and connection to the historic building at the adjoining site;
- (d) Workability of the residential typical floor plan – including room layout and circulation space, avoidance of long corridor;
- (e) Sensibility in arrangement of main entrance, horizontal and vertical circulation, access to major functional spaces; and
- (f) Sensibility in the design of structural grid, floor-to-floor height and disposition of building services spaces.

ASSESSMENT OBSERVATIONS

Principal Weaknesses

- (a) Sensitivity to site constraints
 - (i) Poor response to level difference
 - (ii) Connection with historic building not provided;
 - (iii) Non-provision of separate access;
- (b) Building Structure
 - (i) Inappropriate structural design and structural span;
 - (ii) Inadequate floor to floor height;
- (c) Design and Planning
 - (i) Poor design for vehicular manoeuvring;
 - (ii) Poor definition of entrance;
 - (iii) Poor integration of different functions;
 - (iv) Poor sense of scale – lifts, stairs, corridors are often grossly oversized or undersized;
 - (v) Poor lift arrangement;
 - (vi) Poor location of mechanical rooms;
 - (vii) Lack of environmental concern in design layout;
 - (viii) Poor integration of elderly residence and community centre;
- (d) Typical Floor Layout
 - (i) Poor residential floor layout;
 - (ii) Lack of provision of natural lighting;
 - (iii) Poor sense of scale.
- (e) Statutory Compliance
 - (i) Non-compliance of means of escape.
 - (ii) Non-compliance of prescribed window.

Panel Chair: Vincent Ng; Deputy Chair: Phiyona AuYeung

HKIA / ARB Professional Assessment 2010
Papers 8 - Case Study

STRUCTURE OF PAPER

Candidate has to provide a one-page synopsis and go on to complete a 20-page report. The Professional Assessment Handbook details the topics requirement and report format. The passing mark is set at 50%.

ASSESSMENT OBSERVATIONS

157 out of 172 candidates passed the Paper. The passing rate for the Paper is 91.28%.

The main problem with this paper is for the increasing numbers of candidates to find suitable projects. Next year, it is hoped that the introduction of special topics will indeed help mitigate the problem. It is generally agreed that the case study remains a useful tool through which graduates can learn about the essential elements of contract administration, even as the projects they are handling in the office do not give them sufficient exposure to the entire range of practical issues. Passing rates are usually above 90% and it is not seen as a major source of anxiety for candidates.

RECOMMENDATIONS TO CANDIDATES

Carefully study and analyse available information on the project and talk to the project team to get a thorough understanding, then write the report to cover what has been learned. High emphasis is put on candidate's own appraisal of the various issues and problems relating to the project.

Panel Chair: Gidget Lun; Deputy Chair: James Lee Hang Wing