

Curriculum Development of Building Inspectors According to Building Control Act (2522) Using Delphi Technique

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Abstract - Research and data collection contained 3 steps. The first step was the interview of building inspectors expert as Opened End including issues of Curriculum Development of Building Inspectors and opinion collection of each expert for detailed analysis and classification of any issue in order to specify problem framework. The second step was Rating Scale questionnaire by developing the answers of the first step questionnaire then sent once again to the original experts. In such the second step, the experts could express their opinions as question priority by identifying agreed or disagreed reasons in the blank of each question. The data analysis of this questionnaire was median, mode or IR (Interquartile Range). The third step was Rating Scale questionnaire as development the answers of the second step questionnaire by considering IR then found that IR was at less; it was shown that the experts' opinions were rather consistent. The third step was Rating Scale questionnaire which evaluated the third step questionnaire; data analysis results of this step were consistent. That is to say; if

IR was at less, the experts' opinions were consistent then could stop process, research and conclusion by using Delphi Technique. The experts' opinions in the second step and the third step were less different. Therefore we could make a conclusion in the third step questionnaire and IR of each question was at less because of the narrow experts' opinions then it is unnecessary to have a data collection in the fourth step. The researchers can make a conclusion from questionnaire in order to summarize data analysis result and future report of findings of Curriculum Development of Building Inspectors for further benefit.

Keywords - Curriculum of Building Inspectors, Building Inspectors, Curriculum Development, Delphi Technique

I. INTRODUCTION

Ministerial Regulations have specified inspectors' qualifications, inspectors' registration and cancellation rules and building inspection rules (2548) by virtue of Section 5(2) and (3) and Section 8(13) (14) and (15)

and Section 32 Bis of Building Construction Control Act (2522) for life and property safety of the occupied building and public [1]. Ministerial Regulations as stated had some specified inspectors' qualifications that they must pass training program from training institute which approved the certificate of building and assembled building components inspection from Building Control Committee. Philosophy of building inspection is the inspection of building usability by emphasizing abnormal inspection or condition of insecurity on any systems, equipment and building structure. So that was only visual inspection of basic tool or measurement and found that building had sufficient safety, legal and standard then inspectors could endorse building inspection result. In case that the inspectors found any partial building and assembled building components failed rule and standard of Ministerial Regulations as stated, inspectors must make recommendations to adjust building and assembled building components according to the rule or standard for the occupied building [2]. Recommendation for adjustment of building and assembled building components attached with building inspection report with endorsement then the occupied building shall submit to local authority for further consideration.

II. THEORY

The content of building inspector training programs must include building inspection according to Ministerial Regulations No.33 (2535) issued under Building Construction Control Act (2522) and Ministerial Regulations have specified inspectors' qualifications, inspectors' registration and cancellation rules and building inspection rules (2548) as follows:

1. The Inspection of Building Strength and Stability

- (a) Building Modification
- (b) Live Load Rearrangement
- (c) Building Usage Change
- (d) Construction or Decorating Material Replacement

- (e) Building Deterioration
- (f) Building Structure Collapse
- (g) Footing Settlement

2. System and Assembled Building Components Inspection

- (a) Service and Facilitate System
 - (1) Elevator System
 - (2) Escalator System
 - (3) Electrical System
 - (4) Air Conditioning System
- (b) Sanitation and Environment System
 - (1) Supply System
 - (2) Sewerage and Wastewater Treatment System
 - (3) Rainwater Drainage System
 - (4) Waste Management System
 - (5) Air Ventilation System
 - (6) Air and Noise Pollution Control System
- (c) Fire Prevention and Fire Protection System
 - (1) Fire Escape and Fire Exit
 - (2) Sign and Fire Emergency Exit Sign Light
 - (3) Smoke Ventilation and Smoke Control System
 - (4) Emergency Electricity backup System
 - (5) Fire Lifts System
 - (6) Fire Warning System
 - (7) Fire Extinguishers Installation System
 - (8) Fire Hydrant, Fire Pump and Fire Department connector System
 - (9) Automatic Fire Extinguishing System
 - (10) Lightning Protection System

3. Inspection of System and Equipment Competency of Evacuate Building

- (a) Competency of Fire Escape and Fire Exit
- (b) Competency of Sign and Fire Emergency Exit Sign
- (c) Competency of Fire Warning System

4. Inspection of Building Safety Management System

- (a) Fire Prevention and Fire Protection Plan

- (b) Evacuation Rehearsal Plan
- (c) Building Safety Management Plan
- (d) Inspectors Management Plan

III. OBJECTIVE

1. To make building inspectors' trainees clearly understand building inspection and cover current building for life, body and property safety.

2. To make qualified building inspectors' trainees to be qualify inspectors. After passing this training program; they can pass the test according to Ministerial Regulations and register as building inspectors.

3. To make building inspection as a nationwide standard and move forward to World-class standard.

IV. SCOPE OF CONTENT

Technique consists of 3 categories of 36 hours as follows:

- 1. Ethics and Laws 6 hours

- Engineering and Architecture Ethics, being ethic and breach of engineering and architecture ethics, scope of duty and responsibility of inspectors 3 hours.

- Law relative to engineering and architecture, Building and Factory Control Law, Fire prevention and suppression, and work safety 3 hours.

- 2. Principle and Method of Building Inspection 6 hours

Knowledge and understanding of principle and method of building inspection, use of inspection manual, reference standard of inspection, criteria of building inspection, important information of inspection report, data analysis, inspection conclusion, format and method of report writing, example of building inspection report, preparation before inspection, presentation skill of inspection result, evaluation of inspection result, maintenance planning and maintenance

planning manual, annual building inspection plan and inspection method of annual building inspection plan.

- 3. Inspection Method of Building and Assembled Building Components 24 hours

- Inspection method of building strength including knowledge of Building Modification, Live Load Rearrangement, Building Usage Change, Construction or Decorating Material Replacement, Building Deterioration, Building Structure Collapse and Footing Settlement 3 hours.

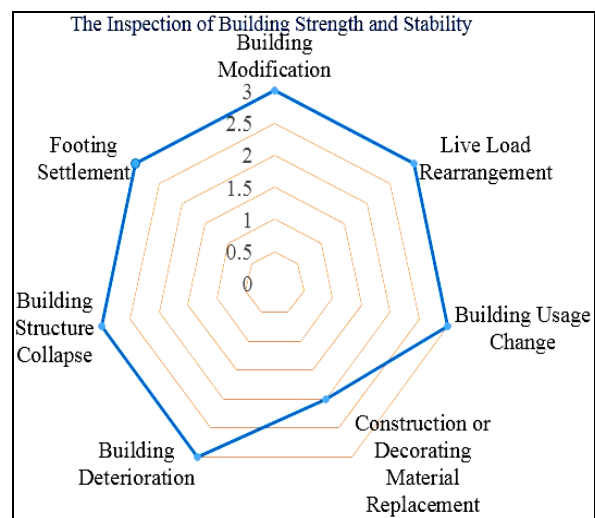


Fig 1. Scored Weight of Education of Building Strength and Stability 20%

- Inspection method of Service and Facilitate System including knowledge of elevator system, escalator system, electrical system and air conditioning system 3 hours.

- Inspection method of sanitation and environment system including knowledge of Supply System, Sewerage and Wastewater Treatment System, water drainage system, waste management system, air ventilation system and air and noise pollution control system 3 hours.

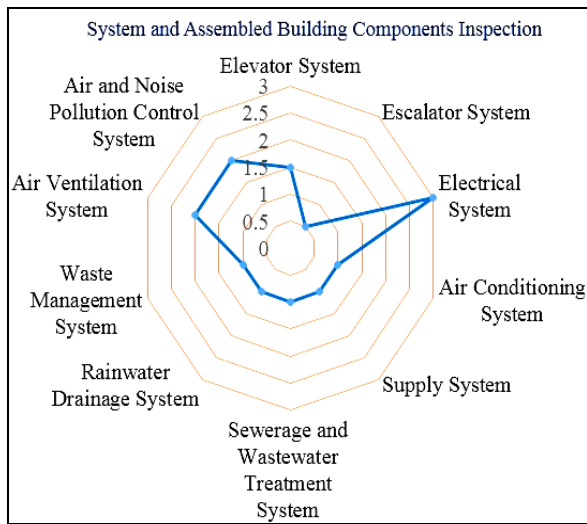


Fig 2. Scored Weight of Education of Building and Assembled Building Components System Inspection 14%

- Inspection method of Fire Prevention and Fire Protection System including knowledge of Fire Escape and Fire Exit, Sign and Fire Emergency Exit Sign Light, Smoke Ventilation and Smoke Control System, Emergency Electricity backup System, Fire Lifts System, Fire Warning System, Fire Extinguishers Installation System, fire hydrant, fire pump and fire department connector system, Automatic Fire Extinguishing System and lightning protection system 3 hours course.

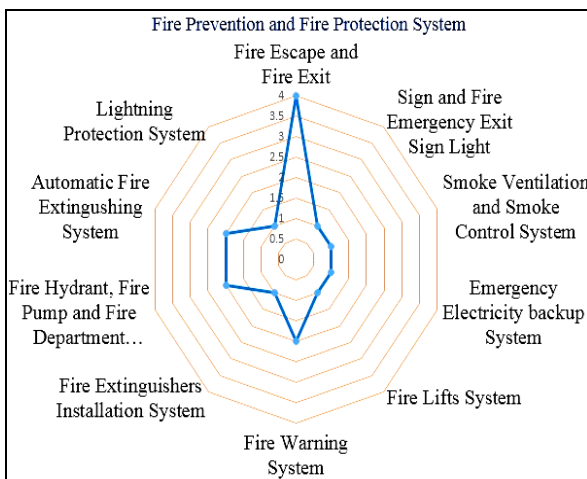


Fig 3. Scored Weight of Education of Fire Prevention and Fire Protection System 16 %

- Inspection method of system and equipment capacity of evacuates building including knowledge of Fire Escape and Fire Exit capacity, Sign and Fire Sign and Fire

Emergency Exit Sign Competency, Fire Warning System capacity 6 hours course.

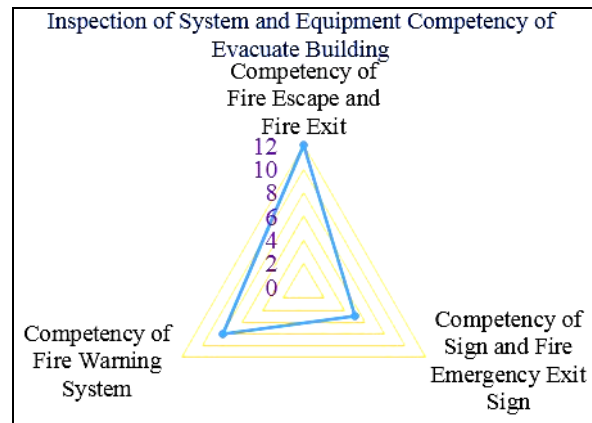


Fig 4. Scored Weight of Education of Inspection of System and Equipment Competency of Evacuate Building 25%

- Inspection method of building safety management system including knowledge of Fire Prevention and Fire Protection plan, evacuation rehearsal plan, building safety management plan and inspectors management plan 6 hours course.

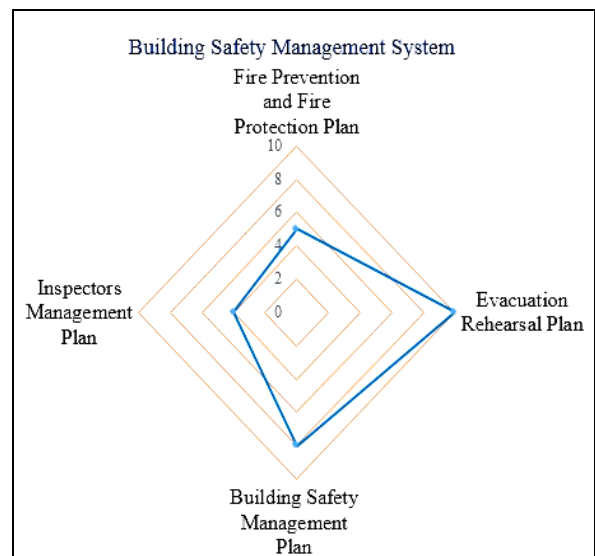


Fig 5. Scored Weight of Education of Building Safety Management System 25%

TABLE I
SCORED WEIGHT OF CONTENT OF BUILDING INSPECTORS TRAINING

| Item No. | Course Description | Percentage (%) |
|----------|--|----------------|
| 1 | Building Strength and Stability | 20 |
| 2 | Service and Facilitate System | 6 |
| 3 | Sanitation and Environment System | 8 |
| 4 | Fire Prevention and Fire Protection System | 16 |
| 5 | Competency of System and Equipment | 25 |
| 6 | Building Safety Management System | 25 |

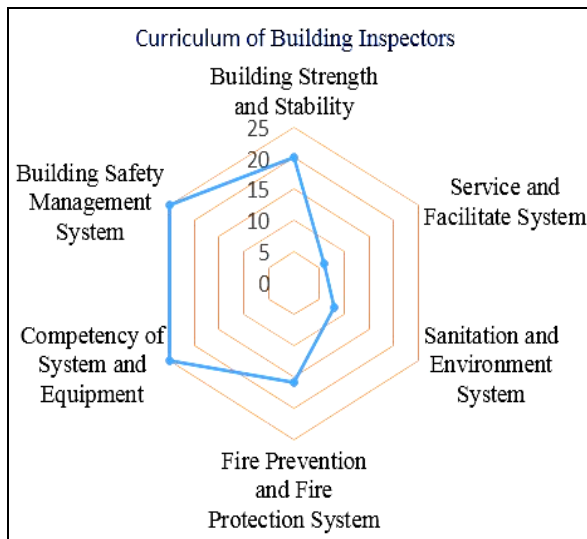


Fig 6. Scored Weight of Content of Building Inspectors Training

4. Practice consists of the following:

- Inspection and safety system including knowledge of inspection and measurement of current building, actual plan inspection, recommendation of readiness, step of inspection, data entry and coordination with engineer and architect of analysis and calculation 6 hours course.

- Data analysis and inspection conclusion including knowledge of evaluation analysis, inspection conclusion, role play of building inspection of safety and fire prevention 6 hours course. Total duration of practice is 12 hours.

V. EVALUATION

Building inspectors' trainees must pass the examination according to the following criteria; they acquire a certificate from Building Inspectors Training Institute under Department of Public Works and Town & Country Planning Notification.

1. Building inspectors' trainees must attend the training course at least 80% of technique training and 100% of practice training.

2. Building inspectors' trainees must take the technique examination by Building Control Committee's paper and must not be less than 60% of technique examination. Practice will be evaluated by Training Institute which must not be less than 60% of actual building inspection report, presentation, discussion and participation in any activities of the practice.

3. Building inspectors' trainees must be evaluated the suitability of building inspectors by Training Institute.

VI. CONCLUSIONS

According to Building Inspectors Training Program, trainees must pass the total training duration of 48 hours which is both 36 hours of technique training and 12 hours of practice training. Technique consists of 3 categories as: 1) Ethics and Laws 6 hours course, 2) Principle and Method of Building Inspection 6 hours course, and 3) Inspection Method of building and assembled building components 24 hours course. Scored Weight of each Technique categories of Building Inspectors Training and Building Strength and Stability are 20%, Service and Facilitate System are 6%, Sanitation and Environment System are 8%, Fire Prevention and Fire Protection System are 14%, Competency of System and

Equipment are 25% and Building Safety Management System are 25%.

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(Arranged in the order of citation in the same fashion as the case of Footnotes.)

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