

## **BRIDGE INSPECTION AND MAINTENANCE (BIM) SYSTEM INSPECTOR CERTIFICATION PROCESS**

### **Background**

The integrity and effectiveness of the BIM system depends on the quality of inspection provided by the bridge inspector. All inspections entered into the BIM system must be performed and reviewed by certified bridge inspectors. Alberta Transportation maintains a comprehensive bridge inspector certification process that must be successfully completed by each candidate prior to becoming certified. There are two classes of bridge inspectors (Class A and Class B). The roles and qualification requirements for each inspector class are outlined in Alberta Transportation's BIM Inspection Manual.

This document details the requirements for obtaining and maintaining inspector certification status and supersedes any requirements detailed in the BIM Inspection Manual.

### **Class B Certification Process**

To become certified as a Class B bridge inspector, candidates must meet the following requirements:

#### ***Education***

- High School Diploma or an equivalent combination of education and experience acceptable to Alberta Transportation.

#### ***Bridge Inspection Training***

Class B bridge inspection training must be completed in the following stages:

- Stage 1: Alberta Transportation Class B BIM Training Course (5 day course)  
- *Minimum 70% average score required*
- Stage 2: Alberta Transportation Class B BIM Field Training Course (3 day course)  
or Alberta Transportation approved equivalent  
- *Field trainer recommendation required*

- Stage 3: Mentorship program - details of the mentorship program shall be as follows:
  - Candidates shall select a mentor that is a Class A Inspector; or a Class B inspector that has been certified for a minimum of 9 years; or a Class B inspector that has completed greater than 150 inspections over a 6 year period;
  - Candidates that have attended the Alberta Transportation Class B Field Training Course shall complete a minimum of 25 training inspections under the guidance of a mentor. The training inspections shall be completed within two years of completion of the Class B Field Training Course. For every year beyond the two year period an additional 10 training inspections will be required;
  - Candidates that have completed an Alberta Transportation approved equivalent Class B Field Training Course shall complete a minimum of 35 training inspections under the guidance of a mentor. The training inspections shall be completed within two years of completion of the Alberta Transportation approved equivalent Class B Field Training Course. For every year beyond the two year period an additional 10 training inspections will be required;;
  - Selection of all training inspections shall be reviewed and recommended by the mentor. A minimum of 75% of the selected sites for training inspections shall have a maximum structural condition rating of 45% and superstructure/barrel elements must be accessible;
  - To commence the mentorship program a minimum of 5 different types of bridge structures shall be inspected by the candidate and mentor together. The initial 5 inspections completed with the mentor can be included in the total number sites of the mentorship program;
  - Training inspections shall be completed in lots. Lots shall be no greater than 7 sites. The mentor shall thoroughly review, document and discuss each training inspection lot with the candidate prior to commencement of subsequent lots. Mentor inspection review comments shall be documented on inspection forms (including photo reports) and all communication/feedback with the trainee recorded. The trainee may at any time during the mentorship program submit received mentorship documentation to the bridge preservation specialist to confirm its acceptability;

- The number and type of inspection should be consistent with recommendations received from Stage 2 of the certification process, but may be increased if required by the mentor. At a minimum, training inspections shall be completed in the following categories and quantities:
  - Timber Bridges (TT) 2 - 5;
  - Culverts (CUL 1, CULM, CULE) 10- 15;  
(A variety of culvert types is required- i.e. BP/CP, FP/CSP, MP/CSP, RP/SPCSP, SPE/ SPCSP, SP/SPCSP etc.);
  - Standard Precast Bridges (PCS) 10 - 15;  
(A variety concrete girder bridges with the majority having timber substructures is required- HC, PG, VS, PE, SL etc.).
- *Letter of recommendation from mentor stating trainee has completed a mentorship program meeting the above requirements and in his/her opinion is ready to write the certification exam and test sites & electronic PDF scans of original inspection reports with review comments and all other communication/ feedback in PDF format. The submission of inspection reports, including photos, shall be submitted in individual PDF files for each lot as well as an excel spreadsheet summarizing the lot number, BF, span type, structural condition rating, inspection date, mentor review date, mentor comments on acceptability feedback /discussion date).*
- Stage 4\*: Class B certification exam
  - *Minimum 75% score required.*
- Stage 5\*: Test Inspections – three test inspections completed in one day
  - *Scored for acceptability by a Alberta Transportation Class A inspector*

\* Note: Stage 4 and 5 may be completed in reverse order.

## **Class A Certification Process**

To become certified as a Class A bridge inspector, candidates must meet the following requirements:

### ***Education***

- Civil Engineering Degree, or Civil Engineering Technical Diploma plus 2 years bridge related experience, or an equivalent combination of education and experience acceptable to Alberta Transportation.

### ***Bridge Inspection Training***

All Class A candidates must have valid Class B certification and completed a minimum of 75 inspections as a Class B inspector. Class A bridge inspection training must be completed in the following stages:

- Stage 1 : Alberta Transportation Class A BIM Training Course (5 day course)  
- *Minimum 70% average score required*
- Stage 2: Mentorship program - details of the mentorship program shall be as follows:
  - Candidates shall select a mentor that has been certified as a Class A Inspector for 6 years or more;
  - Candidates shall complete a minimum of 45 training inspections under the guidance of a mentor;
  - Selection of all training inspections shall be reviewed and recommended by the mentor. A minimum of 60% of the 45 selected sites Selected sites for training inspections shall have a maximum structural condition rating of 45% and superstructure elements must be accessible;
  - To commence the mentorship program a minimum of 10 different types of bridge structures shall be inspected by the candidate and mentor together. The initial 10 inspections completed with the mentor can be included in the total number sites of the mentorship program;
  - Training inspections shall be completed in lots. Lots shall be no greater than 7 sites. The mentor shall thoroughly review, document and discuss each training inspection lot with the candidate prior to commencement of subsequent lots. Mentor inspection review comments shall be documented on inspection forms (including photo reports) and all communication/feedback

- with the trainee recorded. The trainee may at any time during the mentorship program submit received mentorship documentation to the bridge preservation specialist to confirm its acceptability;
- At a minimum, training inspections shall be completed in the following categories and quantities: :
    - Steel Truss Bridges (DT, TH, PT) 5- 10;  
(One of each type as a minimum);
    - Steel Girder Bridges (SG) 10 - 20;  
(A variety of types is required- i.e. FR, RB, WG, RG, etc.);
    - Prestressed Concrete Girder Bridges (PSR) 10 - 20;  
(A variety of types is required- i.e. NU, DBT, CBT, PO, FC, RD, etc.);
    - Cast-in-place Concrete Girder Bridges (CON) 2 - 5;
  - *Letter of recommendation from mentor stating trainee has completed a mentorship program meeting the above requirements and in his/her opinion is ready to write the certification exam and test sites & electronic PDF scans of original inspection reports with review comments and all other communication/ feedback in PDF format. The submission of inspection reports, including photos, shall be submitted in individual PDF files for each lot as well as an excel spreadsheet summarizing the lot number, BF, span type, structural condition rating, inspection date, mentor review date, mentor comments on acceptability feedback/discussion date).*
  - Stage 3\*\*: Class A certification exam
    - *Minimum 75% score required.*
  - Stage 4\*\*: Test Inspections – three test inspections completed in one day
    - *Scored for acceptability by a Alberta Transportation Class A inspector*

*\*\* Note: Stage 3 and 4 may be completed in reverse order.*

Class A and B candidates will be certified once all requirements have been met. Certification will remain valid until the next certification renewal date. Candidates that fail any stage have the opportunity to re-try that stage. A second failure at a given stage will require the process to be re-started at Stage 1.

**Re-Certification Process**

Re-certification requires active involvement in the BIM program and acceptable performance. The status of all certified inspectors will be reviewed by Alberta Transportation personnel (Bridge Preservation Specialist and Bridge Management Engineer in Technical Standards Branch) every 3 years. Decisions on re-certification will be rendered and activated prior to the certification renewal date.

The Bridge Engineering Section of Alberta Transportation's Technical Standards Branch Bridge (TSB) will administer the re-certification process with assistance from regional bridge staff. Inspectors that clearly meet re-certification requirements will be re-certified until the next renewal date following formal approval by the Director of Bridge Engineering. Inspectors will be notified by e-mail of re-certification results. Hard-copy certificates will be provided by Alberta Transportation, if requested.

Inspectors that do not meet re-certification criteria may be asked if they intend to maintain their certification. If so, a panel comprised of three members of Alberta Transportation's BIM committee will be convened to review the inspector's status and render recommendation on certification renewal to the Director of Bridge Engineering. If re-certification is approved, the candidate will be informed by e-mail of re-certification results. Hard-copy certificates will be provided from by Alberta Transportation, if requested. If certification is not granted, a remedial plan to renew certification may be developed by the panel. A typical remedial plan would consist of a completion of a written re-certification exam (minimum 75% score required) and 5 test inspections. The test inspections would be reviewed by an Alberta Transportation certified Class A inspector for acceptance. Additional training may also be required if deemed necessary by the panel.

***Re-certification criteria for Class A and Class B bridge inspectors***

In order to be re-certified, inspectors must satisfy one of the following:

- Performed a minimum average rate of 2 BIM inspections (Level 1 or Level 2) per month during previous 3 year period. Class A inspectors must have completed 50% of the inspections for major bridges; or
- Performed a minimum average rate of 1 BIM inspection (Level 1 or Level 2) per month during previous 3 year period and have been active in the management, design, or construction of bridges. Class A inspectors must have completed 50% of the inspections for major bridges; or
- Acted as a reviewer for a minimum average rate of 2.5 inspections per month during the previous 3 year period and have been active in the management, design, or construction of bridges; or

- Acted as Department reviewer for a minimum average rate of 5 inspections per month during the previous 3 year period and have been active in the management, design, or construction of bridges.

In addition, to be re-certified, inspectors must have:

- Attended any formal BIM training sessions deemed mandatory by Alberta Transportation; and
- Completed any improvement plans developed by Alberta Transportation based on observed performance issues.

This process is effective as of **March 22, 2016**



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