

RISP ADJUDICATION CRITERIA

NOTICE: New name – Ministry of Transportation and Infrastructure or BCMOT

The following criteria apply to the adjudication of all RISP categories. Additional information on category-specific criteria follows.

Adjudication of consulting firms is on a "PASS" or "FAIL" basis. Firms must be registered in British Columbia. Firms that meet the "PASS" threshold must have staff identified in Part 2 of the RISP application form (Form H1095) who meet the specific requirements listed for the categories for which they are applying.

The following factors are taken into consideration in assessing the experience of a firm's personnel:

Professional Qualifications

For some categories, specific professional designations or other qualifications are identified as required.

Number of Projects

In most categories, staff members must have completed a certain minimum number of projects in the category being evaluated. In some categories, relevant experience is restricted to relevant ministry experience because of the ministry's specific requirements, while in other categories, comparable work for other clients is considered relevant.

Relevance of Projects

Only consulting work and knowledge that can be directly applied and relevant to highway projects will count in the evaluation. The application must clearly demonstrate that work experience meets all requirements for the category they are applying for. The past experience of staff members that is considered in the adjudication should involve experience with responsibilities that are normally assigned to staff having a senior level of technical knowledge and experience.

Value of Project Assignments

A minimum value of past projects is generally used to ensure that past work has been on projects of appropriate scale and complexity. Past work that is below the minimum value will not be considered relevant in the adjudication. Dollar amounts must indicate "design" costs; construction costs are not relevant.

Timeframe for Assignments

In most cases, each past project used in the adjudication process must have been performed within a specified number of years, in order to ensure that past work is relevant, given evolving techniques and technologies. For some categories, the timeframe is relatively long, as assignments in these categories are few and the technology and tools do not change substantially over time.

Location of past work

In some categories, experience with the unique terrain and circumstances of British Columbia is considered particularly important. For these categories, past experience must indicate knowledge and experience in dealing with the unique conditions of the province, and in some cases, the specific area of the project.

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Fields & RISP Categories	Category-Specific RISP Adjudication Criteria
<p>Bridge/Structural Engineering</p> <p>Professional Cat: (For these, must be P.Eng. member of APEGBC): 01-10, 01-12, 01-14, 01-16, 01-18, 01-20, 01-22, 01-26, 01-32, 01-34, 01-36, 01-40, 01-42, 01-50</p> <p>Technical Cat: 01-17, 01-27, 01-29, 01-31, 01-39, 01-43, 01-61, 01-63, 01-65, 15-71, 35-51</p>	<p>Adjudication Criteria by Category</p> <p><i>01-10</i> <i>01-12</i> <i>01-14</i> Must have professional engineer(s) currently active in the structural design of bridges who have been the design engineer of record or a senior-level designer for completed designs for these types of structures for highway/ roadway projects. Must be P.Eng. member of APEGBC.</p> <p><i>01-16</i> Must have professional engineer(s) currently active in the structural design of culverts, retaining walls and miscellaneous structures who have been the design engineer of record or a senior-level designer for completed designs for these types of structures for highway/ roadway projects.</p> <p><i>01-18</i> <i>01-20</i> <i>01-22</i> Must have professional engineer(s) currently active in the structural analysis and design of bridges who have been the design engineer of record or a senior-level designer for completed designs for seismic retrofit of these types of structures for highway/ roadway projects. Must be P.Eng. member of APEGBC.</p> <p><i>01-26</i> Must have professional engineer(s) currently active in the structural design of bridges who have been the design engineer of record or a senior-level designer for completed designs of bridge deck rehabilitation for highway/ roadway bridge projects, or must have professional engineer(s) currently active in materials engineering on bridge projects who have been the engineer of record or a senior-level designer for completed designs for bridge deck rehabilitation for highway/ roadway bridge projects Must be P.Eng. member of APEGBC..</p> <p><i>01-32</i> <i>01-34</i> <i>01-36</i> Must have professional engineer(s) currently active in the structural design of bridges who have been the design engineer of record or a senior-level designer for completed designs of bridge rehabilitation for highway/ roadway bridge projects, or must have professional engineer(s) currently active in materials engineering on bridge projects who have been the engineer of record or a senior-level designer for completed designs for bridge rehabilitation for highway/ roadway bridge projects Must be P.Eng. member of APEGBC..</p> <p><i>01-40</i> Must have professional engineer(s) currently active in the structural design or analysis of bridges who have been the design engineer of record or a senior-level designer for completed bridge designs for highway/ roadway bridge projects, or must have professional engineer(s) currently active in the structural design or analysis of bridges who have been the engineer of record or a senior-level designer or an expert witness involving detailed structural forensic analysis of damaged or failed highway/ roadway bridges. Must be P.Eng. member of APEGBC.</p>

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Fields & RISP Categories	Category-Specific RISP Adjudication Criteria
	<p><i>01-42</i> Must have professional engineers currently active in the analysis and design of real-time seismic and structural health monitoring systems consisting of static and dynamic components and with experience with state-of-the-art fibre optics, electronic monitoring equipment and wireless technology and their use in real-time structural health monitoring applications. Must have access to and experience with ambient vibration equipment. Must be P.Eng. member of APEGBC.</p> <p><i>01-50</i> Must have professional engineer(s) currently active in the structural design of marine structures who have been the design engineer of record or a senior-level designer for completed designs for these types of structures. Must be P.Eng. member of APEGBC.</p> <p><i>01-17</i> Must have technicians and/or technologists currently active in the structural drafting of detailed bridge drawings using AutoCAD, who have been the senior-level draftsman for completed designs for highway/ roadway bridges.</p> <p><i>01-27</i> Must have professional engineers or technicians/ technologists with current experience in completing bridge deck inspections, and must have field and laboratory equipment required for carrying out complete inspection of bridges using visual inspection, half cell surveys, concrete coring, chloride analysis and petrography analysis, and must have professional engineers or technicians/ technologists with recent experience in preparing inspection reports that can be utilized in developing designs and tender documents for bridge deck resurfacing.</p> <p><i>01-29</i> Must have professional engineers or technicians/ technologists with current experience in carrying out inspection of wood truss members using visual inspection and wood boring and probing techniques to record section loss, and must have professional engineers or technicians/ technologists with current experience in preparing inspection reports for wood truss structure inspections.</p> <p><i>01-31</i> Must have professional engineers or technicians/ technologists with current NACE level 1 certification and with current experience in carrying out inspection of all types of coatings using visual, non-destructive techniques and destructive techniques to evaluate both new and old coating systems on steel bridge structures, and must have equipment required for carrying out bridge coating inspections, and must have professional engineers or technicians/ technologists with current experience in preparing coating inspection reports for steel bridge structures.</p> <p><i>01-39</i> Must have technicians/ technologists with current certification as bridge inspectors who are also certified divers and who have current experience in carrying out underwater inspection of bridge or marine structures using visual and non destructive testing, or must have professional engineers who are also certified divers and who have current experience in carrying out underwater inspection of bridge or marine structures using visual and non destructive testing. Also must have professional engineers or technicians/ technologists who have current experience in preparing underwater inspection reports for bridge or marine structures.</p>

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	<p><i>01-43</i></p> <p>Must have professional engineers and/or technologists currently active in the testing and calibration of real-time seismic and structural health monitoring systems and experience integrating such systems with structural analysis and damage assessment software.</p> <p><i>01-61</i> <i>01-63</i></p> <p>Must have professional engineers or technicians/ technologists with current experience as bridge construction inspectors or as bridge project supervisors who have been the senior technical person that carried out and was responsible for full time inspection/ supervision for the complete construction of these types of structures for highway/ roadway projects, and must have equipment required for carrying out the work.</p> <p><i>01-65</i></p> <p>Must have professional engineers or technicians/ technologists with current experience as bridge construction inspectors or as bridge project supervisors who have been the senior technical person that carried out and was responsible for full time inspection/ supervision for the complete construction of these types of structures for highway/ roadway projects, and must have equipment required for carrying out the work, and must have current experience in inspection/ supervision of concrete bridge deck resurfacing projects.</p> <p><i>15-71</i></p> <p>Must have professional engineers or technicians/ technologists currently certified as Level 3 welding inspectors (CWB or equivalent) qualified to perform radiographic and ultrasound testing of welds who have current experience with weldment testing on bridge structures, and must have equipment required for carrying out radiographic and ultrasound testing of welds.</p> <p><i>35-51</i></p> <p>Firms must have professional engineers and/or technologists/technicians with current experience in carrying out inspections, preparing assessments and developing maintenance and rehabilitation strategies for existing highway infrastructure systems and corridors including roads, bridges and other structures.</p>

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<p>Highway Design, Survey & Mapping</p> <p>Professional Cat. (For these, must be P.Eng. member of APEGBC): 05-66, 05-68, 05-70, 05-72, 05-74 05-76, 05-90</p> <p>Technical Cat: 05-13, 05-15, 05-17, 05-19</p>	<div style="border: 2px solid red; padding: 10px;"> <p>Important Notices:</p> <p>1)</p> <ul style="list-style-type: none"> • RISP work categories serve a dual purpose: 1) To register staff experience. 2) To select a consulting office. • Since the Ministry does not hire Design offices without a P.Eng. experienced in highway Design on staff, only Professional categories were created for Design categories. • Offices needed a way to register the experience of their Design staff who are not P.Eng. or Limited Practice Member of APEGBC. Therefore, we allowed offices to enter their Technicians' and EITs' experiences by using Professional design categories. These experiences can be "Accepted" or "Declined" by adjudicators; but the eRISP software will not allow the Technician or EIT to be "Accepted". • The adjudicator should take into account <u>all</u> of the experience that was "Accepted" whether it is from Technicians, EIT and Engineers when considering approving a "Preferred Amount" for the office in Part 3. • Please ensure that your adjudicator assistants are aware of this procedure. • Headquarters RISP administration will be communicating with RISP offices to ensure that, from their end, they register <u>all</u> of their Design staff experiences in Design using the Professional Categories. <p>2) For design engineers, technologists and technicians applying for design categories (05-series) that require knowledge and abilities in using CAICE and AUTOCAD: You should CLEARLY specify your knowledge in using CAICE and AUTOCAD when entering your work experiences in part 2 of the application. Failure to do so will result in being DECLINED for these categories.</p> </div> <p>Adjudication Criteria by Category</p> <p><i>05-66, 05-68, 05-70, 05-72, 05-74, 05-76</i></p> <p>For the above categories, the staff members must have completed three ministry projects within the previous five years or five municipal or other highway projects within the previous seven years. Must demonstrate a working knowledge of Caice software.</p> <p><i>05-90 Water Supply and Drainage Systems</i> <i>05-13 Design Survey</i> <i>05-15 Topographic Mapping from Aerial LiDAR Scanning Sources</i> <i>05-17 Topographic Mapping from Aerial Data Collection Sources</i> <i>05-19 Highway Design Drafting Services</i></p> <p>For the above categories, the staff members must have completed three projects within the previous five years.</p> <p>For 05-13 must demonstrate a working knowledge of Caice.</p>

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	<p>For 05-15 we look for evidence and examples that the office has skilled geomatics technicians and appropriate software to deliver LiDAR, Orthophotography and Filtered digital data products. Third party processing of the data will not be accepted; the Ministry of Transportation and Infrastructure will not contract offices that do not comply.</p> <p>For 05-17, we look for evidence and examples that the office has skilled experienced photogrammetrists on staff along with the equipment to properly deliver the product. Third parties to process the data will not be accepted; the Ministry of Transportation and Infrastructure will not contract with an office that doesn't actually do the work.</p> <p>For 05-19 must demonstrate a working knowledge of Autocad.</p>
<p>Field Services</p> <p>Professional Cat: (For these, must be P.Eng. member of APEGBC): 06-80, 06-82, 06-84</p> <p>Technical Cat: 06-11, 06-41, 06-43, 06-45, 06-51, 06-53, 06-61, 06-63, 06-65, 06-71, 06-73, 06-91, 06-93, 06-95</p>	<p>General Adjudication Criteria:</p> <ul style="list-style-type: none"> • Size and complexity of projects completed within the past five years, or up to 10 year for high-end categories such as Senior Project Supervisor and Construction Manager. Must be relevant to what the ministry intends in this category • Experience must detail the roles and responsibilities, not generalize, and use appropriate terms (e.g. “Inspecting” is not “project supervision”). Overstating qualifications will be sufficient grounds for rejection. • Whether work was for the ministry or a very similar organization. • Past project success. For any BCMOT project completed under a RISP selection, must provide the final evaluation score • Capital values and fees are guidelines only (except for the maximum \$1 million cap applicable to any RISP selection). Category descriptions and project complexity should be the overriding factor. <p>Category Specific Adjudication Criteria:</p> <p>06-8x: Construction Management (P.Eng.) - This category is for a single professional Construction Manager to simultaneously oversee the work of multiple Project Supervisors (Professional or Technical; normally employed by other firms) on multi-discipline (grading, surfacing and/or structural) projects.</p> <p>Where professional quality management or certification is required on a single project or the project value exceeds \$7 - 10 million, the category may also be used to retain a Construction Manager plus a Project Supervision team from the same firm, in which case the RISP selection shall be for both this category and 06-4x or other suitable supervision category.</p> <p>Duties include record documentation, cost control and reporting, management of the construction project schedule and budget, administration of the construction contract, second-stage dispute resolution with the Contractor, arranging / facilitating and documentation of construction project team meetings, liaison with other Ministries, individuals and outside agencies, and provision of all equipment, vehicles and tools necessary to complete the work.</p>

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	<p>Requirements are:</p> <ul style="list-style-type: none"> • experience as a Project Supervisor, Senior Project Supervisor, or Construction Manager overseeing large multidisciplinary grading, paving and/or structural projects • experience with BCMOT Standard Specifications and Major Works Construction Agreement, application and interpretation consistent with Ministry practice • experience in Quality Management and ability to professionally certify such work • Geotechnical and highway design/management experience is an asset but is not sufficient unto itself <p>06-80: [Regional] Moderate experience equivalent to 3 years. Demonstrated experience on a minimum of 2 BCMOT projects within the past 5 years</p> <p>06-82: [Provincial] Substantial experience, equivalent to 5 years. Successful experience as a Construction Manager under category 06-80, with RISP performance evaluation of 3.5 or greater; or extensive experience on similar work for other jurisdictions.</p> <p>06-84: [Provincial] Extensive experience, equivalent to 10 years. Successful experience as a Construction Manager under category 06-82, with RISP performance evaluation of 4.0 or greater.</p> <p>06-11: Construction Survey – [Local] Provide construction surveys including: QA and quantity surveys; pick up of existing and As-built ground and details; material horizons; slope, off-set and shoulder stakes; setting/checking location of culverts, retaining walls, fencing, spot elevations, etc.; providing electronic survey data compatible with CAiCE software in accordance with Ministry standards.</p> <p>Requirements:</p> <ul style="list-style-type: none"> • 2 years demonstrated experience in construction surveys • knowledge of BCMOT survey standards • Understanding of survey techniques necessary for seamless DTM formation including overhangs • Must have an internal quality management program in place for ensuring the quality of their work. <p>Fees will be capped at \$20,000 per assignment until completion of at least two assignments with RISP evaluation scores of 3.2 or better, or demonstration of 2 years successful experience surveying to BCMOT survey Standards.</p> <p>Project Supervision Categories (Non-structural): 06-4x, 06-5x, 06-6x and 06-7x</p> <p>These categories are to provide project supervision services for highway grading and/or paving projects, including quality management, record documentation, survey and volume determination, cost control and reporting, and inspection services</p>

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	<p>for compliance with drawings, standards and specifications. It will involve administration of the construction contract, liaison with other individuals and agencies, and will require provision of all equipment, vehicles and tools necessary to complete the work.</p> <p>On projects requiring a structural Project Supervisor, categories 01-61 or 01-63 are to be used.</p> <p>Requirements:</p> <ul style="list-style-type: none"> • Experience in project supervision, ensuring consistency with BCMOT practices • Knowledge of BCMOT Standard Specifications and Major Works Construction Agreement, application and interpretation consistent with Ministry practice, with experience commensurate with the category level • Practical and technical knowledge of construction, including familiarity with grading, paving and small structural (such as retaining walls and multiplate culverts) aspects • Detailed knowledge in specific disciplines • Sound knowledge of Quality Management in project supervision services • Ability to: <ul style="list-style-type: none"> ○ manage individual construction project schedules and budgets, ○ timely and accurate surveying and quantity determination ○ liaise with other consultants, other Ministries, individuals and outside agencies, ○ arrange, facilitate and document project team meetings, ○ ensure BCMOT is fully informed on all project issues, including regular status reporting. <p>06-4x: Project Supervision – Roadway: This category is to provide project supervision services for roadway grading projects, including CAiCE volume determination. The work will include paving and small structural elements (such as retaining walls and multiplate culverts) to a lesser extent.</p> <p>For supervision of projects with a high degree of complexity or risk, add a Senior Project Supervisor or Construction Manager by selecting 06-4x plus 06-8x or 06-9x. For projects valued at over \$10 million, select category 06-45 plus 06-84 or 06-93.</p> <p>Requirements:</p> <ul style="list-style-type: none"> • Practical and technical knowledge of grading construction, including familiarity with paving and small structural aspects of roadway construction • timely and accurate surveying and quantity determination, including application of BCMOT CAiCE standards <p>06-41: [Local] Moderate experience in construction supervision, equivalent to 2 years</p>

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	<p>06-43: [Regional] Substantial experience in construction supervision (5 years), a RISP evaluation of 3.5 or better in category 06-41, or successful completion of three supervision assignments on BCMOT projects within the past 10 years.</p> <p>06-45: [Provincial] Extensive experience in construction supervision (10 years), a RISP evaluation of 4.0 or better in category 06-43, or successful completion of five supervision assignments on BCMOT projects within the past 10 years</p> <p>06-5x: Project Supervision – Seal Coat/Micro-surfacing: This category is to provide project supervision services for seal coat, chip sealing, graded aggregates seal, and micro-surfacing projects. The work will include grading elements to a lesser extent.</p> <p>Requirements:</p> <ul style="list-style-type: none"> • Practical and technical knowledge of seal coating and micro-surfacing materials and procedures • Knowledge of asphaltic cements, emulsions and admixtures • experience in Quality Assurance and its application in End Product Specification contracts <p>06-51: [Local] Moderate experience in inspection of seal coat and/or micro-surfacing pavements (2 years) or 5 years in related paving contract inspection and administration</p> <p>06-53: [Provincial] Substantial experience in inspection of seal coat and/or micro-surfacing pavements (5 years) or 10 years in related paving and/or grading contract inspection and administration with 3 years in seal coating and/or micro-surfacing.</p> <p>06-6x: Project Supervision – Day Labour: This category is for staff to provide project supervision and equipment selection, direction and monitoring on Day Labour construction. Must demonstrate the ability to plan and analyze work; select appropriate equipment; balance fleets; set and achieve challenging productivity targets; administer hired equipment; prepare and administer labour, equipment and materials supply contracts; maintain a safe and environmentally compliant site.</p> <p>Where survey and layout of the work is a substantial component of the work, category 06-11 may also be selected.</p> <p>Requirements are experience in:</p> <ul style="list-style-type: none"> • selecting, directing and administering construction equipment fleets (experience as a contractor preferred) • supervising grading and paving construction, including

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	<p>multiplate culverts, concrete block retaining walls</p> <ul style="list-style-type: none"> • preparing and implementing construction-related plans: traffic, safety, quality management, environmental, etc. • Stakeholder liaison • familiarity with BCMOT hired equipment procedures <p>06-61: [Local] Generally a single person required. Equipment fleet would typically be 1-2 excavators, a loader, compactor, grader, and 6-10 trucks; Staff of 6-10, including labourers, flaggers and first aid. 3 years demonstrated experience.</p> <p>06-63: [Regional] Generally a small team will be required – a project supervisor, with one or two assistants for inspection, surveying and QC, overseeing a larger fleet operating on multiple fronts. 5 years demonstrated experience.</p> <p>06-65: [Provincial] A team of a project supervisor, assistants, surveyors, QC and administrative personnel are required, with foremen potentially required. Extensive fleet, much of it provided under supply contracts which would include foremen, including all types of construction equipment (excavators, scrapers, dozers, compactors, graders, on- and off-road trucks, cranes, etc.) 10 years demonstrated experience</p> <p>06-7x: Project Supervision – Surfacing: This category is to provide project supervision services for asphalt concrete paving projects (includes conventional, EPS, HIP, etc.). The work will include grading and structural elements to a lesser extent.</p> <p>Requirements:</p> <ul style="list-style-type: none"> • Practical and technical knowledge of asphalt pavements • experience in Quality Assurance and its application in End Product Specification contracts <p>06-71: [Local] Substantial experience in inspection of asphaltic pavements (5 years)</p> <p>06-73: [Provincial] Extensive experience in inspection of asphaltic pavements (10 years)</p> <p>06-9x: Senior Project Supervisor - This category is for a single, non-professional, highly experienced Project Supervisor to oversee the work on one high-value or complex project, or simultaneously oversee multiple Project Supervisors (Professional or Technical; normally employed by other firms) on multidisciplinary (grading, surfacing, and/or structural) projects. [On structural projects requiring a Senior Project Supervisor, category 01-63 is to be used.]</p> <p>Duties include managing the project supervision services, ensuring consistency; providing construction quality assurance on</p>

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	<p>the project supervision services; managing the inter-relationship of multiple individual construction project schedules and budgets; liaising with other consultants, other Ministries, individuals and outside agencies; arranging, facilitating and documenting construction project team meetings; ensuring BCMOT is fully informed on all project issues, including regular status reporting.</p> <p>Where the work is on a single project of higher complexity or with value in excess of \$7 – 10 million, this category may be used in conjunction with 06-45 to obtain a project supervision support team as well as the Senior Project Supervisor.</p> <p>Requirements are:</p> <ul style="list-style-type: none"> • extensive experience as a Project Supervisor or Construction Manager overseeing large multidisciplinary (grading, surfacing and/or structural) projects • extensive experience with BCMOT Standard Specifications and Major Works Construction Agreement, application and interpretation consistent with Ministry practice • sound knowledge and experience in Quality Management <p>06-91: [Regional] Moderate experience equivalent to 10 years. Demonstrated experience with increasing responsibility and complexity on a minimum of 2 complex BCMOT projects within the past 5 years</p> <p>06-93: [Provincial] Substantial experience, equivalent to 15 years with 2 years at the Senior Project Supervisor level. Successful experience as a Senior Project Supervisor under category 06-90 with personal RISP performance evaluation of 3.5 or greater; or extensive experience on similar work with BCMOT or other jurisdictions.</p> <p>06-95: [Provincial] Extensive experience, equivalent to 20 years with 5 years at the Senior Project Supervisor level. Successful experience as a senior project supervisor or construction manager with the Ministry, or under category 06-92 with personal RISP performance evaluation of 4.0 or greater.</p>

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<p>Materials Testing</p> <p>Technical Cat: 10-07, 10-09, 10-11, 10-13, 10-15, 10-17, 10-41, 10-55, 10-61, 10-63, 10-65, 15-11, 15-13, 15-15, 15-17, 15-19, 15-21, 15-27, 15-29, 15-31, 15-37, 15-39, 15-41, 15-45, 15-47, 15-49, 15-55, 15-57, 15-59, 15-65</p>	<p>The firm must have access to an appropriate lab facility and equipment.</p> <p>For category 10-55, applicants must have geo-technical experience.</p>
<p>Rock slopes technology</p> <p>Technical Cat: 10-19</p>	<p>10-19 Project Supervision (Rock Slope Stabilization)</p> <p>Staff must have demonstrated experience performing project supervision on near vertical rock slopes or rock slope stabilization contracts on three Ministry projects within the previous three years. . Staff must have detailed knowledge of slope stabilization construction techniques including but not limited to; rock scaling, rock bolting and dcp anchoring, rock drilling, trimming (drilling and blasting of select or unstable rock outcroppings) grouting, shotcrete, slope meshing and rock net fencing. Staff must have experience and the capacity to access and descend (rappel) on high vertical slopes using ropes and climbing equipment. Staff must have experience working at heights and performing inspections from crane man-baskets, manlifts and suspended stagings. Staff must have completed training in cliff rescue and evacuation.</p>
<p>Geo-technical/ Geological and Pavement Engineering</p> <p>Professional Cat: (For these, must be a Qualified Professional member of APEGBC): 10-10, 10-20, 10-30, 10-32, 10-40, 10-50, 10-70, 10-80, 15-10, 15-12, 15-14, 15-20, 15-22, 15-24, 15-30, 15-32, 15-34, 15-50, 15-52, 15-54.</p> <p>Technical Cat. 10-91</p>	<p>Only actual full-time design experience specific to the category is considered, as these categories are focused on design, as opposed to project management or construction.</p> <p>The Staff members must have completed at least five projects (with a minimum of 400 hours billed on each project) over the previous five years.</p> <p>British Columbia experience is preferred, as this indicates knowledge and experience in dealing with the unique conditions of the province. Similarly, firms with design engineering staff based full-time in the relevant area will benefit from their knowledge of local conditions.</p> <p><i>10-91 Rock Slope Survey and Modeling</i></p> <p>Staff must have demonstrated experience performing surveying and 3-D modeling for near vertical rock slopes or rock slope stabilization projects on three ministry projects within the previous five years. Staff must have experience modeling overhangs, performing 3-D surface area calculations, projecting 3-D geological features for volume calculations, producing 3-D rendered plans, producing digital terrain models, performing slope movement monitoring (including prism rehabilitation and interpretation of monitoring results), producing cumulative vector displacement plots, producing survey reports and have detailed knowledge of slope mesh draping characteristics.</p>

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<p>Contamination and Remediation</p> <p>Professional Cat: (For these, must be a Qualified Professional member of APEGBC): 10-90</p>	<p>Only full-time design experience is relevant, as this category is focused on design, as opposed to project management or construction. Geo-science experience must be directly related to highway, or roadway, design and operations.</p> <p>Knowledge and experience in dealing with the unique conditions of the province is preferred, as is demonstrated knowledge of local conditions.</p>
<p>Highway Planning</p> <p>Professional Cat: (For these, must be P.Eng. member of APEGBC): 20-10, 20-16, 20-18, 20-20</p>	<p>The consulting firm must have at least one staff person with relevant planning experience in a hands-on role during the previous five years. “Relevant” ideally means work done for the ministry, but if staff members have carried out very similar types of work for other agencies, that will also be counted.</p> <p>The “other agency” criterion depends to some extent on the RISP category. For the “transportation studies” and “Emme2 transportation modeling” categories it is less relevant who the client was, as the experience likely was similar to what the ministry requires. However for the “project and corridor planning” (20-16) and “advanced business case development” (20-18) categories, the experience must meet specific requirements relating to the analysis of projects and corridors, and the related development of project business cases which are the basis for investment and other decisions of high importance to the ministry. For these 2 categories, example reports must be submitted for review prior to adjudication.</p> <p>This is most likely to have been done for a provincial or state transportation agency, although in some cases the clients could have been municipalities or regional governments. If past work done for the ministry or other clients was considered unsatisfactory, then it will not be considered “relevant” planning experience.</p>
<p>Traffic Engineering</p> <p>Professional Cat: (For these, must be P.Eng. member of APEGBC): 25-10, 25-20, 25-30, 25-40</p>	<p>Adjudication Criteria by Category</p> <p>25-10 - Traffic Studies</p> <p>Staff members must have completed a minimum of three studies, containing safety analysis, capacity analysis and warrant analysis. These three components, safety, capacity and warrants and/or combination thereof must be included in any or all of these studies. These studies/experiences must have been achieved within the previous five years with a minimum worth of \$5K each. Must identify the type of software used in the analysis.</p> <p>25-20 - Traffic Signal Analysis and Optimization</p> <p>Staff members must have completed a minimum of three studies, containing signal timing plans and/or signal progression plans, within the previous five years, worth a minimum of \$2,500 each. The three studies cumulatively must contain at least one instance of prepared and implemented signal timing plans and one instance of signal progression plan and implementation. The intent here is that actual signal timing plans have been prepared and the type of software</p>

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	<p>and controller types/cabinets used must be identified.</p> <p>25-30 - Traffic Signs and Pavement Markings</p> <p>Staff members must have completed three studies, containing signing design and/or pavement marking design, within the previous five years, worth a minimum of \$2,500 each. The three studies cumulatively must contain at least one instance of signing design and one instance of pavement marking design.</p> <p>25-40 Traffic Micro-simulation Modelling</p> <p>Staff members must have completed three studies, containing micro-simulation analysis, within the previous five years, worth a minimum of \$5K each.</p>
<p>Highway Operations</p> <p>Professional Cat: (For these, must be P.Eng. member of APEGBC): 30-10, 30-12</p> <p>Technical Cat: 35-15, 35-17, 35-21, 35-23, 35-51</p>	<p>Adjudication Criteria by Category</p> <p><i>30-10 Snow Avalanche Slope Assessment and Mitigation Design</i> Staff members must have senior experience on at least two projects involving the assessment of avalanche slopes to determine requirements for protection or mitigation strategies for roadways. Staff members must have senior experience on at least one project in designing mitigation for avalanche slopes in a highway setting.</p> <p><i>30-12 Road Maintenance Systems</i> Staff members must have senior experience on at least one project developing a maintenance system for a large, complex highway inventory similar to the BC Provincial Highway system, including maintenance activities for all inventory features and a variety of climatic, geographic and demographic variation. This project must include developing maintenance processes, procedures, standards and specifications, including quality management systems, reporting systems and documentation systems.</p> <p><i>35-15 Preliminary Condition Analysis: Pavement Surface</i> Staff members must have completed at least three projects involving the analysis of deficiencies of pavement surfaces or a total of three years experience in a position with responsibility for pavement surface deficiency analysis, including interpretation of collected data. Experience must be in an area with climate, geography and geology similar to British Columbia.</p> <p><i>35-17 Pavement Condition</i> Staff members must have completed at least one project involving collection of pavement condition data or one year in a position responsible for collecting pavement condition data. Must have access to and be familiar with data collection techniques and equipment to be used such as FWD or Benkleman Beam, coring equipment, and labs.</p> <p><i>35-21 Detailed Surface/ Roadway Studies</i> Staff members must have completed at least three projects involving or three years experience in a position responsible for the analysis of roadway structures including surface, base, sub-base and bridge deck condition analysis. Experience must be in an area with climate, geology and geography similar to British Columbia.</p>

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Fields & RISP Categories	Category-Specific RISP Adjudication Criteria
	<p><i>35-23 Surface/Roadway Status Data Gathering</i></p> <p>Staff members must have completed at least one project or have at least one year of experience in a position responsible for collecting data on a variety of roadway surfaces, bases and sub-bases including dirt, gravel, pavement and bridge decks. Must have access to and be familiar with data collection techniques and testing equipment used in collecting information on road and bridge structures.</p>
<p>Maintenance Audit</p> <p>Technical Cat: 35-53</p> <div style="border: 2px solid red; padding: 5px; display: inline-block; color: red; font-weight: bold;">No Longer Used</div>	<p>35-53 Highway Maintenance Quality Auditing Services</p> <ul style="list-style-type: none"> - Must be able to provide certificate of completion for Lead Auditor training; - Experience in auditing against the ISO 9001:2000 standard; - Experience conducting 2nd or 3rd party audits; - Experience conducting audits on highway maintenance and/or construction contractors' QMS; - Must <u>not</u> have performed, within the last 12 months, an internal audit on the Quality Management System (QMS) of a maintenance contractor that is the subject of the work being offered.
<p>Electrical Engineering</p> <p>Professional Cat: (For these, must be P.Eng. member of APEGBC): 45-10, 45-12, 45-16, 45-20, 45-22, 45-24, 45-26, 45-28</p>	<p>Adjudication Criteria by Category</p> <p><i>45-10 Street Lighting Design</i> Staff members must have completed three street lighting projects using lighting analysis software; each project shall be over \$5,000 and have been completed within the previous five years.</p> <p><i>45-12 Traffic Signal Design</i> Staff members must have performed three <i>NEW</i> traffic signal designs, each over \$5,000 within the previous five years.</p> <p><i>45-16 Traffic Management Systems</i> Staff members must have performed three Intelligent Transportation Systems (ITS) projects representing at least three different ITS technologies valued over \$25,000 within the previous five years.</p> <p><i>45-20 Equipment Design and Specifications</i> Staff members must have completed three relevant electrical equipment design projects valued over \$5,000 within the previous ten years.</p> <p><i>45-22 Power Distribution and Emergency Backup</i> Staff members must have completed three relevant power distribution or emergency backup design projects valued over \$5,000 within the previous ten years.</p> <p><i>45-24 Specialized Electronic / Electrical Systems</i> Staff members must have completed three electrical or electronic systems projects incorporating three different technologies valued over \$5,000 within the previous ten years.</p> <p><i>45-26 Bridge and Tunnel Electrical and Electronic Systems</i> Staff members must have performed three relevant designs valued over \$5,000 within the previous ten years.</p>

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Fields & RISP Categories	Category-Specific RISP Adjudication Criteria
	<p><i>45-28 System Integration</i> Staff members must have completed two complete System Integration Projects valued over \$25,000 within the previous ten years.</p>
<p>Electrical Technology</p> <p>Technical Cat: 45-31, 45-33, 45-35, 45-37, 45-51, 45-53</p>	<p>Adjudication Criteria by Category</p> <p><i>45-31 Electrical Drafting</i> Staff members must have completed three ministry projects valued over \$1,000 within the previous two years.</p> <p><i>45-33 Electrical Inspection</i> Staff members must have completed three ministry projects values over \$1,000 within the previous two years.</p> <p><i>45-35 Electrical Technical Services</i> Staff members must have completed three relevant projects valued over \$1,000 within the previous two years.</p> <p><i>45-37 Electrical Standards Development</i> Staff members must have completed three traffic/electrical related standards projects valued over \$5,000 within the previous five years.</p> <p><i>45-51 Project Supervision (Electrical)- construction projects under \$250K</i> Staff members must have completed three supervision projects valued over \$5,000 within the previous five years.</p> <p><i>45-53 Project Supervision (Electrical)- construction projects over \$250K</i> Staff members must have completed five supervision projects valued over \$5,000 within the previous five years.</p>
<p>Acoustics Engineering</p> <p>Professional Cat: (For these, must be P.Eng. member of APEGBC): 47-20, 47-22</p>	
<p>Environmental Sciences</p> <p>Technical Cat: 50-31, 50-35, 50-45, 50-47, 50-49, 50-51, 50-53, 50-55, 50-57, 50-59, 50-61, 50-65, 50-69, 50-71, 50-73</p>	<p>Adjudication Criteria by Category</p> <p><i>50-31 Roadside Facility Design</i> <i>50-57 Vegetation Management</i> <i>50-59 Noxious Weed Control</i> <i>50-61 Landscape Design and Management</i> <i>50-65 Socio-Community Impact Assessment</i> The staff members must have completed three specific projects in this area of expertise, each over \$5,000 in professional and/or technical fees, within the previous three years.</p> <p><i>50-35 Erosion and Sediment Control</i> <i>50-45 Environmental Impact Assessment</i> <i>50-49 Fish and Aquatic Resources</i> <i>50-51 Terrestrial Wildlife Resources</i> The staff members must have completed three specific projects in this area of expertise, each over \$3,000 in professional and/or technical fees, within the</p>

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Fields & RISP Categories	Category-Specific RISP Adjudication Criteria
	<p>previous three years.</p> <p><i>50-47 Archaeological Resources</i> The consulting firm must have an archaeologist on staff who is eligible to hold archaeological permits in British Columbia. Staff members must have completed three specific projects in this area of expertise, each over \$1,500 in professional and/or technical fees, within the previous three years.</p> <p><i>50-53 Rare and Endangered Flora / Fauna</i> <i>50-55 Environmental Monitoring</i> <i>50-73 Agricultural Land Assessment</i> The staff members must have completed three specific projects in this area of expertise, each over \$2,500 in professional and/or technical fees, within the previous three years.</p> <p><i>50-69 Air Quality</i> The staff members must have completed three specific projects in this area of expertise, each over \$4,000 in professional and/or technical fees, within the previous three years.</p> <p><i>50-71 Environmental Project Coordination</i> The staff members must have completed three specific projects in this area of expertise, each over \$5,000 in professional and/or technical fees, within the previous two years.</p>
<p>Hydraulics</p> <p>Professional Cat: (For these, must be P.Eng. member of APEGBC): 70-06, 70-10, 70-16, 70-20, 70-60</p>	<p>The glossary of terms for the five professional categories, 70-06 “Culvert Hydraulics”, 70-10 “River Engineering”, 70-16 “Mathematical Hydraulic Modeling”, 70-20 “Physical Hydraulic Modeling” and 80-10 “Coastal Engineering” are explicit and self-explanatory.</p> <p>The pass/fail method is based on whether individuals identified in the consulting firm’s application have had relevant design experience in the specific categories. Work experience in the supervision of related construction projects is not considered as design experience in the specific categories.</p>
<p>Tunnel Engineering</p> <p>Professional Cat: (For these, must be P.Eng. member of APEGBC): 85-10, -85-20, 85-30, 85-40</p>	<p>Only actual full-time design experience specific to the category is considered, as these categories are focused on design, as opposed to project management or construction.</p> <p>The Staff members must have completed at least five projects (with a minimum of 400 hours billed on each project) over the previous five years.</p> <p>British Columbia experience is preferred, as this indicates knowledge and experience in dealing with the unique conditions of the province. Similarly, firms with design engineering staff based full-time in the relevant area will benefit from their knowledge of local conditions.</p>
<p>Cost Estimation</p> <p>Technical Cat: 87-51, 87-53, 87-55, 87-61, 87-63, 87-65</p>	<p><u>Demonstrated Experience</u></p> <p>The consultant will have employees with demonstrated experience based on the stated requirements for each category.</p> <p><u>For Cost Estimating Services</u></p> <ul style="list-style-type: none"> • Staff members must have training in cost estimating or quantity surveying. • Staff members must have experience with project and program level cost

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Fields & RISP Categories	Category-Specific RISP Adjudication Criteria
	<p>estimating and control budget development.</p> <ul style="list-style-type: none"> • Staff members must have experience with cost risk analysis and contingency management. • Staff members must have experience with developing cost estimates for a variety of technical and professional disciplines. • Staff members must have experience with alternate project delivery models. <p style="text-align: center;"><u>For Cost Estimate Audit Services</u></p> <ul style="list-style-type: none"> • Staff members must have training in planning and conducting audits, cost estimating or quantity surveying. • Staff members must have experience with engineering quality systems • Staff members must have experience with project and program level cost estimating and control budget development • Staff members must have experience with cost risk analysis and contingency management • Staff members must have experience with developing cost estimates for a variety of technical and professional disciplines • Staff members must have experience with alternate project delivery models. • Staff members must have experience with multi-disciplinary project teams. <p><u>Type of Project or Assignment Experience</u></p> <p style="text-align: center;"><i>Small Projects</i></p> <p>Project or assignment involved projects five kilometres or less in length through average rural conditions, or one kilometre or less through average urban conditions.</p> <p style="text-align: center;"><i>Medium Projects</i></p> <p>Project or assignment involved projects ten kilometres or less in length through moderate rural conditions, or five kilometres or less through moderate urban conditions.</p> <p style="text-align: center;"><i>Large Projects</i></p> <p>Project or assignment involved projects ten kilometres or greater in length in difficult or highly variable rural conditions or five kilometres or greater through complex urban conditions.</p> <p style="text-align: center;"><i>Single Discipline (uni)</i></p> <p>Scope of work limited to a single discipline such as geotechnical design, highway design, bridge design, etc.</p> <p style="text-align: center;"><i>Multiple Discipline (multi)</i></p> <p>Scope of work requires multiple disciplines with a high degree of co-ordination required.</p> <p style="text-align: center;"><i>Moderate Complexity (somewhat)</i></p> <p>Assignment carried out within a two year time frame, was a stand alone project or assignment, average technical complexity, few external approvals required, etc.</p> <p style="text-align: center;"><i>High Complexity (highly)</i></p> <p>Assignment carried out in a multi-year time frame, requiring a high degree of coordination of delivery, sustained consultation / public relations required,</p>

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	<p>political sensitivity, technically complex or highly variable, multiple external approvals required, etc.</p> <p>Other Factors Component or attribute of project or assignment that increased the difficulty such as compressed time frame, change management issues, special technologies, etc.</p> <p><u>Currency of Experience</u> Small and medium projects must have been completed within the previous five years, while large projects must have been completed within the previous ten years.</p>
<p>Marine Engineering Professional Cat(For this category, must be P.Eng. member of APEGBC): 90-10</p>	<p>Must demonstrate practical experience for at least 4 years working on assignments in Marine Engineering.</p>
<p>Project Management Professional Cat: (For these, must be P.Eng. member of APEGBC): 95-10, 95-12, 95-14 Technical Cat: 95-11, 95-13, 95-15 Value Analysis 95-51 Quality Auditing (For this category, must be P.Eng. member of APEGBC): 95-60</p>	<p>Project Management The staff members' experience described in the application must apply to at least three distinct highway or bridge projects. On these projects, the duties of the staff must have been specifically to provide project management services to the identified project from initiation to completion, rather than responsibility for one discreet portion of the project (for example: design portion only). The ministry is looking for consultant project management support in leading multi-disciplinary teams through all phases of project development, design, and implementation; dealing with various stakeholders, regulatory agencies, and interest groups. Value of past projects should state total project value, as well as assignment value.</p> <p>Value Analysis The staff member or members should demonstrate experience, training and/or certification to indicate the capability of facilitating value analysis reviews of projects. Participation as a team member only is not considered sufficient. The staff member or members are not required to be a professional to qualify for this category.</p> <p>Quality Auditing The responsibilities of the relevant staff members must have been those normally assigned to staff having a senior level of technical auditing knowledge and management experience. Only consulting work and knowledge that can be directly applied and are relevant to highway projects will count in the evaluation.</p>

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<p>Road Safety Auditing</p> <p>Professional Cat: (For these, must be P.Eng. member of APEGBC): 97-70, 97-80</p>	<p>The staff members should have conducted a Road Safety Audit similar to the formal process established by TAC, or another jurisdiction. Failing that, they must have formal training in RSA, similar to the Ministry of Transportation and Infrastructure's five-day training provided in Jan/01, or current training being offered by TAC. If the application states that they "completed a safety review of the design..." or other such words, that will not be deemed sufficient.</p> <p>To qualify for 95-70, an applicant needs to demonstrate that their designated staff member can "go it alone" as the leader. If not, they may still qualify for 95-80, provided they supplement their team with others who do qualify as team leaders.</p>
<p>Owner's Engineer</p> <p>Professional Cat: (For these, must be P.Eng. member of APEGBC): 99-10, 99-12, 99-14</p>	<p>The consulting firm's application is assessed against the definition of owner's engineer, as set out in the RISP Category Glossary. Key points that are assessed include the following:</p> <ul style="list-style-type: none"> • Whether the employees in question have experience in providing senior, multi-disciplinary engineering and technical advice on projects of a complexity consistent with the category (small and less complex, medium and more complex or large and highly complex). • Whether this experience includes the full range of owner's engineer activities, as described in the RISP Category Glossary. This requirement is not satisfied by having employees who have carried out design work, project management or simply served as part of a team that carried out owner's engineer tasks. • Whether the employees in question are seasoned engineers.