1. **BINDERS**

   .1 Provide four (4) sets of Operations and Maintenance Manuals.
   
   .2 Each set of manuals shall include as many binders as required to accommodate the project information.
   
   .3 Binders shall be 216 mm x 280 mm, three (3) post, expanding spine type, with metal piano hinges and bound with heavy fabric.
   
   .4 Maximum binder thickness when filled shall not exceed 100 mm, including a space allowance for 10% additional data.
   
   .5 Binder colour shall be blue, ontario buckram fabric, colour #OBV460.
   
   .6 Project title and identification shall be silk screened on the front cover and spine. All lettering and borders shall be white.
   
   .7 Binder spine identification to include Volume #, Set #, Title Description, Facility Name and Facility Location.
   
   .8 Contractor to submit proof of cover layout for review prior to ordering binders.

2. **TABS**

   .1 The divider tabs shall be laminated mylar plastic and coloured according to division and section.
   
   .2 Plastic tabs with typewritten card inserts will not be accepted.
   
   .3 Each tab to include tab number and title printed on the tab.

3. **MANUAL DIVISIONS**

   .1 Organize each manual into the following sections.
   
   1.0 Maintenance Tasks and Schedules
   2.0 Spare Parts List
   3.0 Suppliers and Contractors
   4.0 Tags and Directories
   5.0 Certifications
   6.0 Warranties and Bonds
   7.0 Drawing List
   8.0 Reports
   9.0 Shop Drawings
.1 Maintenance Tasks and Schedules - Organize data according to the system category, with further breakdown into individual systems as used in the operations division of the manual. Provide section index and divider tabs for each system category. Summarize maintenance tasks from manufacturers maintenance brochures, for each component of each system in the following format:

Daily  
Weekly  
Monthly  
Semiannually  
Annually  
When Required.

Operating Instructions - Provide, in "operator" layman language, the specific instructions for start-up, shutdown and seasonal change over of each system component. Include exact type and specific location of each switch and device to be used in the system operation. Identify safety devices and interlocks that must be satisfied in order for the equipment to start. Also, list conditions to be fulfilled before shutting down and attempting equipment start-up, i.e. valves position correct, glycol mixture concentration proper, piping filled with fluid, filters/strainers in place, etc.

.2 Spare Part List - Organize data according to the system category, with further breakdown into individual systems as used in the operations division of the manual. Provide section index and divider tabs for each system category. Summarize from manufacturers maintenance brochures the recommended spare parts for each component of each system.

.3 Suppliers and Contractors - Provide summary of Suppliers and Contractors for each components of each system. List name, address and telephone number of each.

.4 Tags and Directories - Provide a copy of tags and directories as specified in the contract documents.

.5 Certifications - Provide copies of Contractor Certifications for the performance of product and systems, and test reports verifying performance of products and systems. Include section index and divider tabs with maximum of twenty-five sheets (25) or one report per tab. Provide table of contents at the beginning of the section.

.6 Warranties and Bonds - Include one copy each of the Contractor's, warranty, manufacturers' warranties longer than one year, the bond, and any service contract
provided by the contractor. Provided table of contents at the beginning of the section.

.7 **Drawing List** - Provide a list of all drawings required for the performance of the construction contract.

.8 **Reports** - Include copies of all reports relating to the testing, adjusting and balancing of equipment and systems, as required by the contract specification sections. Include section index and divider tab for each report.

.9 **Shop Drawings and Product Data** - Provide final copies of all shop drawings and product data required by the contract documents. Include section index and divider tabs. Maximum of twenty-five (25) sheets or one (1) system shop drawing per tab. Include copies of all manufacturers' printed maintenance brochures pertaining to each product, equipment or system. Provide table of contents at the beginning of the section as per the following example:

<table>
<thead>
<tr>
<th>Section</th>
<th>Shop Drawings</th>
<th>Tag No’s</th>
<th>Supplier</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.1</td>
<td>pumps</td>
<td>P-1,2,3,4</td>
<td>ABC Co.</td>
</tr>
<tr>
<td>9.2</td>
<td>duct accessories</td>
<td>N/A</td>
<td>CBA Co.</td>
</tr>
<tr>
<td>9.3</td>
<td>Fans</td>
<td>EF 1,2,23,23</td>
<td>BCA Co.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>RF-1,2</td>
<td></td>
</tr>
</tbody>
</table>

1. **SUBMISSIONS AND APPROVALS**

.1 **First Draft Submission**

.1 Contractor shall submit two (2) draft copies of the operations and maintenance manuals for format review within four (4) months of the award of contract.

.2 The draft submission is to be bound in 3 ring loose leaf type binders and shall include the following information:

.1 A table of contents for the complete manual.
.2 Index of each division of the manual.
.3 Index of each section of the operations and maintenance divisions.
.4 A sample Start Stop instructions for a typical system.
.5 A sample maintenance division write-up for the same typical system.

.3 On completion of review of the first draft submission the consultant will return the copies of the manual with review comments for resubmission and approval.
.2 Operations Division Draft Submission

.1 Contractor shall submit two (2) draft copies of the operations division of the operations and maintenance manual six (6) months after the award of contract.

.2 The first draft shall be based on all information available.

.3 On completion of review the consultant will return one copy of the manual with review comments for re-submission.

.3 Provisional Edition

.1 The contractor shall submit two (2) copies of the provisional edition of the manual at the 75% construction completion stage.

.2 The provisional edition shall be complete in all respects, except for reports and certificates which are unavailable. This manual shall have the same physical format, including divider tabs and indices, as the final edition of the manual. This provisional edition may be bound in standard three-ring loose leaf binders.

.3 One copy of the provisional edition shall be kept on site a reference and shall be used to familiarize and train the operating staff.

.4 The second copy shall be returned to the contractor with review comments.

.5 The contractor shall update contents of the site copy of the provisional edition manual as additional information becomes available.

.4 Final Edition

.1 Prior to final acceptance the contractor shall submit four (4) copies of the final edition of the manual.

.2 This final edition shall include all outstanding project information and conform to all requirements listed in this document.

END OF SECTION