Part 1 General

1.1 WORK COVERED BY CONTRACT DOCUMENTS

.1 Work of this Contract comprises of renovating approximately 1700 m² of floor space on two floors, installation of fire sprinkler system, miscellaneous upgrades throughout the entire building, and associated exterior work. The project site is located in Regina, Saskatchewan and further identified as “Shared Learning Facility, Regina, SK”.

1.2 WORK SEQUENCE

.1 The General Contractor will be responsible for the coordination of all work.

1.3 CONTRACTOR USE OF PREMISES

.1 Coordinate use of premises under direction of Departmental Representative.

.2 Obtain and pay for use of additional storage or work areas needed for operations under this Contract.

.3 Cooperate with other contractors employed by the Departmental Representative for other work within the building.

1.4 EXISTING SERVICES

.1 Notify, Departmental Representative and utility companies of intended interruption of services and obtain required permission.

.2 Where Work involves breaking into or connecting to existing services, give Departmental Representative 48 hours of notice for necessary interruption of mechanical or electrical service throughout course of work. Minimize duration of interruptions. Carry out work at times as directed by governing authorities with minimum disturbance to pedestrian, vehicular traffic and tenant operations.

.3 Establish location and extent of service lines in area of work before starting Work. Notify Departmental Representative of findings.

.4 Submit schedule to and obtain approval from Departmental Representative for any shut-down or closure of active service or facility including power and communications services. Adhere to approved schedule and provide notice to affected parties.

.5 Provide temporary services when directed by Departmental Representative to maintain critical building and tenant systems.

.6 Provide adequate bridging over trenches which cross sidewalks or roads to permit normal traffic.

.7 Where unknown services are encountered, immediately advise Departmental Representative and confirm findings in writing.

.8 Protect, relocate or maintain existing active services. When inactive services are encountered, cap off in manner approved by authorities having jurisdiction.

.9 Record locations of maintained, re-routed, and abandoned service lines.

.10 Construct barriers in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.

END OF SECTION

Part 1 General

1.1 USE OF SITE AND FACILITIES

.1 Execute work with least possible interference or disturbance to normal use of premises.

.2 Normal hours of operation are between 08:00 – 16:30, Monday to Friday for the North wings on the 1st and 2nd floors and for the East wing on the 1st floor.

.3 Normal hours of operation are between 16:30 and 24:00, all days of the week, for the East wing on the 2nd floor.

.4 Noise generating activities and access to the occupied spaces are to be conducted outside of normal hours of operation.

1.2 EXISTING SERVICES AND BUILDING SYSTEMS

.1 Notify, Departmental Representative of intended interruption of services or building mechanical or electrical systems, and obtain required permission.

.2 Where Work involves breaking into or connecting to existing services or disruption to electrical or mechanical systems, give Departmental Representative 48 hours of notice for necessary interruption of mechanical or electrical service throughout course of work. Keep duration of interruptions minimal.

.3 Carry out interruptions after normal working hours of occupants, preferably on weekends.

1.3 SPECIAL REQUIREMENTS

.1 Submit schedule in accordance with Section 01 32 16 - Construction Progress Schedules - Bar (GANTT) Chart.

.2 Ensure that Contractor personnel employed on site become familiar with and obey regulations including safety, fire, traffic and security regulations.

.3 Keep within limits of work and avenues of ingress and egress.

1.4 SECURITY CLEARANCES

.1 Contractor personnel must submit to local law enforcement verification by RCMP, prior to admittance to the facility site. The Client reserves the right to deny access to any facility / site or part thereof to any Contractor personnel, at any time.

.2 All access to the building is to be through a designated entrance. Personnel will be signed in daily at start of work shift and provided with pass, which must be worn at all times. Pass must be returned at end of work shift and personnel checked out.

.3 Security documents are attached at the end of the Section.

1.5 SECURITY ESCORT

.1 Personnel employed on this project must be escorted when executing work in non-public areas during normal working hours. Personnel must be escorted in all areas after normal working hours.

1.6 BUILDING SMOKING ENVIRONMENT

.1 Comply with smoking restrictions. No smoking will be allowed in or around the building. Smoking is allowed only in areas indicated by Departmental Representative.

.2 Turn off vehicles when they are parked next to building.

1.7 OCCUPIED SPACES

.1 Coordinate the work to with the occupancy schedule, which will be provided by the Departmental Representative. The North and East wings on the 1st and 2nd floors will be occupied during construction. Schedule work outside of the occupancy schedule within the identified occupied spaces.

1.8 SITE RESTRICTIONS

.1 The site immediately adjacent to the South of this building is currently under restricted access by another General Contractor working for the same Owner. Cooperate with the General Contractor of the adjacent site to obtain access to the South facades of the building when and where required.

END OF SECTION

RCMP Clearance Requirements (Law Enforcement Checks)

.1 All personnel employed on this project will be subject to at a minimum, the RCMP Facilities Access Level 2 clearance requirements by the RCMP.

.2 Prior to the commencement of the on-site activities, all personnel engaged in the execution of the work on the exterior or interior of an RCMP occupied and/or unoccupied building or outside on the grounds, shall have at a minimum, the requisite RCMP Facilities Access Level 2 clearance.

.3 Immediately upon award of the contract, the Contractor shall prepare and submit the attached requisite forms, provided by the Departmental Representative (or failing that the RCMP Project Manager), for each Contractor employee and sub-contractor employee to be engaged in the work on the exterior or interior of an occupied and/or unoccupied building or outside on the grounds. In addition, Contractor's employees and sub-contractor employees must include with their requisite forms, government issued documents (driver's license/photo identification and birth certificate), for each Contractor employee and sub-contractor employee engaged in the work at the RCMP as noted above.

To eliminate delays in the clearance process, all clearance documents completed by the Contractor's employees and sub-contractor employees must be reviewed by the Contractor to ensure that all requested information has been provided, prior to submitting documents to the RCMP. Incomplete forms will be returned to the Contractor.

The Contractor's employees and sub-contractor employees shall only mobilize on site, once the requisite RCMP clearance has been granted.

.4 The Contractor should batch the fully completed submissions, based on priority work on site and allow for a minimum twenty (20) working days processing time in the project schedule for the review to occur (from the date the completed documents are received by the RCMP). The inability to submit the fully completed requisite forms and documents will not be reason for an extension to the project schedule or additional compensation.

.5 The Contractor's employees and subcontractor employees must be escorted at all times by a designate of the RCMP. This designate will be at no cost to the Contractor.

.6 The Contractor shall give the RCMP 72 hours notice for work to be carried out during periods outside of the normal working hours of Monday to Friday, from 06:00 to 18:00 hours.

.7 At the request of the Departmental Representative (or failing that the RCMP Project Manager), Contractor's employees and sub-contractor employees may be requested to undertake additional clearance requirements, to obtain the RCMP Reliability Status clearance. Additional clearance requirements would include submission of the completed TBS 330-60 form and Security Pre-Interview Questionnaire form, fingerprints for verification purposes (at no cost to the Contractor) and undertaking of an interview. This would enable the Contractor's employees or sub-contractor employees, whom have been granted the RCMP Reliability Status clearance, unescorted access to some occupied and/or unoccupied RCMP buildings, or outside on the grounds. Additional processing time (approximately forty working days) will be required for this clearance.

RCMP NORTH WEST REGION
DEPARTMENTAL SECURITY SECTION
Contractor/Consultant Information Sheet
DEPOT CONSTRUCTION SITES

PLEASE PRINT LEGIBLY / ALL INFORMATION MUST BE PROVIDED

CONTRACTORS / CONSULTANTS TO COMPLETE

Contractors/Consultants to provide the requested information below.
This completed form must be returned with the attached clearance forms and 2 copies of personal identification (driver's license/photo identification & Birth Certificate, Passport, Firearms License) to:

RCMP Depot Security Administration
Attention: Security Clearances
Fort Dufferin Dorm, 5600 – 11 Avenue
Regina, SK S4P 3J7

1. Your Complete Legal Name: *(First/Middle or "no Middle Name"/ Last Name)*	
2. Name of Company That You Work For:	
3. Company Telephone Number:	
4. Project That You Are Working On: (*Name of Project/Building/City/Province*)	Depot B Block Redevelopment (Construction) **SRCL #2013-11121143** RCMP Project Manager: Allan Currie, NPDO
5. Access Period (Start & End Dates): *(If exact dates unknown, estimate start &end dates)*	

CONTRACTORS / CONSULTANTS - PLEASE NOTE THE FOLLOWING:

Should an RCMP Access tag/card be issued to you, please note the following;

1) **You are the sole user of the access tag and it must be visibly worn while working on the site.**
2) **The access tag is non-transferrable / cannot be used while working on projects other than the RCMP projects it was issued for.**
3) **The access tag must be returned to the RCMP issuing office or site foreman (if approved) at the end of each day.**
4) **Please park in designated areas only, as outlined by the RCMP Project Manager.**
5) **Contractors/Consultants must abide by the RCMP Smoking Policy: *Smoking is not permitted anywhere at Depot except in the designated smoking area within the work site, as approved by the RCMP.***
6) PLEASE NOTE CONTRACTORS ARE NOT PERMITTED TO OBTAIN FOOD AND/OR DRINK IN THE RCMP DIVISION MESS.
7) NO ACCESS TO AREAS THAT YOU HAVE NOT BEEN CLEARED WILL BE ALLOWED AND IF FOUND IN THESE AREAS YOUR CLEARANCE MAY BE REVOKED AND YOU MAY BE REMOVED FROM THE SITE.

Employee Signature:	Signed on Date:

EMPLOYER TO REVIEW (not employee applicant of this form), COMPLETE AND SIGN:

In order to comply with Federal Government and RCMP policies and guidelines, in relation to the collection of personal information, the employer requesting the security checks must be satisfied that he/she can confirm the identity of the applicant.

The employer MUST ("employer" is your supervisor or a colleague of the company that you are employed by):

1) Request that their employees attend in person and provided two pieces of Identification.
2) ID MUST include full date of birth and name of the individual (ie. Drivers Licence - Birth Certificate, Passport, Firearms Licence). (One piece of ID must include the photograph and if using the Drivers Licence copy both the photo portion as well as the signature portion.)
3) If the employee has changed his/her name, ID MUST BE provided with both the current as well as past names.

Type of ID PROVIDED: **1)**_____ **Number**_____

2)_____ **Number**_____

Employers Name:
(First Name and Last Name) _____

Employers Signature: _____

Date of signature: _____

.../2

Facilities Access Level 2 (FA2) clearance Applicants:

Documents noted in the box below must be provided with your FA2 clearance application (Facilities Access Level 2 Clearance Forms to be completed for FA2 clearances:

1. Contractor/ Consultant Information Sheet *AND*
2. Form TBS 330-23E):

CONTRACTORS/CONSULTANTS MUST PROVIDE PHOTOCOPIES OF:	
I HAVE ATTACHED THE FOLLOWING DOCUMENTS TO THE ABOVE NOTED FORMS:	**YES / NO**
1. Driver's License (a clear copy of both the front and back of the document on the same page, certified to be a true copy by their supervisor or colleague). ***Note:*** **1.** If you do not have a Driver's License, please provide other government issued photo identification (passport, treaty card). **2.** The photo must be clear.	
2. Birth Certificate (a clear copy of both the front and back of the document on one page, certified to be a true copy by their supervisor or colleague). ***Note:*** **1.** If you do not have a Birth Certificate, please provide other government issued identification (ie. Health Card Card, passport, treaty card).	

RCMP Reliability Status (RRS) clearance Applicants:

Documents noted in the box below must be provided with your RRS clearance application RRS Clearance Forms to be completed for RRS clearances:

1. Contractor/ Consultant Information Sheet
2. Form TBS 330-23E
3. Form TBS 330-60E *AND*
4. Security/Reliability Pre-Interview Questionnaire:

CONTRACTORS/CONSULTANTS MUST PROVIDE PHOTOCOPIES OF:	
I HAVE ATTACHED THE FOLLOWING DOCUMENTS TO THE ABOVE NOTED FORMS:	**YES / NO**
1. Driver's License (a clear copy of both the front and back of the document on the same page, certified to be a true copy by their supervisor or colleague). ***Note:*** 1. If you do not have a Driver's License, please provide other government issued photo identification (passport, treaty card). 2. The photo must be clear.	
1. Birth Certificate (a clear copy of both the front and back of the document on one page, certified to be a true copy by their supervisor or colleague). **DOCUMENT MUST BE PROVIDED FOR RRS CLEARANCES – NO ALTERNATE DOCUMENTS IN LIEU OF BIRTH CERTIFICATE.**	
2. Two current Passport Style Photographs (do not have to be certified)	
3. Two sets of Fingerprints ("Roll and Ink" style) – must be obtained from a Corp of Commissionaires office.	

PLEASE CHECK WITH THE GENERAL CONTRACTOR IF YOU ARE UNSURE WHAT LEVEL OF SECURITY CLEARANCE YOU SHOULD BE APPLYING FOR.

Government of Canada / Gouvernement du Canada

PROTECTED (when completed)

PERSONNEL SCREENING, CONSENT AND AUTHORIZATION FORM

OFFICE USE ONLY		
Reference number	Department/Organization number	File number

NOTE: For *Privacy Act* Statement refer to Section C of this form and for completion instructions refer to attached instructions.
Please typewrite or print in block letters.

A ADMINISTRATIVE INFORMATION (To be completed by the Authorized Departmental/Agency/Organizational Official)

☐ **New** ☐ **Update** ☐ **Upgrade** ☐ **Transfer** ☐ **Supplemental** ☐ **Re-activation**

The requested level of reliability/security check(s)

☐ Reliability Status ☐ Level I (CONFIDENTIAL) ☐ Level II (SECRET) ☐ Level III (TOP SECRET)

☐ Other _____

PARTICULARS OF APPOINTMENT/ASSIGNMENT/CONTRACT

☐ Indeterminate ☐ Term ☐ Contract ☐ Industry ☐ Other (specify secondment, assignment, etc.) _____

Justification for security screening requirement

Position/Competition/Contract number	Title		Group/Level (Rank if applicable)
Employee ID number/PRI/Rank and Service number (if applicable)	If term or contract, indicate duration period ▶	From	To
Name and address of department / organization / agency	Name of official	Telephone number ( )	Facsimile number ( )

B BIOGRAPHICAL INFORMATION (To be completed by the applicant)

Surname (Last name)	Full given names (no initials) underline or circle usual name used	Family name at birth

All other names used (i.e. Nickname)	Sex ☐ Male ☐ Female	Date of birth Y M D	Country of birth	Date of entry into Canada if born outside Canada Y M D

RESIDENCE (provide addresses for the last five years, starting with the most current) Home address	Daytime telephone number ( )	E-mail address

	Apartment number	Street number	Street name	Civic number (if applicable)	From Y M	To present
1	City	Province or state	Postal code	Country	Telephone number ( )	
2	Apartment number	Street number	Street name	Civic number (if applicable)	From Y M	To Y M
	City	Province or state	Postal code	Country	Telephone number ( )	

Have you previously completed a Government of Canada security screening form? ☐ Yes ☐ No	If yes, give name of employer, level and year of screening. Y

CRIMINAL CONVICTIONS IN AND OUTSIDE OF CANADA (see instructions)

Have you ever been convicted of a criminal offence for which you have not been granted a pardon? ☐ Yes ☐ No	If yes, give details. (charge(s), name of police force, city, province/state, country and date of conviction) ▼	
Charge(s)	Name of police force	City
Province/State	Country	Date of conviction ▶ Y M D

Government of Canada / Gouvernement du Canada

PERSONNEL SCREENING, CONSENT AND AUTHORIZATION FORM

PROTECTED (when completed)

Surname and full given names	Date of birth (Y M D)

C CONSENT AND VERIFICATION (To be completed by the applicant and authorized Departmental/Agency/Organizational Official)

Checks Required (See Instructions)	Applicant's initials	Name of official (print)	Official's initials	Official's Telephone number
1. ☐ Date of birth, address, education, professional qualifications, employment history, personal character references				( )
2. ☐ Criminal record check				( )
3. ☐ Credit check (financial assessment, including credit records check)				( )
4. ☐ Loyalty (security assessment only)				
5. ☐ Other (specify, see instructions) Law Enforcement Records Checks				( )

The Privacy Act Statement
The information on this form is required for the purpose of providing a security screening assessment. It is collected under the authority of subsection 7(1) of the *Financial Administration Act* and the Government Security Policy (GSP) of the Government of Canada, and is protected by the provisions of the *Privacy Act* in institutions that are covered by the *Privacy Act*. Its collection is mandatory. A refusal to provide information will lead to a review of whether the person is eligible to hold the position or perform the contract that is associated with this Personnel Screening Request. Depending on the level of security screening required, the information collected by the government institution may be disclosed to the Royal Canadian Mounted Police (RCMP) and the Canadian Security Intelligence Service (CSIS), which conduct the requisite checks and/or investigation in accordance with the GSP and to entities outside the federal government (e.g. credit bureaus). It is used to support decisions on individuals working or applying to work through appointment, assignment or contract, transfers or promotions. It may also be used in the context of updating, or reviewing for cause, the reliability status, security clearance or site access, all of which may lead to a re-assessment of the applicable type of security screening. Information collected by the government institution, and information gathered from the requisite checks and/or investigation, may be used to support decisions, which may lead to discipline and/or termination of employment or contractual agreements. The personal information collected is described in Standard PIB PSU 917 (Personnel Security Screening) which is used by all government agencies, except the Department of National Defence PIB DND/PPE 834 (Personnel Security Investigation File), RCMP PIB CMP PPU 065 (Security/Reliability Screening Records), CSIS PIB SIS PPE 815 (Employee Security), and PWGSC PIB PWGSC PPU 015 (Personnel Clearance and Reliability Records) used for Canadian Industry Personnel. Personal information related to security assessments is also described in the CSIS PIB SIS PPU 005 (Security Assessments/Advice).

I, the undersigned, do consent to the disclosure of the preceding information including my photograph for its subsequent verification and/or use in an investigation for the purpose of providing a security screening assessment. By consenting to the above, I acknowledge that the verification and/or use in an investigation of the preceding information may also occur when the reliability status, security clearance or site access are updated or otherwise reviewed for cause under the Government Security Policy. My consent will remain valid until I no longer require a reliability status, a security clearance or a site access clearance, my employment or contract is terminated, or until I otherwise revoke my consent, in writing, to the authorized security official.

Signature _____ Date (Y/M/D) _____

D REVIEW (To be completed by the authorized Departmental/Agency/Organizational Official responsible for ensuring the completion of sections A, B and C)

Name and title	Telephone number
Address	Facsimile number

E APPROVAL (To be completed by authorized Departmental/Agency/Organizational Security Official only)

I, the undersigned, as the authorized security official, do hereby approve the following level of screening.

Reliability Status

☐ Approved Reliability Status ☐ Not approved

Name and title _____

Signature _____ Date (Y/M/D) _____

Security Clearance (if applicable)

☐ Level I ☐ Level II ☐ Level III ☐ Not recommended

Name and title _____

Signature _____ Date (Y/M/D) _____

Comments

PHOTO (for Level III T.S., and/or upon request - see instructions)

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INSTRUCTIONS FOR PERSONNEL SCREENING CONSENT AND AUTHORIZATION FORM TBS/SCT 330-23E (Rev. 2002/02)
Once completed, this form shall be safeguarded and handled at the level of Protected A.

General:
If space allotted in any portion is insufficient please use separate sheet using same format.

1. Section A (Administrative Information) Authorized Departmental/Agency/Organizational Official
The Official, based on instructions issued by the Departmental Security Officer, may be responsible for determining, based on five year background history, what constitutes sufficient verification of personal data, educational and professional qualifications, and employment history. References are to be limited to those provided on the application for employment or equivalent forms.

SUPPLEMENTAL INFORMATION REQUIREMENTS
Persons who presently hold a SECURITY CLEARANCE and subsequently marry, remarry or commence a common-law partnership, in addition to having to update sections of the *Security Clearance Form (TBS/SCT 330-60)*, are required to submit an original *Personnel Screening, Consent and Authorization Form*, with the following parts completed:

Part A - As set forth in each question
Part B - As set forth in each question, excluding CRIMINAL CONVICTIONS IN AND OUTSIDE OF CANADA.
Part C - Applicant's signature and date only are required

"Other". This should be used to identify if the security screening is for Site Access, NATO, SIGINT etc.

2. Section B (Biographical Information)
To be completed by the ***applicant***. If more space is required use a separate sheet of paper. Each sheet must be signed.

Country of Birth - For "NEW" requests, if born abroad of Canadian parents, please provide a copy of your Certificate of Registration of Birth Abroad. If you arrived in Canada less than five years ago, provide a copy of the Immigration Visa, Record of Landing document or a copy of passport.

- List only criminal convictions for which a pardon has NOT been granted. Include on a separate attached sheet of paper, if more than one conviction. Applicant must include those convictions outside Canada.
- Offences under the *National Defence Act* are to be included as well as convictions by courts-martial are to be recorded.

3. Section C (Consent and Verification)
A copy of Section "C" may be released to institutions to provide acknowledgement of consent.

Criminal record checks (fingerprints may be required) and credit checks are to be arranged through the Departmental Security Office or the delegated Officer.

Consent: may be given only by an applicant who has reached the age of majority, otherwise, the signature of a parent or guardian is mandatory.

The age of majority is:
19 years in NFLD., N.S., N.B., B.C., Yukon, Norhwest Territories and Nunavut;
18 years in P.E.I., Que., Ont., Man., Sask. and Alta.

The applicant will provide initials in the " applicant's initials box".

The official who carried out the verification of the information will print their name, insert their initials and telephone number in the required space.
- Reliability Screening (for all types of screening identified within Section A): complete numbers 1 and 2 and 3 if applicable.
- Security Clearance (for all types of screening identified within Section A): complete numbers 1 to 4 and 5 where applicable.
- Other: number 5 is used only where prior Treasury Board of Canada Secretariat approval has been obtained.

4. Section D (Review)
To be completed by authorized Departmental/Agency/Organizational Official who is responsible for ensuring the completion of sections A to C as requested.

5. Section E (Approval)
Authorized Departmental/Agency/Organizational Security Official refers to the individuals as determined by departments, agencies, and organizations that may verify reliability information and/or approve/not approve reliability status and/or security clearances. Approved Reliability Status and Level I, II and III, as well as the signature of the authorized security official or manager are added for Government of Canada use only. Applicants are to be briefed, acknowledge, and be provided with a copy of the "Security Screening Certificate and Briefing Form (TBS/SCT 330-47)". **Note**: Private sector organizations do not have the authority to approve any level of security screening.

Photographs: Departments/Agencies/Organizations are responsible for ensuring that three colour photographs of passport size are attached to the form for the investigating agency. Maximum dimensions are 50mm x 70mm and minimum are 43mm x 54mm. The face length from chin to crown of head must be between 25mm x 35mm. The photographs must be signed by the applicant and an authorized security official. The photographs must have been taken within the last six months. It is required for new or upgrade Level III security clearances for identification of the applicant during the security screening investigation by the investigating agency. The investigating agency may in specific incidents request a photograph for a Level I or II clearances when an investigation is required.

Surname	Date of birth

RESIDENCE (Additional Information)

	Apartment number	Street Number	Street Name	Civic Numb er (if applicable)	From Y M	To Y M
3	City	Province or state	Postal code	Country	Telephone number	
4	Apartment number	Street Number	Street Name	Civic Numb er (if applicable)	From Y M	To Y M
	City	Province or state	Postal code	Country	Telephone number	
5	Apartment number	Street Number	Street Name	Civic Numb er (if applicable)	From Y M	To Y M
	City	Province or state	Postal code	Country	Telephone number	
6	Apartment number	Street Number	Street Name	Civic Numb er (if applicable)	From Y M	To Y M
	City	Province or state	Postal code	Country	Telephone number	
7	Apartment number	Street Number	Street Name	Civic Numb er (if applicable)	From Y M	To Y M
	City	Province or state	Postal code	Country	Telephone number	
8	Apartment number	Street Number	Street Name	Civic Numb er (if applicable)	From Y M	To Y M
	City	Province or state	Postal code	Country	Telephone number	
9	Apartment number	Street Number	Street Name	Civic Numb er (if applicable)	From Y M	To Y M
	City	Province or state	Postal code	Country	Telephone number	
10	Apartment number	Street Number	Street Name	Civic Numb er (if applicable)	From Y M	To Y M
	City	Province or state	Postal code	Country	Telephone number	
11	Apartment number	Street Number	Street Name	Civic Numb er (if applicable)	From Y M	To Y M
	City	Province or state	Postal code	Country	Telephone number	
12	Apartment number	Street Number	Street Name	Civic Numb er (if applicable)	From Y M	To Y M
	City	Province or state	Postal code	Country	Telephone number	
13	Apartment number	Street Number	Street Name	Civic Numb er (if applicable)	From Y M	To Y M
	City	Province or state	Postal code	Country	Telephone number	

ADDITIONAL INSTRUCTIONS FOR COMPLETION OF GOVERNMENT OF CANADA PERSONNEL SCREENING, CONSENT AND AUTHORIZATION FORM (Form No. TBS 330-23E)

NOTE:

All information requested on TBS 330-23E MUST be provided (do not leave any "blanks", provide partial information, and do not use any abbreviations - ie. CA for Canada).
Failure to provide requested information will result in forms being returned to applicants.

Page 1 of Form:

Section A. Administrative Information.: Do not complete (completed by the RCMP).

Section B. Biographical Info.: ***To be completed by applicant***:

1. Surname: Your Last Name that you currently use – ie. "Smith"

2. Full Given Names (no initials):
   a. Your First Name and Middle Name (s) ie. "Cameron John"
   **If you do not have a middle name, state "no middle name" on the form.
   **Circle or underline your usual name used (whether you go by your first name or middle name).

3. Family Name at Birth: Your Last Name when you were born - ie. "Smith" (do not include "Same")

4. All other names used: Abbreviation(s) of name(s) used (ie."Dave"/David, "Charlie"/Charles) or nicknames.

5. Sex: Place "x" in box beside male or female.

6. Date of Birth: provide the Year, Month and Day you were born ie. 2012-01-01 (must provide all in this format)

7. Country of Birth: - the Country that you were born in ie. Canada (no abbreviations such as "CA")

8. Date of entry into Canada if born outside Canada: - ie. 2012-01-01 (Year, Month, Day format)

9. Daytime telephone number: Your telephone number that the RCMP can reach you at in the daytime, including your area code.

10. E-mail address: Your e-mail address at work, or if you do not have one at work, your home e-mail address.

11. Residence(s): provide addresses where you have permanently or temporarily resided for the last **five years**, starting with the most current home address. Must be consecutive dates – no breaks in time periods.
    **Do not fill in address in grey/shaded area beside "Home address"; fill in current address in the boxes under "Home address".
    a. Apartment Number - fill in if you have one; if you do not live in an apartment, leave blank.

    b. Street Number – your house number ie. "421"

    c. Street Name – ie. "Smith Street/George Avenue; or "4th Street" if no name (no abbreviations)
    If you do not have a street address or you live on a farm/acreage, please provide your legal land descriptions (ie. SW-30-23-45-W4th) – **NO POST OFFICE BOX NUMBERS.

ADDITIONAL INSTRUCTIONS FOR COMPLETION OF GOVERNMENT OF CANADA PERSONNEL SCREENING, CONSENT AND AUTHORIZATION FORM (Form No. TBS 330-23E)

d. From – the year and month that you moved to your current / previous residence(s);
**If you cannot recall the month, please state above the M – "unknown"

e. To – "Present" or the year and month that you moved/vacated your previous residences (not current residence).

f. City – the name of the city or town that you currently and previously resided in.

g. Province or State – the name of the province or state that you currently and previously resided in (no abbreviations ie. "AB" or "SK").

h. Postal Code – your current and previous postal codes.

i. Country – the name of the country that you currently and previously resided in (no abbreviations).

j. Telephone Number – your current and previous home telephone numbers, including area code.

Note: i. If you do not have enough space on the attached form to list all addresses for the last five years, please use the attached form titled "TBS 330-23E Residence Additional Info".

ii. You must include your "Surname" and Date of Birth at the top of the page as requested.

NO POST OFFICE BOX NUMBERS;

DATES MUST BE CONSECUTIVE–NO BREAKS IN TIME PERIODS (as stated in 11.)

12. Have you previously completed a Government of Canada security screening form?:
    a. "No" or
    b. "Yes" – if "Yes", please provide details. If you cannot recall some or all of the details (ie. year of screening, state "cannot recall").

13. Criminal Convictions:
    a. "No" OR
    b. "Yes" - if "Yes", please provide details. If you cannot recall some or all of the details (ie. date of conviction, state "cannot recall").

Page 2 of Form:

Top of Page 2: *To be completed by applicant*:

1. Surname (your last name) followed by a comma – ie. Smith,

2. Full given names – your first name and then your middle name
   **If you do not have a middle name, state "no middle name" on the form.
   **Circle or underline your usual name used (ie. whether you go by your first name or middle name).

3. Date of birth - provide – Year, Month, Day ie. 2012-01-01 (must provide all in this format / no blanks)

Section C. Consent and Verification: *To be completed by applicant*:

1. a.) Place a "Checkmark" in Boxes 1. to 5; *then:*
   b.) Initial under "Applicant's Initials" column – **numbers 1. to 5. (you must initial all boxes-1 to 5).**

2. Read the Privacy Act Statement and sign above "Signature" and "Date (Y/M/D)"

Section D. Review: do not complete (completed by RCMP)

Section E. Approval: do not complete (completed by RCMP)

NOTE: RCMP FACILITIES ACCESS LEVEL 2 CLEARANCE – Photographs ARE NOT required.
RCMP "RELIABILITY STATUS CLEARANCES" – Photographs ARE required.

Updated July 22, 2013

SAMPLE OF COMPLETED DOCUMENT.

Government of Canada / Gouvernement du Canada

PROTECTED (when completed)

PERSONNEL SCREENING, CONSENT AND AUTHORIZATION FORM

Reference number	Department/Organization number	File number

NOTE: For *Privacy Act* Statement refer to Section C of this form and for completion instructions refer to attached instructions. Please typewrite or print in block letters.

A ADMINISTRATIVE INFORMATION (To be completed by the Authorized Departmental/Agency/Organizational Official)

☐ New ☐ Update ☐ Upgrade ☐ Transfer ☐ Supplemental ☐ Re-activation

The requested level of reliability/security check(s)

☐ Reliability Status ☐ Level I (CONFIDENTIAL) ☐ Level II (SECRET) ☐ Level III (TOP SECRET)

☐ Other _____

PARTICULARS OF APPOINTMENT/ASSIGNMENT/CONTRACT

☐ Indeterminate ☐ Term ☐ Contract ☐ Industry ☐ Other (specify secondment, assignment, etc.) _____

Justification for security screening requirement

Position/Competition/Contract number	Title		Group/Level (Rank if applicable)
Employee ID number/PRI/Rank and Service number (if applicable)	If term or contract, indicate duration period ▶	From	To
Name and address of department / organization / agency	Name of official	Telephone number ( )	Facsimile number ( )

B BIOGRAPHICAL INFORMATION (To be completed by the applicant)

Surname (Last name)	Full given names (no initials) underline or circle usual name used	Family name at birth
SMITH	(John) (nomiddle name)	SMITH

All other names used (i.e. Nickname)	Sex	Date of birth (Y M D)	Country of birth	Date of entry into Canada if born outside Canada (Y M D)
Johnny	☒ Male ☐ Female	1960 01 27	CANADA	

RESIDENCE (provide addresses for the last five years, starting with the most current) Home address	Daytime telephone number	E-mail address
	(306) 201-1433	JSmith@telus.net

	Apartment number	Street number	Street name	Civic number (if applicable)	From (Y M)	To present
1		1257	Cooper Avenue		2001 01	

City	Province or state	Postal code	Country	Telephone number
PEACE RIVER	ALBERTA	T8S 2X9	CANADA	(780) 261-1493

	Apartment number	Street number	Street name	Civic number (if applicable)	From (Y M)	To (Y M)
2			12-13-57-W2		2009 03	2001 01

City	Province or state	Postal code	Country	Telephone number
GRAND CACHE	ALBERTA	T0G 1X3	CANADA	(780) 234-2102

Have you previously completed a Government of Canada security screening form? ☒ Yes ☐ No

If yes, give name of employer, level and year of screening. CORRECTIONAL SERVICES CANADA 2001

CRIMINAL CONVICTIONS IN AND OUTSIDE OF CANADA (see instructions)

Have you ever been convicted of a criminal offence for which you have not been granted a pardon? ☒ Yes ☐ No

If yes, give details. (charge(s), name of police force, city, province/state, country and date of conviction) ▼

Charge(s)	Name of police force	City
DRIVING UNDER THE INFLUENCE OF ALCOHOL	EDMONTON POLICE SERVICE	EDMONTON

Province/State	Country	Date of conviction ▶ (Y M D)
ALBERTA	CANADA	2001 02 01

Surname: SMITH, John (no middle name) | Date of birth: 1960-01-27 | PROTECTED A (When completed)

RESIDENCE (Additional Information)

	Apartment number	Street Number	Street Name	Civic Numb er (if applicable)	From Y M	To Y M
3			1-87-18-W4		2007 01	2009 03
	City	Province or state	Postal code	Country	Telephone number	
	SASKATOON	SASKATCHEWAN	S0G3C0	CANADA	(306) 231-7192	
	Apartment number	Street Number	Street Name	Civic Numb er (if applicable)	From Y M	To Y M
4		20	HILL AVENUE		2004 01	2007 01
	City	Province or state	Postal code	Country	Telephone number	
	CALGARY	ALBERTA	T0G 3C0	CANADA	(403) 239-7186	
	Apartment number	Street Number	Street Name	Civic Numb er (if applicable)	From Y M	To Y M
5						
	City	Province or state	Postal code	Country	Telephone number	
	Apartment number	Street Number	Street Name	Civic Numb er (if applicable)	From Y M	To Y M
6						
	City	Province or state	Postal code	Country	Telephone number	
	Apartment number	Street Number	Street Name	Civic Numb er (if applicable)	From Y M	To Y M
7						
	City	Province or state	Postal code	Country	Telephone number	
	Apartment number	Street Number	Street Name	Civic Numb er (if applicable)	From Y M	To Y M
8						
	City	Province or state	Postal code	Country	Telephone number	
	Apartment number	Street Number	Street Name	Civic Numb er (if applicable)	From Y M	To Y M
9						
	City	Province or state	Postal code	Country	Telephone number	
	Apartment number	Street Number	Street Name	Civic Numb er (if applicable)	From Y M	To Y M
10						
	City	Province or state	Postal code	Country	Telephone number	
	Apartment number	Street Number	Street Name	Civic Numb er (if applicable)	From Y M	To Y M
11						
	City	Province or state	Postal code	Country	Telephone number	
	Apartment number	Street Number	Street Name	Civic Numb er (if applicable)	From Y M	To Y M
12						
	City	Province or state	Postal code	Country	Telephone number	
	Apartment number	Street Number	Street Name	Civic Numb er (if applicable)	From Y M	To Y M
13						
	City	Province or state	Postal code	Country	Telephone number	

Government of Canada / Gouvernement du Canada

PERSONNEL SCREENING, CONSENT AND AUTHORIZATION FORM

PROTECTED (when completed)

Surname and full given names	Date of birth (Y M D)
SMITH, John (no middle name)	1960 01 27

C CONSENT AND VERIFICATION (To be completed by the applicant and authorized Departmental/Agency/Organizational Official)

Checks Required (See Instructions)	Applicant's initials	Name of official (print)	Official's initials	Official's Telephone number
1. ☑ Date of birth, address, education, professional qualifications, employment history, personal character references	JS			( )
2. ☑ Criminal record check	JS			( )
3. ☑ Credit check (financial assessment, including credit records check)	JS			( )
4. ☑ Loyalty (security assessment only)	JS			
5. ☑ Other (Law Enforcement Records Checks)	JS			( )

The Privacy Act Statement
The information on this form is required for the purpose of providing a security screening assessment. It is collected under the authority of subsection 7(1) of the *Financial Administration Act* and the Government Security Policy (GSP) of the Government of Canada, and is protected by the provisions of the *Privacy Act* in institutions that are covered by the *Privacy Act*. Its collection is mandatory. A refusal to provide information will lead to a review of whether the person is eligible to hold the position or perform the contract that is associated with this Personnel Screening Request. Depending on the level of security screening required, the information collected by the government institution may be disclosed to the Royal Canadian Mounted Police (RCMP) and the Canadian Security Intelligence Service (CSIS), which conduct the requisite checks and/or investigation in accordance with the GSP and to entities outside the federal government (e.g. credit bureaus). It is used to support decisions on individuals working or applying to work through appointment, assignment or contract, transfers or promotions. It may also be used in the context of updating, or reviewing for cause, the reliability status, security clearance or site access, all of which may lead to a re-assessment of the applicable type of security screening. Information collected by the government institution, and information gathered from the requisite checks and/or investigation, may be used to support decisions, which may lead to discipline and/or termination of employment or contractual agreements. The personal information collected is described in Standard PIB PSU 917 (Personnel Security Screening) which is used by all government agencies, except the Department of National Defence PIB DND/PPE 834 (Personnel Security Investigation File), RCMP PIB CMP PPU 065 (Security/Reliability Screening Records), CSIS PIB SIS PPE 815 (Employee Security), and PWGSC PIB PWGSC PPU 015 (Personnel Clearance and Reliability Records) used for Canadian Industry Personnel. Personal information related to security assessments is also described in the CSIS PIB SIS PPU 005 (Security Assessments/Advice).

I, the undersigned, do consent to the disclosure of the preceding information including my photograph for its subsequent verification and/or use in an investigation for the purpose of providing a security screening assessment. By consenting to the above, I acknowledge that the verification and/or use in an investigation of the preceding information may also occur when the reliability status, security clearance or site access are updated or otherwise reviewed for cause under the Government Security Policy. My consent will remain valid until I no longer require a reliability status, a security clearance or a site access clearance, my employment or contract is terminated, or until I otherwise revoke my consent, in writing, to the authorized security official.

John Smith — Signature
2011-12-01 — Date (Y/M/D)

D REVIEW (To be completed by the authorized Departmental/Agency/Organizational Official responsible for ensuring the completion of sections A, B and C)

Name and title	Telephone number
Address	Facsimile number

E APPROVAL (To be completed by authorized Departmental/Agency/Organizational Security Official only)

I, the undersigned, as the authorized security official, do hereby approve the following level of screening.

Reliability Status

☐ Approved Reliability Status ☐ Not approved

Name and title

Signature — Date (Y/M/D)

Security Clearance (if applicable)

☐ Level I ☐ Level II ☐ Level III ☐ Not recommended

Name and title

Signature — Date (Y/M/D)

Comments

PHOTO
(for Level III T.S., and/or upon request - see instructions)

Government of Canada / Gouvernement du Canada

INSTRUCTIONS FOR PERSONNEL SCREENING CONSENT AND AUTHORIZATION FORM TBS/SCT 330-23E (Rev. 2002/02)
Once completed, this form shall be safeguarded and handled at the level of Protected A.

General:
If space allotted in any portion is insufficient please use separate sheet using same format.

1. Section A (Administrative Information) Authorized Departmental/Agency/Organizational Official
The Official, based on instructions issued by the Departmental Security Officer, may be responsible for determining, based on five year background history, what constitutes sufficient verification of personal data, educational and professional qualifications, and employment history. References are to be limited to those provided on the application for employment or equivalent forms.

SUPPLEMENTAL INFORMATION REQUIREMENTS
Persons who presently hold a SECURITY CLEARANCE and subsequently marry, remarry or commence a common-law partnership, in addition to having to update sections of the *Security Clearance Form (TBS/SCT 330-60)*, are required to submit an original *Personnel Screening, Consent and Authorization Form*, with the following parts completed:

Part A - As set forth in each question
Part B - As set forth in each question, excluding CRIMINAL CONVICTIONS IN AND OUTSIDE OF CANADA.
Part C - Applicant's signature and date only are required

"Other". This should be used to identify if the security screening is for Site Access, NATO, SIGINT etc.

2. Section B (Biographical Information)
To be completed by the ***applicant***. If more space is required use a separate sheet of paper. → attached "Residence (Additional Information) form.

Country of Birth - For "NEW" requests, if born abroad of Canadian parents, please provide a copy of your Certificate of Registration of Birth Abroad. If you arrived in Canada less than five years ago, provide a copy of the Immigration Visa, Record of Landing document or a copy of passport.

- List only criminal convictions for which a pardon has NOT been granted. Include on a separate attached sheet of paper, if more than one conviction. Applicant must include those convictions outside Canada. Thereafter sign the separate attached sheet of paper.
- Offences under the *National Defence Act* are to be included as well as convictions by courts-martial are to be recorded.

3. Section C (Consent and Verification)
A copy of Section "C" may be released to institutions to provide acknowledgement of consent.

Criminal record checks (fingerprints may be required) and credit checks are to be arranged through the Departmental Security Office or the delegated Officer.

Consent: may be given only by an applicant who has reached the age of majority, otherwise, the signature of a parent or guardian is mandatory.

The age of majority is:
19 years in NFLD., N.S., N.B., B.C., Yukon, Northwest Territories and Nunavut;
18 years in P.E.I., Que., Ont., Man., Sask. and Alta.

The applicant will provide initials in the " applicant's initials box". – Box 1-5

The official who carried out the verification of the information will print their name, insert their initials and telephone number in the required space (RCMP employee only)
- Reliability Screening (for all types of screening identified within Section A): complete numbers 1 and 2 and 3 if applicable.
- Security Clearance (for all types of screening identified within Section A): complete numbers 1 to 4 and 5 where applicable.
- Other: number 5 is used only where prior Treasury Board of Canada Secretariat approval has been obtained.

4. Section D (Review)
To be completed by authorized Departmental/Agency/Organizational Official who is responsible for ensuring the completion of sections A to C as requested.

5. Section E (Approval)
Authorized Departmental/Agency/Organizational Security Official refers to the individuals as determined by departments, agencies, and organizations that may verify reliability information and/or approve/not approve reliability status and/or security clearances. Approved Reliability Status and Level I, II and III, as well as the signature of the authorized security official or manager are added for Government of Canada use only. Applicants are to be briefed, acknowledge, and be provided with a copy of the "Security Screening Certificate and Briefing Form (TBS/SCT 330-47)".
Note: Private sector organizations do not have the authority to approve any level of security screening.

Photographs: Departments/Agencies/Organizations are responsible for ensuring that three colour photographs of passport size are attached to the form for the investigating agency. Maximum dimensions are 50mm x 70mm and minimum are 43mm x 54mm. The face length from chin to crown of head must be between 25mm x 35mm. The photographs must be signed by the applicant and an authorized security official. The photographs must have been taken within the last six months. It is required for new or upgrade Level III security clearances for identification of the applicant during the security screening investigation by the investigating agency. The investigating agency may in specific incidents request a photograph for a Level I or II clearances when an investigation is required.

* ENSURE ATTACHED "ADDITIONAL INSTRUCTIONS" ARE REVIEWED/FOLLOWED (more detailed information on how to complete TBS 330-23E)

Canada

Part 1 General

1.1 ADMINISTRATIVE

.1 Project meetings will be scheduled throughout the progress of the work and at the call of Departmental Representative.

.2 Provide physical space and make arrangements for meetings.

.3 The Consultant shall chair meetings.

.4 Representative of Contractor, Subcontractor and suppliers attending meetings will be qualified and authorized to act on behalf of party each represents.

1.2 PRECONSTRUCTION MEETING

.1 Within 10 days after award of Contract, request a meeting of parties in contract to discuss and resolve administrative procedures and responsibilities.

.2 Agenda to include:

- .1 Appointment of official representative of participants in the Work.
- .2 Schedule of Work: in accordance with Section 01 32 16 - Construction Progress Schedules - Bar (GANTT) Chart.
- .3 Schedule of submission of shop drawings, samples, colour chips. Submit submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .4 Requirements for temporary facilities, offices, storage sheds, utilities, fences in accordance with Section 01 52 00 - Construction Facilities.
- .5 Delivery schedule of specified equipment.
- .6 Site security in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.
- .7 Proposed changes, change orders, procedures, approvals required, mark-up percentages permitted, time extensions, overtime, administrative requirements.
- .8 Owner provided products and work.
- .9 Record drawings in accordance with Section 01 33 00 - Submittal Procedures.
- .10 Maintenance manuals in accordance with Section 01 78 00 - Closeout Submittals.
- .11 Take-over procedures, acceptance, warranties in accordance with Section 01 78 00 - Closeout Submittals.
- .12 Monthly progress claims, administrative procedures, photographs, hold backs.
- .13 Appointment of inspection and testing agencies or firms.
- .14 Insurances, transcript of policies.

1.3 PROGRESS MEETINGS

.1 During course of Work, progress meetings will be held on a regular basis. Schedule to be determined.

.2 Contractor, major Subcontractors involved in Work, Departmental Representative, Consultant and Owner’s representatives are to be in attendance.

.3 Minutes of meetings will be recorded by the Consultant. Minutes will be distributed within 72 hours.

.4 Agenda to include the following:

.1 Review, approval of minutes of previous meeting.
.2 Review of Work progress since previous meeting.
.3 Field observations, problems, conflicts.
.4 Problems which impede construction schedule.
.5 Review of off-site fabrication delivery schedules.
.6 Corrective measures and procedures to regain projected schedule.
.7 Revision to construction schedule.
.8 Progress schedule, during succeeding work period.
.9 Review submittal schedules: expedite as required.
.10 Maintenance of quality standards.
.11 Review proposed changes for affect on construction schedule and on completion date.
.12 Other business.

END OF SECTION

Part 1 General

1.1 DEFINITIONS

.1 Activity: element of Work performed during course of Project. Activity normally has expected duration, and expected cost and expected resource requirements. Activities can be subdivided into tasks.

.2 Bar Chart (GANTT Chart): graphic display of schedule-related information. In typical bar chart, activities or other Project elements are listed down left side of chart, dates are shown across top, and activity durations are shown as date-placed horizontal bars. Generally Bar Chart should be derived from commercially available computerized project management system.

.3 Baseline: original approved plan (for project, work package, or activity), plus or minus approved scope changes.

.4 Construction Work Week: Monday to Friday, inclusive, will provide five day work week and define schedule calendar working days as part of Bar (GANTT) Chart submission.

.5 Duration: number of work periods (not including holidays or other nonworking periods) required to complete activity or other project element. Usually expressed as workdays or workweeks.

.6 Master Plan: summary-level schedule that identifies major activities and key milestones.

.7 Milestone: significant event in project, usually completion of major deliverable.

.8 Project Schedule: planned dates for performing activities and the planned dates for meeting milestones. Dynamic, detailed record of tasks or activities that must be accomplished to satisfy Project objectives. Monitoring and control process involves using Project Schedule in executing and controlling activities and is used as basis for decision making throughout project life cycle.

.9 Project Planning, Monitoring and Control System: overall system operated by Departmental Representative to enable monitoring of project work in relation to established milestones.

1.2 REQUIREMENTS

.1 Ensure Project Schedule and Detail Schedules are practical and remain within specified Contract duration.

.2 Plan to complete Work in accordance with prescribed milestones and time frame.

.3 Limit activity durations to maximum of approximately 10 working days, to allow for progress reporting.

.4 Ensure that it is understood that Award of Contract or time of beginning, rate of progress, Interim Certificate and Final Certificate as defined times of completion are of essence of this contract.

1.3 SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit to Departmental Representative within 7 working days of Award of Contract Bar (GANTT) Chart as Master Plan for planning, monitoring and reporting of project progress.

1.4 PROJECT MILESTONES

.1 Project milestones form interim targets for Project Schedule.

.1 Project milestone will be identified through discussion with the Contractor and Departmental Representative at the outset of the project.

1.5 PROJECT SCHEDULE REPORTING

.1 Update Project Schedule on bi-weekly basis reflecting activity changes and completions, as well as activities in progress.

.2 Include as part of Project Schedule, narrative report identifying Work status to date, comparing current progress to baseline, presenting current forecasts, defining problem areas, anticipated delays and impact with possible mitigation.

1.6 PROJECT MEETINGS

.1 Discuss Project Schedule at regular site meetings, identify activities that are behind schedule and provide measures to regain slippage. Activities considered behind schedule are those with projected start or completion dates later than current approved dates shown on baseline schedule.

.2 Weather related delays with their remedial measures will be discussed and negotiated.

END OF SECTION

1.1 ADMINISTRATIVE

.1 Submit to Departmental Representative submittals listed for review. Submit promptly and in orderly sequence to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.

.2 Do not proceed with Work affected by submittal until review is complete.

.3 Present shop drawings, product data, samples and mock-ups in SI Metric units.

.4 Where items or information is not produced in SI Metric units converted values are acceptable.

.5 Review submittals prior to submission to Departmental Representative. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and co-ordinated with requirements of Work and Contract Documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and considered rejected.

.6 Notify Departmental Representative, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.

.7 Verify field measurements and affected adjacent Work are co-ordinated.

.8 Contractor's responsibility for errors and omissions in submission is not relieved by Departmental Representative's review of submittals.

.9 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative review.

.10 Keep one reviewed copy of each submission on site.

1.2 SHOP DRAWINGS AND PRODUCT DATA

.1 The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work.

.2 Submit where required in the specifications, shop drawings bearing stamp and signature of qualified professional engineer registered or licensed in Province of Saskatchewan, Canada.

.3 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been co-ordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.

.4 Allow 7 days for Departmental Representative's review of each submission.

.5 Adjustments made on shop drawings by Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Departmental Representative prior to proceeding with Work.

.6 Make changes in shop drawings as Departmental Representative may require, consistent with Contract Documents. When resubmitting, notify Departmental Representative in writing of revisions other than those requested.

.7 Accompany submissions with transmittal letter, containing:

- .1 Date.
- .2 Project title and number.
- .3 Contractor's name and address.
- .4 Identification and quantity of each shop drawing, product data and sample.
- .5 Other pertinent data.

.8 Submissions include:

- .1 Date and revision dates.
- .2 Project title and number.
- .3 Name and address of:
  - .1 Subcontractor.
  - .2 Supplier.
  - .3 Manufacturer.
- .4 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
- .5 Details of appropriate portions of Work as applicable:
  - .1 Fabrication.
  - .2 Layout, showing dimensions, including identified field dimensions, and clearances.
  - .3 Setting or erection details.
  - .4 Capacities.
  - .5 Performance characteristics.
  - .6 Standards.
  - .7 Operating weight.
  - .8 Wiring diagrams.
  - .9 Single line and schematic diagrams.
  - .10 Relationship to adjacent work.

.9 After Departmental Representative's review, distribute copies.

.10 Submit 6 copies of shop drawings for each requirement requested in specification Sections and as Departmental Representative may reasonably request.

.11 Submit 6 copies of product data sheets or brochures for requirements requested in specification Sections and as requested by Departmental Representative where shop drawings will not be prepared due to standardized manufacture of product.

.12 Submit 6 copies of test reports for requirements requested in specification Sections and as requested by Departmental Representative.

.1 Report signed by authorized official of testing laboratory that material, product or system identical to material, product or system to be provided has been tested in accord with specified requirements.

.2 Testing must have been within 3 years of date of contract award for project.

.13 Submit 6 copies of certificates for requirements requested in specification Sections and as requested by Departmental Representative.

.1 Statements printed on manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements.

.2 Certificates must be dated after award of project contract complete with project name.

.14 Submit 6 copies of manufacturer’s instructions for requirements requested in specification Sections and as requested by Departmental Representative.

.1 Pre-printed material describing installation of product, system or material, including special notices and Material Safety Data Sheets concerning impedances, hazards and safety precautions.

.15 Submit 6 copies of manufacturer's Field Reports for requirements requested in specification Sections and as requested by Departmental Representative.

.1 Documentation of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.

.16 Submit 6 copies of Operation and Maintenance Data for requirements requested in specification Sections and as requested by Departmental Representative.

.17 Delete information not applicable to project.

.18 Supplement standard information to provide details applicable to project.

.19 If upon review by Departmental Representative, no errors or omissions are discovered or if only minor corrections are made, copies will be returned and fabrication and installation of Work may proceed. If shop drawings are rejected, noted copy will be returned and resubmission of corrected shop drawings, through same procedure indicated above, must be performed before fabrication and installation of Work may proceed.

.20 The review of shop drawings by Departmental Representative is for sole purpose of ascertaining conformance with general concept.

.1 This review shall not mean that Departmental Represenetaive approves detail design inherent in shop drawings, responsibility for which shall remain with Contractor submitting same, and such review shall not relieve Contractor of responsibility for errors or omissions in shop drawings or of responsibility for meeting requirements of construction and Contract Documents.

.2 Without restricting generality of foregoing, Contractor is responsible for dimensions to be confirmed and correlated at job site, for information that

pertains solely to fabrication processes or to techniques of construction and installation and for co-ordination of Work of sub-trades.

.21 Electronic submission of Shop Drawings

.1 Electronic Shop Drawings (PDF format) shall not exceed 11x17 actual size. Electronic transfer of shop drawings relies on Architect and Engineering Consultants to print a record copy for their files - this can be done providing shop drawings do not exceed 11x17. Larger shop drawings would require hard copies for review.

.2 General Contractor to review shop drawing and place their electronic stamp signifying review.

.3 General Contractor to email all shop drawings to Architect with copy to Engineering Consultant as applicable.

.4 Engineering Consultant to review and place their electronic stamp / marks up, then email to Architect only (Engineering Consultant will not copy anyone else).

.5 Architect to check for coordination and transmit reviewed shop drawings by email to General Contractor.

1.3 SAMPLES

.1 Submit for review samples in duplicate as requested in respective specification Sections. Label samples with origin and intended use.

.2 Deliver samples prepaid to Departmental Representative's business address.

.3 Notify Departmental Representative in writing, at time of submission of deviations in samples from requirements of Contract Documents.

.4 Where colour, pattern or texture is criterion, submit full range of samples.

.5 Adjustments made on samples by Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Departmental Representative prior to proceeding with Work.

.6 Make changes in samples which Departmental Representative may require, consistent with Contract Documents.

.7 Reviewed and accepted samples will become standard of workmanship and material against which installed Work will be verified.

1.4 MOCK-UPS

.1 Erect mock-ups in accordance with 01 45 00 - Quality Control and as specified in each applicable Section.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 Canada Labour Code, Part 2, Canada Occupational Safety and Health Regulations

.2 Health Canada/Workplace Hazardous Materials Information System (WHMIS)

.1 Material Safety Data Sheets (MSDS).

.3 Province of Saskatchewan

.1 Occupational Health and Safety Act, 1993, S.S. 2005.

1.2 SUBMITTALS

.1 Make submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit site-specific Health and Safety Plan: Within 7 days after date of Notice to Proceed and prior to commencement of Work. Health and Safety Plan must include:

.1 Results of site specific safety hazard assessment.

.2 Results of safety and health risk or hazard analysis for site tasks and operation found in work plan.

.3 Submit 1 copy of Contractor's authorized representative's work site health and safety inspection reports to Departmental Representative, weekly.

.4 Submit copies of reports or directions issued by Federal, Provincial and Territorial health and safety inspectors.

.5 Submit copies of incident and accident reports.

.6 Submit WHMIS MSDS - Material Safety Data Sheets in accordance with Section 01 33 00 - Submittal Requirements and Section 02 81 01 - Hazardous Materials.

.7 Departmental Representative will review Contractor's site-specific Health and Safety Plan and provide comments to Contractor within 7 days after receipt of plan. Revise plan as appropriate and resubmit plan to Departmental Representative within 5 days after receipt of comments from Departmental Representative.

.8 Departmental Representative's review of Contractor's final Health and Safety plan should not be construed as approval and does not reduce the Contractor's overall responsibility for construction Health and Safety.

.9 Medical Surveillance: where prescribed by legislation, regulation or safety program, submit certification of medical surveillance for site personnel prior to commencement of Work, and submit additional certifications for any new site personnel to Departmental Representative.

.10 On-site Contingency and Emergency Response Plan: address standard operating procedures to be implemented during emergency situations.

1.3 FILING OF NOTICE

.1 File Notice of Project with Provincial authorities prior to beginning of Work.

1.4 SAFETY ASSESSMENT

.1 Perform site specific safety hazard assessment related to project.

1.5 MEETINGS

.1 Schedule and administer Health and Safety Meeting with Departmental Representative prior to commencement of Work.

1.6 REGULATORY REQUIREMENTS

.1 Do Work in accordance with Section 01 41 00 - Regulatory Requirements.

1.7 GENERAL REQUIREMENTS

.1 Develop written site-specific Health and Safety Plan based on hazard assessment prior to beginning site Work and continue to implement, maintain, and enforce plan until final demobilization from site. Health and Safety Plan must address project specifications.

.2 Departmental Representative may respond in writing, where deficiencies or concerns are noted and may request re-submission with correction of deficiencies or concerns.

1.8 RESPONSIBILITY

.1 Be responsible for health and safety of persons on site, safety of property on site and for protection of persons adjacent to site and environment to extent that they may be affected by conduct of Work.

.2 Comply with and enforce compliance by employees with safety requirements of Contract Documents, applicable federal, provincial, territorial and local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan.

1.9 COMPLIANCE REQUIREMENTS

.1 Comply with Occupational Health and Safety Regulations, 1996.

.2 Comply with Canada Labour Code, Canada Occupational Safety and Health Regulations.

1.10 HAZARDOUS MATERIALS

.1 There are areas within the building where asbestos is present. An assessment report detailing tested locations was undertaken in 2005 and is appended to Section 00 31 26 Existing Hazardous Materials Information.

.2 The following locations where asbestos containing material are identified within the assessment report. Actual locations may not be limited to the following locations.

.1 Within the enclosed bulkheads above windows, where pipe insulation on elbows contains asbestos material.

.2 At some isolated locations within the mechanical chases adjacent to the washrooms, where pipe insulation on elbows contains asbestos material.

.3 Behind the millwork units on the 3rd and 4th floors, where cement asbestos board is installed on the back panel of the millwork.

.4 In some isolated locations in the building, drywall mud has been found to contain asbestos.

.5 At some isolated locations in the building there are glue applied acoustic ceiling tiles that are suspected of contain asbestos.

.6 Where the contractor is in doubt or suspicious material is encountered, stop work and advise the Departmental Representative immediately.

1.11 UNFORSEEN HAZARDS

.1 When unforeseen or peculiar safety-related factor, hazard, or condition occur during performance of Work, follow procedures in place for Employee's Right to Refuse Work in accordance with Acts and Regulations of Province having jurisdiction and advise Departmental Representative verbally and in writing.

1.12 HEALTH AND SAFETY CO-ORDINATOR

.1 Employ and assign to Work, competent and authorized representative as Health and Safety Co-ordinator. Health and Safety Co-ordinator must:

.1 Have site-related working experience specific to activities associated with overhead work.

.2 Have working knowledge of occupational safety and health regulations.

.3 Be responsible for completing Contractor's Health and Safety Training Sessions and ensuring that personnel not successfully completing required training are not permitted to enter site to perform Work.

.4 Be responsible for implementing, enforcing daily and monitoring site-specific Contractor's Health and Safety Plan.

.5 Be on site during execution of Work .

1.13 POSTING OF DOCUMENTS

.1 Ensure applicable items, articles, notices and orders are posted in conspicuous location on site in accordance with Acts and Regulations of Province having jurisdiction, and in consultation with Departmental Representative.

1.14 CORRECTION OF NON-COMPLIANCE

.1 Immediately address health and safety non-compliance issues identified by authority having jurisdiction or by Departmental Representative.

.2 Provide Departmental Representative with written report of action taken to correct non-compliance of health and safety issues identified.

.3 Departmental Representative may stop Work if non-compliance of health and safety regulations is not corrected.

1.15 BLASTING

.1 Blasting or other use of explosives is not permitted.

1.16 POWDER ACTUATED DEVICES

.1 Use powder actuated devices only after receipt of written permission from Departmental Representative.

1.17 WORK STOPPAGE

.1 Give precedence to safety and health of public and site personnel and protection of environment over cost and schedule considerations for Work.

END OF SECTION

Part 1 General

1.1 REFERENCES AND CODES

.1 Perform Work in accordance with National Building Code of Canada (NBC) including amendments up to tender closing date and other codes of provincial or local application provided that in case of conflict or discrepancy, more stringent requirements apply.

.2 Meet or exceed requirements of:

.1 Contract documents.

.2 Specified standards, codes and referenced documents.

1.2 HAZARDOUS MATERIAL DISCOVERY

.1 Asbestos: demolition of spray or trowel-applied asbestos is hazardous to health. Stop work immediately when material resembling spray or trowel-applied asbestos is encountered during demolition work. Notify Departmental Representative.

.2 Note requirements in Contract Documents for removal or known asbestos containing materials. Notify Departmental Representative is suspicious material is encountered elsewhere within this work.

1.3 BUILDING SMOKING ENVIRONMENT

.1 Comply with smoking restrictions and municipal by-laws.

.2 Smoking on site is restricted to within personal vehicles or designated smoking locations.

END OF SECTION

Part 1 General

1.1 INSPECTION

.1 Allow Departmental Representative and Consultant access to Work. If part of Work is in preparation at locations other than Place of Work, allow access to such Work whenever it is in progress.

.2 Give timely notice requesting inspection if Work is designated for special tests, inspections or approvals by Departmental Representative or Consultant, instructions, or law of Place of Work.

.3 If Contractor covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed and make good such Work.

.4 Departmental Representative will order part of Work to be examined if Work is suspected to be not in accordance with Contract Documents. If, upon examination such work is found not in accordance with Contract Documents, correct such Work and pay cost of examination and correction. If such Work is found in accordance with Contract Documents, Departmental Representative shall pay cost of examination and replacement.

1.2 ACCESS TO WORK

.1 Allow inspection/testing agencies access to Work, off site manufacturing and fabrication plants.

.2 Co-operate to provide reasonable facilities for such access.

1.3 PROCEDURES

.1 Notify appropriate agency and Departmental Representative in advance of requirement for tests, in order that attendance arrangements can be made.

.2 Submit samples and/or materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in orderly sequence to not cause delays in Work.

.3 Provide labour and facilities to obtain and handle samples and materials on site. Provide sufficient space to store and cure test samples.

1.4 REJECTED WORK

.1 Remove defective Work, whether result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been rejected by Departmental Representative as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.

.2 Make good other Contractor's work damaged by such removals or replacements promptly.

.3 If in opinion of Departmental Representative it is not expedient to correct defective Work or Work not performed in accordance with Contract Documents, Owner will deduct from Contract Price difference in value between Work performed and that called for by Contract Documents, amount of which will be determined by Departmental Representative.

1.5 REPORTS

.1 Submit two (2) copies of inspection and test reports to Departmental Representative.

.2 Provide copies to subcontractor of work being inspected or tested.

1.6 TESTS AND MIX DESIGNS

.1 Furnish test results and mix designs as requested.

.2 Cost of tests and mix designs beyond those called for in Contract Documents or beyond those required by law of Place of Work will be appraised by Departmental Representative and may be authorized as recoverable.

1.7 MOCK-UPS

.1 Prepare mock-ups for Work specifically requested in specifications. Include for Work of Sections required to provide mock-ups.

.2 Construct in locations acceptable to Departmental Representative and as specified in specific Section.

.3 Prepare mock-ups for Departmental Representative and Consultant's review with reasonable promptness and in orderly sequence, to not cause delays in Work.

.4 Failure to prepare mock-ups in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.

.5 If requested, Departmental Representative will assist in preparing schedule fixing dates for preparation.

.6 Mock-ups may remain as part of Work.

END OF SECTION

Part 1 General

1.1 SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.

1.2 INSTALLATION AND REMOVAL

.1 Provide temporary utilities controls in order to execute work expeditiously.

.2 Remove from site all such work after use.

1.3 WATER SUPPLY

.1 Departmental Representative will make available a continuous supply of potable water for construction use.

1.4 TEMPORARY HEATING AND VENTILATION

.1 Maintain temperatures of minimum 10 degrees C in areas where construction is in progress.

.2 Ventilating:

- .1 Prevent accumulations of dust, fumes, mists, vapours or gases in areas occupied during construction.
- .2 Provide local exhaust ventilation to prevent harmful accumulation of hazardous substances into atmosphere of occupied areas.
- .3 Dispose of exhaust materials in manner that will not result in harmful exposure to persons.
- .4 Ventilate storage spaces containing hazardous or volatile materials.
- .5 Continue operation of ventilation and exhaust system for time after cessation of work process to assure removal of harmful contaminants.

.3 Permanent heating system of building, to be used when available. Be responsible for damage to heating system if use is permitted.

.4 On completion of Work for which permanent heating system is used, provide service maintenance to system at discretion of the Departmental Representative.

.5 Pay costs for maintaining temporary heat, when not using permanent heating system. Owner will pay utility charges when temporary heat source is existing building equipment.

.6 Maintain strict supervision of operation of temporary heating and ventilating equipment to:

- .1 Conform with applicable codes and standards.
- .2 Enforce safe practices.
- .3 Prevent abuse of services.
- .4 Prevent damage to finishes.
- .5 Vent direct-fired combustion units to outside.

.7 Be responsible for damage to Work due to failure in providing adequate heat and protection during construction.

1.5 TEMPORARY POWER AND LIGHT

.1 Provide and maintain temporary lighting throughout project. Existing lighting and power systems may be utilized.

1.6 TEMPORARY COMMUNICATION FACILITIES

.1 Provide and pay for temporary telephone, fax, data hook up, lines and equipment necessary for own use and use of Departmental Representative.

1.7 FIRE PROTECTION

.1 Provide and maintain temporary fire protection equipment during performance of Work required by Authorities Having Jurisdiction and governing codes, regulations and bylaws.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 Canadian Standards Association (CSA International)

.1 CAN/CSA-S269.2-M1987(R2003), Access Scaffolding for Construction Purposes.

1.2 SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.

1.3 INSTALLATION AND REMOVAL

.1 Prepare site plan indicating proposed location and dimensions of area to be fenced and used by Contractor, number of trailers to be used, avenues of ingress/egress to fenced area and details of fence installation.

.2 Identify areas which have to be gravelled to prevent tracking of mud.

.3 Indicate use of supplemental or other staging area.

.4 Provide construction facilities in order to execute work expeditiously.

.5 Remove from site all such work after use.

1.4 SCAFFOLDING

.1 Scaffolding in accordance with CAN/CSA-S269.2.

.2 Provide and maintain scaffolding, ramps, ladders, swing staging, platforms, and temporary stairs.

1.5 HOISTING

.1 Provide, operate and maintain hoists and cranes required for moving of workers, materials and equipment. Make financial arrangements with Subcontractors for their use of hoists.

.2 Hoists and cranes to be operated by qualified operator.

1.6 ELEVATORS

.1 Designated existing elevator to be used by construction personnel for transporting of materials only. Co-ordinate use with Departmental Representative.

.2 Provide protective coverings for finish surfaces of cars and entrances.

1.7 SITE STORAGE/LOADING

.1 Confine work and operations of employees by Contract Documents. Do not unreasonably encumber premises with products.

.2 Do not load or permit to load any part of Work with weight or force that will endanger Work.

1.8 CONSTRUCTION PARKING

.1 Parking will be permitted on site but may be limited. Parking arrangements will be provided by the Departmental Representative at project start up.

.2 Provide and maintain adequate access to project site.

1.9 OFFICES

.1 Provide and maintain, during the entire progress of the Work, a suitable office on the site, for own use, with suitable tables or benches for the examination of drawings, specifications, etc., and where all notices and instructions from the Consultant may be received and acknowledged. Provide suitable meeting space for site meetings. Provide adequate heating, ventilating and lighting. Location of these offices to be coordinated with the Departmental Representative.

.2 Provide marked and fully stocked first-aid case in a readily available location.

1.10 EQUIPMENT, TOOL AND MATERIALS STORAGE

.1 Provide and maintain, in clean and orderly condition, lockable weatherproof sheds for storage of tools, equipment and materials.

.2 Locate materials not required to be stored in weatherproof sheds on site in manner to cause least interference with work activities.

1.11 SANITARY FACILITIES

.1 One female washroom and one male washroom will be designated on site, for Contractor’s use during this project. Final location to be coordinated and confirmed with the Departmental Representative.

.2 Post notices and take precautions as required by local health authorities. Keep area and premises in sanitary condition.

.3 Contractor shall be responsible for cleaning and maintenance or designated facilities.

1.12 CONSTRUCTION SIGNAGE

.1 No signs or advertisements, other than warning signs, are permitted on site.

1.13 PROTECTION AND MAINTENANCE OF TRAFFIC AND PEDESTRIANS

.1 Maintain and protect traffic on affected roads during construction period except as otherwise specifically directed by Departmental Representative.

.2 Provide measures for protection and diversion of traffic, including provision of watch-persons and flag-persons, erection of barricades, placing of lights around and in front of equipment and work, and erection and maintenance of adequate warning, danger, and direction signs

.3 Protect travelling public from damage to person and property.

.4 Do not disrupt training on site around building.

.5 Do not block roads without obtaining approval to do so from the Departmental Representative.

.6 Contractor's traffic on roads selected for hauling material shall not interfere with on-going training on site.

.7 Verify adequacy of existing roads and allowable load limit on these roads. Contractor: responsible for repair of damage to roads caused by construction operations.

.8 Provide necessary lighting, signs, barricades, and distinctive markings for safe movement of traffic.

1.14 CLEAN-UP

.1 Remove construction debris, waste materials, packaging material from work site daily.

.2 Clean dirt or mud tracked onto paved or surfaced roadways on an on-going basis.

.3 Store materials resulting from demolition activities that are salvageable.

.4 Stack stored new or salvaged material not in construction facilities.

END OF SECTION

Part 1 General

1.1 INSTALLATION AND REMOVAL

.1 Provide temporary controls in order to execute Work expeditiously.

.2 Remove from site all such work after use.

1.2 GUARD RAILS, BARRICADES, AND SIGNAGE

.1 Provide secure, rigid guard rails and barricades around deep excavations, open shafts, open stair wells, open edges of floors and roofs.

.2 Provide Construction Zone warning and access control signage.

1.3 WEATHER ENCLOSURES

.1 Provide weather tight closures to unfinished door and window openings, tops of shafts and other openings in floors and roofs.

.2 Close off floor areas where walls are not finished; seal off other openings; enclose building interior work for temporary heat.

.3 Design enclosures to withstand wind pressure and snow loading.

1.4 DUST TIGHT SCREENS

.1 Provide dust tight screens or insulated partitions to localize dust generating activities, and for protection of workers, finished areas of Work and public.

.2 Maintain and relocate protection until such work is complete.

.3 Maintain negative pressure in area of dust generating work. Exhaust directly to the exterior.

1.5 ACCESS TO SITE

.1 Provide and maintain access roads, sidewalk crossings, ramps and construction runways as may be required for access to Work.

1.6 PUBLIC TRAFFIC FLOW

.1 Provide and maintain competent signal flag operators, traffic signals, barricades and flares, lights, or lanterns as required to perform Work and protect public.

1.7 FIRE ROUTES

.1 Maintain access to property including overhead clearances for use by emergency response vehicles.

1.8 PROTECTION FOR OFF-SITE AND PUBLIC PROPERTY

.1 Protect surrounding private and public property from damage during performance of Work.

.2 Be responsible for damage incurred.

1.9 PROTECTION OF BUILDING FINISHES

.1 Provide protection for finished and partially finished building finishes and equipment during performance of Work.

.2 Provide necessary screens, covers, and hoardings.

.3 Confirm with Departmental Representative locations and installation schedule 3 days prior to installation.

.4 Be responsible for damage incurred due to lack of or improper protection.

1.10 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 Within text of each specifications section, reference may be made to reference standards.

.2 Conform to these reference standards, in whole or in part as specifically requested in specifications.

.3 If there is question as to whether products or systems are in conformance with applicable standards, Departmental Representative reserves right to have such products or systems tested to prove or disprove conformance.

.4 Cost for such testing will be born by Owner in event of conformance with Contract Documents or by Contractor in event of non-conformance.

1.2 QUALITY

.1 Products, materials, equipment and articles incorporated in Work shall be new, not damaged or defective, and of best quality for purpose intended. If requested, furnish evidence as to type, source and quality of products provided.

.2 Procurement policy is to acquire, in cost effective manner, items containing highest percentage of recycled and recovered materials practicable consistent with maintaining satisfactory levels of competition. Make reasonable efforts to use recycled and recovered materials and in otherwise utilizing recycled and recovered materials in execution of work.

.3 Defective products, whenever identified prior to completion of Work, will be rejected, regardless of previous inspections. Inspection does not relieve responsibility, but is precaution against oversight or error. Remove and replace defective products at own expense and be responsible for delays and expenses caused by rejection.

.4 Should disputes arise as to quality or fitness of products, decision rests strictly with Departmental Representative based upon requirements of Contract Documents.

.5 Unless otherwise indicated in specifications, maintain uniformity of manufacture for any particular or like item throughout building.

.6 Permanent labels, trademarks and nameplates on products are not acceptable in prominent locations, except where required for operating instructions, or when located in mechanical or electrical rooms.

1.3 STORAGE, HANDLING AND PROTECTION

.1 Handle and store products in manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturer's instructions when applicable.

.2 Store packaged or bundled products in original and undamaged condition with manufacturer's seal and labels intact. Do not remove from packaging or bundling until required in Work.

.3 Store products subject to damage from weather in weatherproof enclosures.

.4 Store cementitious products clear of earth or concrete floors, and away from walls.

.5 Keep sand, when used for grout or mortar materials, clean and dry. Store sand on wooden platforms and cover with waterproof tarpaulins during inclement weather.

.6 Store sheet materials, lumber, steel members, doors and frames on flat, solid supports and keep clear of ground. Slope to shed moisture.

.7 Store and mix paints in heated and ventilated room. Remove oily rags and other combustible debris from site daily. Take every precaution necessary to prevent spontaneous combustion.

.8 Remove and replace damaged products at own expense and to satisfaction of Departmental Representative.

.9 Touch-up damaged factory finished surfaces to Departmental Representative's satisfaction. Use touch-up materials to match original. Do not paint over name plates.

1.4 TRANSPORTATION

.1 Pay costs of transportation of products required in performance of Work.

1.5 MANUFACTURER'S INSTRUCTIONS

.1 Unless otherwise indicated in specifications, install or erect products in accordance with manufacturer's instructions. Do not rely on labels or enclosures provided with products. Obtain written instructions directly from manufacturers.

.2 Notify Departmental Representative in writing, of conflicts between specifications and manufacturer's instructions, so that Departmental Representative will establish course of action.

.3 Improper installation or erection of products, due to failure in complying with these requirements, authorizes Departmental Representative to require removal and re-installation at no increase in Contract Price or Contract Time.

1.6 QUALITY OF WORK

.1 Ensure Quality of Work is of highest standard, executed by workers experienced and skilled in respective duties for which they are employed. Immediately notify Departmental Representative if required Work is such as to make it impractical to produce required results.

.2 Do not employ anyone unskilled in their required duties. Departmental Representative reserves right to require dismissal from site, workers deemed incompetent or careless.

.3 Decisions as to standard or fitness of Quality of Work in cases of dispute rest solely with Departmental Representative, whose decision is final.

1.7 CO-ORDINATION

.1 Ensure co-operation of workers in laying out Work. Maintain efficient and continuous supervision.

.2 Be responsible for coordination and placement of openings, sleeves and accessories.

1.8 CONCEALMENT

.1 In finished areas conceal pipes, ducts and wiring in floors, walls and ceilings, except where indicated otherwise.

.2 Before installation inform Departmental Representative if there is interference. Install as directed by Departmental Representative.

1.9 REMEDIAL WORK

.1 Perform remedial work required to repair or replace parts or portions of Work identified as defective or unacceptable. Co-ordinate adjacent affected Work as required.

.2 Perform remedial work by specialists familiar with materials affected. Perform in a manner to neither damage nor put at risk any portion of Work.

1.10 LOCATION OF FIXTURES

.1 Consider location of fixtures, outlets, and mechanical and electrical items indicated as approximate.

.2 Inform Departmental Representative of conflicting installation. Install as directed.

1.11 FASTENINGS

.1 Provide metal fastenings and accessories in same texture, colour and finish as adjacent materials, unless indicated otherwise.

.2 Prevent electrolytic action between dissimilar metals and materials.

.3 Use non-corrosive hot dip galvanized steel fasteners and anchors for securing exterior work, unless stainless steel or other material is specifically requested in affected specification Section.

.4 Space anchors within individual load limit or shear capacity and ensure they provide positive permanent anchorage. Wood, or any other organic material plugs are not acceptable.

.5 Keep exposed fastenings to a minimum, space evenly and install neatly.

.6 Fastenings which cause spalling or cracking of material to which anchorage is made are not acceptable.

1.12 FASTENINGS - EQUIPMENT

.1 Use fastenings of standard commercial sizes and patterns with material and finish suitable for service.

.2 Use heavy hexagon heads, semi-finished unless otherwise specified. Use No. 304 stainless steel for exterior areas.

.3 Bolts may not project more than one diameter beyond nuts.

.4 Use plain type washers on equipment, sheet metal and soft gasket lock type washers where vibrations occur. Use resilient washers with stainless steel.

1.13 PROTECTION OF WORK IN PROGRESS

.1 Prevent overloading of parts of building. Do not cut, drill or sleeve load bearing structural member, unless specifically indicated without written approval of Departmental Representative.

1.14 EXISTING UTILITIES

.1 When breaking into or connecting to existing services or utilities, execute Work at times directed by local governing authorities, with minimum of disturbance to Work, and/or building occupants.

.2 Protect, relocate or maintain existing active services. When services are encountered, cap off in manner approved by authority having jurisdiction. Stake and record location of capped service.

END OF SECTION

Part 1 General

1.1 SUBMITTALS

.1 Submittals: in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit written request in advance of cutting or alteration which affects:

- .1 Structural integrity of elements of project.
- .2 Integrity of weather-exposed or moisture-resistant elements.
- .3 Efficiency, maintenance, or safety of operational elements.
- .4 Visual qualities of sight-exposed elements.
- .5 Work of Owner or separate contractor.

.3 Include in request:

- .1 Identification of project.
- .2 Location and description of affected Work.
- .3 Statement on necessity for cutting or alteration.
- .4 Description of proposed Work, and products to be used.
- .5 Alternatives to cutting and patching.
- .6 Effect on Work of Owner or separate contractor.
- .7 Written permission of affected separate contractor.
- .8 Date and time work will be executed.

1.2 FORMS

.1 Special forms required during the course of this Work may include the following. Forms will be supplied by the Departmental Representative.

- .1 Hot work.
- .2 Confined space entry.
- .3 Site steam protocol.
- .4 Ground disturbance.

1.3 MATERIALS

.1 Required for original installation.

.2 Change in Materials: Submit request for substitution in accordance with Section 01 33 00 - Submittal Procedures.

1.4 PREPARATION

.1 Inspect existing conditions, including elements subject to damage or movement during cutting and patching.

.2 After uncovering, inspect conditions affecting performance of Work.

.3 Beginning of cutting or patching means acceptance of existing conditions.

.4 Provide supports to assure structural integrity of surroundings; provide devices and methods to protect other portions of project from damage.

.5 Provide protection from elements for areas which are to be exposed by uncovering work; maintain excavations free of water.

1.5 EXECUTION

.1 Execute cutting, fitting, and patching including excavation and fill, to complete Work.

.2 Fit several parts together, to integrate with other Work.

.3 Uncover Work to install ill-timed Work.

.4 Remove and replace defective and non-conforming Work.

.5 Provide openings in non-structural elements of Work for penetrations of mechanical and electrical Work.

.6 Execute Work by methods to avoid damage to other Work, and which will provide proper surfaces to receive patching and finishing.

.7 Employ original installer to perform cutting and patching for weather-exposed and moisture-resistant elements, and sight-exposed surfaces.

.8 Cut rigid materials using masonry saw or core drill. Pneumatic or impact tools not allowed on masonry work without prior approval.

.9 Restore work with new products in accordance with requirements of Contract Documents.

.10 Fit Work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

.11 At penetration of fire rated wall, ceiling, or floor construction, completely seal voids with firestopping or firestopping sealant material using UL or ULC rated assembly in accordance with manufacturer's instructions.

.12 Refinish surfaces to match adjacent finishes: Refinish continuous surfaces to nearest intersection. Refinish assemblies by refinishing entire unit.

.13 Conceal pipes, ducts and wiring in floor, wall and ceiling construction of finished areas except where indicated otherwise.

1.6 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

END OF SECTION

1.1 PROJECT CLEANLINESS

.1 Maintain Work in tidy condition, free from accumulation of waste products and debris, other than that caused by Owner or other Contractors.

.2 Remove waste materials from site at daily regularly scheduled times. Do not burn waste materials on site.

.3 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.

.4 Provide on-site containers for collection of waste materials and debris.

.5 Dispose of waste materials and debris off site.

.6 Clean interior areas prior to start of finishing work, and maintain areas free of dust and other contaminants during finishing operations.

.7 Store volatile waste in covered metal containers, and remove from premises at end of each working day.

.8 Provide adequate ventilation during use of volatile or noxious substances. Use of building ventilation systems is not permitted for this purpose.

.9 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.

.10 Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly painted surfaces nor contaminate building systems.

1.2 FINAL CLEANING

.1 When Work is Substantially Performed remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.

.2 Remove waste products and debris other than that caused by others, and leave Work clean and suitable for occupancy. Remove debris and surplus materials from accessible concealed spaces.

.3 Inspect finishes, fitments and equipment and ensure specified workmanship and operation.

.4 Vacuum carpet in renovated areas and where construction traffic occurs. If heavily soiled carpeting shall be commercially steam cleaned. This will be at the discretion of the Departmental Representative.

.5 Clean and wax areas of resilient sheet and tile flooring in renovated areas, where required by specification section.

.6 Dust all horizontal surfaces, clean all glass and wipe down walls in renovated areas.

END OF SECTION

Part 1 General

1.1 DEFINITIONS

.1 Materials Source Separation Program (MSSP): consists of series of ongoing activities to separate reusable and recyclable waste material into material categories from other types of waste at point of generation.

.2 Recyclable: ability of product or material to be recovered at end of its life cycle and re-manufactured into new product for reuse.

.3 Recycle: process by which waste and recyclable materials are transformed or collected for purpose of being transferred into new products.

.4 Recycling: process of sorting, cleansing, treating, and reconstituting solid waste and other discarded materials for purpose of using in altered form. Recycling does not include burning, incinerating, or thermally destroying waste.

.5 Reuse: repeated use of product in same form but not necessarily for same purpose. Reuse includes:

.1 Salvaging reusable materials from re-modelling projects, before demolition stage, for resale, reuse on current project or for storage for use on future projects.

.2 Returning reusable items including pallets or unused products to vendors.

.6 Salvage: removal of structural and non-structural materials from deconstruction/disassembly projects for purpose of reuse or recycling.

.7 Separate Condition: refers to waste sorted into individual types.

.8 Source Separation: acts of keeping different types of waste materials separate beginning from first time they became waste.

.9 Waste Audit (WA): detailed inventory of materials in building. Involves quantifying by volume/weight amounts of materials and wastes generated during construction, demolition, deconstruction, or renovation project. Indicates quantities of reuse, recycling and landfill. Refer to Schedule A.

.10 Waste Management Co-ordinator (WMC) : contractor representative responsible for supervising waste management activities as well as coordinating related, required submittal and reporting requirements.

.11 Waste Reduction Workplan (WRW): written report which addresses opportunities for reduction, reuse, or recycling of materials. Refer to Schedule B. WRW is based on information acquired from WA (Schedule A).

1.2 SUBMITTALS

.1 Submittals in accordance with Section 01 33 00 - Submittal Procedures.

1.3 WASTE REDUCTION WORKPLAN (WRW)

.1 Prepare WRW prior to project start-up.

.2 WRW should include but not limited to:

- .1 Destination of materials listed.
- .2 Deconstruction/disassembly techniques and sequencing.
- .3 Schedule for deconstruction/disassembly.
- .4 Location.
- .5 Security.
- .6 Protection.
- .7 Clear labelling of storage areas.
- .8 Details on materials handling and removal procedures.

.3 Structure WRW to prioritize actions and follow 3R's hierarchy, with Reduction as first priority, followed by Reuse, then Recycle.

.4 Describe management of waste.

.5 Identify opportunities for reduction, reuse, and recycling of materials.

.6 Post WRW or summary where workers at site are able to review content.

.7 Set realistic goals for waste reduction, recognize existing barriers and develop strategies to overcome these barriers.

.8 Monitor and report on waste reduction.

1.4 MATERIALS SOURCE SEPARATION PROGRAM (MSSP)

.1 Prepare MSSP and have ready for use prior to project start-up.

.2 Implement MSSP for waste generated on project in compliance with approved methods and as reviewed by Departmental Representative.

.3 Provide on-site facilities for collection, handling, and storage of anticipated quantities of reusable and recyclable materials.

.4 Provide containers to deposit reusable and recyclable materials.

.5 Locate containers in locations, to facilitate deposit of materials without hindering daily operations.

.6 Locate separated materials in areas which minimize material damage.

.7 Collect, handle, store on-site, and transport off-site, salvaged materials in separate condition.

- .1 Transport to users of material for recycling.

.8 Collect, handle, store on-site, and transport off-site, salvaged materials in combined condition.

.1 Ship materials to site operating under Certificate of Approval.

1.5 STORAGE, HANDLING AND PROTECTION

.1 Store, materials to be reused, recycled and salvaged in locations as directed by Departmental Representative.

.2 Protect surface drainage, mechanical and electrical from damage and blockage.

.3 Separate and store materials produced during dismantling of structures in designated areas.

.4 Prevent contamination of materials to be salvaged and recycled and handle materials in accordance with requirements for acceptance by designated facilities.

.1 On-site source separation is recommended.

.2 Remove co-mingled materials to off-site processing facility for separation.

.3 Provide waybills for separated materials.

1.6 DISPOSAL OF WASTES

.1 Do not bury rubbish or waste materials.

.2 Do not dispose of waste, volatile materials, mineral spirits, oil, and paint thinner into waterways, storm, or sanitary sewers.

1.7 USE OF SITE AND FACILITIES

.1 Execute work with least possible interference or disturbance to normal use of premises.

.2 Maintain security measures established by existing facility and where required provide temporary security measures approved by Departmental Representative.

1.8 SCHEDULING

.1 Co-ordinate Work with other activities at site to ensure timely and orderly progress of Work.

Part 2 Execution

2.1 APPLICATION

.1 Do Work in compliance with WRW.

.2 Handle waste materials not reused, salvaged, or recycled in accordance with appropriate regulations and codes.

2.2 CLEANING

.1 Remove tools and waste materials on completion of Work, and leave work area in clean and orderly condition.

.2 Clean-up work area as work progresses.

.3 Source separate materials to be reused/recycled into specified sort areas.

END OF SECTION

Part 1 General

1.1 INSPECTION AND DECLARATION

.1 Contractor's Inspection: Contractor and Subcontractors: conduct inspection of Work, identify deficiencies and defects, and repair as required to conform to Contract Documents.

.1 Notify Departmental Representative in writing of satisfactory completion of Contractor's Inspection and that corrections have been made.

.2 Request Departmental Representative Inspection.

.2 Departmental Representative Inspection: Departmental Representative and Contractor will perform inspection of Work to identify obvious defects or deficiencies. Contractor to correct Work accordingly.

.3 Completion: submit written certificate that following have been performed:

.1 Work has been completed and inspected for compliance with Contract Documents.

.2 Defects have been corrected and deficiencies have been completed.

.3 Equipment and systems have been tested, adjusted and balanced and are fully operational.

.4 Certificates required by Fire Commissioner and Utility companies have been submitted.

.5 Operation of systems have been demonstrated to Owner's personnel.

.6 Work is complete and ready for final inspection.

.4 Final Inspection: when items noted above are completed, request final inspection of Work by Departmental Representative, Consultants and Contractor. If Work is deemed incomplete by Departmental Representative, complete outstanding items and request re-inspection.

.5 Where re-inspection is required due to uncompleted deficiencies, the time required by the Departmental Representative and Consultants will be recorded and reimbursement of this time may be charges back to the Contractor by deducting from amounts retained.

1.2 CLEANING

.1 In accordance with Section 01 74 11 - Cleaning.

.2 Remove waste and surplus materials, rubbish and construction facilities from the site in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

END OF SECTION

Part 1 General

1.1 SUBMITTALS

.1 Submittals: in accordance with Section 01 33 00 - Submittal Procedures.

.2 Prepare instructions and data using personnel experienced in maintenance and operation of described products.

.3 Copy will be returned after final inspection, with Departmental Representative's comments.

.4 Revise content of documents as required prior to final submittal.

.5 Two weeks prior to Substantial Performance of the Work, submit to the Departmental Representative, four final copies of operating and maintenance manuals in English.

.6 Ensure spare parts, maintenance materials and special tools provided are new, undamaged or defective, and of same quality and manufacture as products provided in Work.

.7 Furnish evidence, if requested, for type, source and quality of products provided.

.8 Defective products will be rejected, regardless of previous inspections. Replace products at Contractor’s own expense.

.9 Pay costs of transportation.

1.2 FORMAT

.1 Organize data as instructional manual.

.2 Provide four (4) bound copies and two (2) PDF copies on DVD or CD.

.3 Binders: cloth, hard covered, expandable, loose leaf paper size 219 x 279 mm. Colour “black.” Provide four (4) copies.

.4 When multiple binders are used correlate data into related consistent groupings. Identify contents of each binder on spine.

.5 Cover: identify each binder with type or printed title 'Project Record Documents'; list title of project and identify subject matter of contents. Lettering to be “gold” colour.

.6 Provide printed title on DVD/CD version to coincide with title on bound version.

.7 Arrange content by systems, under Section numbers and sequence of Table of Contents.

.8 Provide tabbed fly leaf for each separate product and system, with typed description of product and major component parts of equipment.

.9 Text: manufacturer's printed data, or typewritten data.

.10 Drawings: provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.

1.3 CONTENTS - EACH VOLUME

.1 Table of Contents: provide title of project;

.1 Date of submission; names.

.2 Addresses, and telephone numbers of Consultant and Contractor with name of responsible parties.

.3 Schedule of products and systems, indexed to content of volume.

.2 For each product or system:

.1 List names, addresses and telephone numbers of subcontractors and suppliers, including local source of supplies and replacement parts.

.3 Shop Drawings: illustrating details of a portion of work.

.4 Product Data: mark each sheet to identify specific products and component parts, and data applicable to installation; delete inapplicable information.

.5 Drawings: supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.

.6 Typewritten Text: as required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions specified in Section 01 45 00 - Quality Control.

1.4 AS-BUILTS AND SAMPLES

.1 Maintain, in addition to requirements in General Conditions, at site for Departmental Representative one record copy of:

.1 Contract Drawings.

.2 Specifications.

.3 Addenda.

.4 Change Orders and other modifications to Contract.

.5 Reviewed shop drawings, product data, and samples.

.6 Field test records.

.7 Inspection certificates.

.8 Manufacturer's certificates.

.2 Store record documents and samples in field office apart from documents used for construction. Provide files, racks, and secure storage.

.3 Label record documents and file in accordance with Section number listings in List of Contents of this Project Manual. Label each document "PROJECT RECORD" in neat, large, printed letters.

.4 Maintain record documents in clean, dry and legible condition. Do not use record documents for construction purposes.

.5 Keep record documents and samples available for inspection by Departmental Representative.

1.5 RECORDING ACTUAL SITE CONDITIONS

.1 Record information on set of opaque drawings, provided by Departmental Representative.

.2 Provide felt tip marking pens, maintaining separate colours for each major system, for recording information.

.3 Record information concurrently with construction progress. Do not conceal Work until required information is recorded.

.4 Contract Drawings and shop drawings: mark each item to record actual construction, including:

- .1 Measured depths of elements of foundation in relation to finish first floor datum.
- .2 Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
- .3 Measured locations of internal utilities and appurtenances, referenced to visible and accessible features of construction.
- .4 Field changes of dimension and detail.
- .5 Changes made by change orders.
- .6 Details not on original Contract Drawings.
- .7 References to related shop drawings and modifications.

.5 Specifications: mark each item to record actual construction, including:

- .1 Manufacturer, trade name, and catalogue number of each product actually installed, particularly optional items and substitute items.
- .2 Changes made by Addenda and change orders.

.6 Other Documents: maintain manufacturer's certifications, inspection certifications, and field test records, required by individual specifications sections.

1.6 EQUIPMENT AND SYSTEMS

.1 Each Item of Equipment and Each System: include description of unit or system, and component parts. Give function, normal operation characteristics, and limiting conditions. Include performance curves, with engineering data and tests, and complete nomenclature and commercial number of replaceable parts.

.2 Panel board circuit directories: provide electrical service characteristics, controls, and communications.

.3 Include installed colour coded wiring diagrams.

.4 Operating Procedures: include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.

.5 Maintenance Requirements: include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.

.6 Provide servicing and lubrication schedule, and list of lubricants required.

.7 Include manufacturer's printed operation and maintenance instructions.

.8 Include sequence of operation by controls manufacturer.

.9 Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.

.10 Provide installed control diagrams by controls manufacturer.

.11 Provide Contractor's co-ordination drawings, with installed colour coded piping diagrams.

.12 Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.

.13 Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.

.14 Include test and balancing reports as specified in Section 01 45 00 - Quality Control.

.15 Additional requirements: as specified in individual specification sections.

1.7 MATERIALS AND FINISHES

.1 Building Products, Applied Materials, and Finishes: include product data, with catalogue number, size, composition, and colour and texture designations. Provide information for re-ordering custom manufactured products.

.2 Instructions for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.

.3 Moisture-Protection and Weather-Exposed Products: include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.

.4 Additional Requirements: as specified in individual specifications sections.

1.8 SPARE PARTS

.1 Provide spare parts, in quantities specified in individual specification sections.

.2 Provide items of same manufacture and quality as items in Work.

.3 Deliver to location as directed; place and store.

.4 Receive and catalogue items. Submit inventory listing to Departmental Representative. Include approved listings in Maintenance Manual.

.5 Obtain receipt for delivered products and submit prior to final payment.

1.9 MAINTENANCE MATERIALS

.1 Provide maintenance and extra materials, in quantities specified in individual specification sections.

.2 Provide items of same manufacture and quality as items in Work.

.3 Deliver to location as directed; place and store.

.4 Receive and catalogue items. Submit inventory listing to Departmental Representative. Include approved listings in Maintenance Manual.

.5 Obtain receipt for delivered products and submit prior to final payment.

1.10 SPECIAL TOOLS

.1 Provide special tools, in quantities specified in individual specification section.

.2 Provide items with tags identifying their associated function and equipment.

.3 Deliver to location as directed; place and store.

.4 Receive and catalogue items. Submit inventory listing to Departmental Representative. Include approved listings in Maintenance Manual.

1.11 STORAGE, HANDLING AND PROTECTION

.1 Store spare parts, maintenance materials, and special tools in manner to prevent damage or deterioration.

.2 Store in original and undamaged condition with manufacturer's seal and labels intact.

.3 Store components subject to damage from weather in weatherproof enclosures.

.4 Store paints and freezable materials in a heated and ventilated room.

.5 Remove and replace damaged products at own expense and to satisfaction of Departmental Representative.

1.12 WARRANTIES AND BONDS

.1 Submit, warranty information made available during construction phase, to Departmental Representative for approval prior to each monthly pay estimate.

.2 Assemble approved information in binder and submit upon acceptance of work. Organize binder as follows:

.1 Separate each warranty or bond with index tab sheets keyed to Table of Contents listing.

.2 List subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.

.3 Obtain warranties and bonds, executed in duplicate by subcontractors, suppliers, and manufacturers, within ten days after completion of applicable item of work.

.4 Verify that documents are in proper form, contain full information, and are notarized.

.5 Co-execute submittals when required.

.6 Retain warranties and bonds until time specified for submittal.

.3 Except for items put into use with Owner's permission, leave date of beginning of time of warranty until Date of Substantial Performance is determined.

.4 Respond in a timely manner to oral or written notification of required construction warranty repair work.

.5 Written verification will follow oral instructions. Failure to respond will be cause for the Departmental Representative to proceed with action against Contractor.

1.13 PRE-WARRANTY CONFERENCE

.1 Meet with Departmental Representative, to develop understanding of requirements of this section. Schedule meeting prior to contract completion, and at time designated by Departmental Representative.

.2 Departmental Representative will establish communication procedures for:

.1 Notification of construction warranty defects.

.2 Determine priorities for type of defect.

.3 Determine reasonable time for response.

.3 Provide name, telephone number and address of licensed and bonded company that is authorized to initiate and pursue construction warranty work action.

.4 Ensure contact is located within local service area of warranted construction, is continuously available, and is responsive to inquiries for warranty work action.

END OF SECTION

Part 1 General

1.1 SUMMARY

.1 Section Includes:

.1 General requirements relating to commissioning of project's components and systems, specifying general requirements to PV of components, equipment, sub-systems, systems, and integrated systems.

.2 Refer to all project Specification Sections for detailed description of commissioning requirements.

.3 Refer to requirements of ES/SOW-0101 Statement of Work for Procurement and Installation of Electronic Security Systems (CSC) and ES/SOW-0102 Statement of Work for Quality Control for Procurement and Installation of Electronic Security Systems (CSC).

.4 Acronyms:

.1 CSC – Correctional Service Canada
.2 Cx - Commissioning.
.3 Cx Authority – Commissioning Authority.
.4 EMCS - Energy Monitoring and Control Systems.
.5 O&M - Operation and Maintenance.
.6 PI - Product Information.
.7 PV - Performance Verification.
.8 TAB - Testing, Adjusting and Balancing.

1.2 GENERAL

.1 Cx is a planned program of tests, procedures and checks carried out systematically on systems and integrated systems of the finished Project. Cx is performed after systems and integrated systems are completely installed, functional and Contractor's Performance Verification responsibilities have been completed and approved. Objectives:

.1 Verify installed equipment, systems and integrated systems operate in accordance with contract documents and design criteria and intent.
.2 Ensure appropriate documentation is compiled into the O&M manual.
.3 Effectively train O&M staff.

.2 Contractor assists in Cx process, operating equipment and systems, troubleshooting and making adjustments as required.

.1 Systems to be operated at full capacity under various modes to determine if they function correctly and consistently at peak efficiency. Systems to be interactively with each other as intended in accordance with Contract Documents and design criteria.
.2 During these checks, adjustments to be made to enhance performance to meet environmental or user requirements.

.3 Design Criteria: as per client's requirements or determined by designer. To meet Project functional and operational requirements.

1.3 COMMISSIONING OVERVIEW

.1 Commissioning (Cx) Plan. The Contractor will be responsible for developing the Commissioning (Cx) Plan.

.2 The parties responsible for Cx activities shall be identified in the Commissioning (Cx) Plan.

.3 Cx to be a line item of Contractor's cost breakdown.

.4 Cx activities supplement field quality and testing procedures described in relevant technical sections.

.5 Cx is conducted in concert with activities performed during stage of project delivery. Cx identifies issues in Planning and Design stages which are addressed during Construction and Cx stages to ensure the installed systems are proven to operate satisfactorily under weather, environmental and occupancy conditions to meet functional and operational requirements. Cx activities include transfer of critical knowledge to facility operational personnel.

.6 Departmental Representative will issue Interim Acceptance Certificate when:

.1 Completed Cx documentation has been received, reviewed for suitability and approved by Cx Authority.

.2 Equipment, components and systems have been commissioned.

.3 O&M training has been completed.

1.4 NON-CONFORMANCE TO PERFORMANCE VERIFICATION REQUIREMENTS

.1 Should equipment, system components, and associated controls be incorrectly installed or malfunction during Cx, correct deficiencies, re-verify equipment and components within the unfunctional system, including related systems as deemed required by Consultant and Cx Authority, to ensure effective performance.

.2 Costs for corrective work, additional tests, inspections, to determine acceptability and proper performance of such items to be borne by Contractor. Above costs to be in form of progress payment reductions or hold-back assessments.

1.5 PRE-CX REVIEW

.1 Before Construction:

.1 Review contract documents, confirm by writing to Departmental Representative:

.1 Adequacy of provisions for Cx.

.2 Aspects of design and installation pertinent to success of Cx.

.2 During Construction:

.1 Co-ordinate provision, location and installation of provisions for Cx.

.3 Before start of Cx:

.1 Have Cx Plan up-to-date.

.2 Ensure installation of related components, equipment, sub-systems, systems is complete.

.3 Fully understand Cx requirements and procedures.

.4 Have Cx documentation shelf-ready.

.5 Understand completely design criteria and intent and special features.

.6 Submit complete start-up documentation to Departmental Representative.

.7 Have Cx schedules up-to-date.

.8 Ensure systems have been cleaned thoroughly.

.9 Complete TAB procedures on systems; submit TAB reports to Departmental Representative for review and approval.

.10 Ensure "As-Built" system schematics are available.

.4 Inform Departmental Representative in writing of discrepancies and deficiencies on finished works.

1.6 CONFLICTS

.1 Report conflicts between requirements of this section and other sections to Departmental Representative before start-up and obtain clarification.

.2 Failure to report conflict and obtain clarification will result in application of most stringent requirement.

1.7 SUBMITTALS

.1 Submittals: in accordance with Section 01 33 00 - Submittal Procedures.

.1 Submit:

.1 Name of Contractor's Cx agent.

.2 Draft Cx documentation.

.3 Preliminary Cx schedule.

.2 Request in writing to Departmental Representative for changes to submittals and obtain written approval at least 8 weeks prior to start of Cx.

.3 Submit proposed Cx procedures to Departmental Representative where not specified and obtain written approval at least 8 weeks prior to start of Cx.

.4 Provide additional documentation relating to Cx process required by Departmental Representative.

1.8 COMMISSIONING DOCUMENTATION

.1 Refer to individual equipment Specification Sections for (Cx) forms: Installation Check Lists, Product Information (PI) and Performance Verification (PV) forms for requirements.

.2 Consultant and Cx Authority to review and approve Cx documentation.

.3 Provide completed and approved Cx documentation to Departmental Representative.

1.9 COMMISSIONING SCHEDULE

.1 Provide detailed Cx schedule as part of construction schedule in accordance with Section 01 32 16.07 - Construction Progress Schedules.

.2 Provide adequate time for Cx activities prescribed in technical sections and commissioning sections including:

- .1 Approval of Cx reports.
- .2 Verification of reported results.
- .3 Repairs, retesting, re-commissioning, re-verification.
- .4 Training.

1.10 COMMISSIONING MEETINGS

.1 Cx meetings will be held following project meetings and as specifically requested.

.2 Purpose: to resolve issues, monitor progress, identify deficiencies, relating to Cx.

.3 Cx meetings will be held on a regular basis until commissioning deliverables have been addressed.

.4 At approximately 50% completion stage a separate Cx scope meeting will be held to review progress, discuss schedule of equipment start-up activities and prepare for Cx. Issues at meeting to include:

- .1 Review duties and responsibilities of Contractor and subcontractors, addressing delays and potential problems.
- .2 Determine the degree of involvement of trades and manufacturer's representatives in the commissioning process.

.5 Thereafter Cx meetings to be held until project completion and as required during equipment start-up and functional testing period.

.6 Meeting will be chaired by Contractor, who will record and distribute minutes.

.7 Ensure subcontractors and relevant manufacturer representatives are present at 50% and subsequent Cx meetings and as required.

1.11 STARTING AND TESTING

.1 Contractor assumes liabilities and costs for inspections. Including disassembly and re-assembly after approval, starting, testing and adjusting, including supply of testing equipment.

1.12 WITNESSING OF STARTING AND TESTING

.1 Provide 14 days notice prior to commencement.

.2 Departmental Representative may witness start-up.

.3 Consultant and Cx Authority will witness testing for PV.

.4 Contractor's Cx Agent to be present at tests performed and documented by sub-trades, suppliers and equipment manufacturers.

1.13 MANUFACTURER'S INVOLVEMENT

.1 Obtain manufacturers installation, start-up and operations instructions prior to start-up of components, equipment and systems and review with Departmental Representative.

.1 Compare completed installation with manufacturer's published data, record discrepancies, and review with manufacturer.

.2 Modify procedures detrimental to equipment performance and review same with manufacturer before start-up.

.2 Integrity of warranties:

.1 Use manufacturer's trained start-up personnel where specified elsewhere in other divisions or required to maintain integrity of warranty.

.2 Verify with manufacturer that testing as specified will not void warranties.

.3 Qualifications of manufacturer's personnel:

.1 Experienced in design, installation, and operation of equipment and systems.

.2 Ability to interpret test results accurately.

.3 To report results in clear, concise, logical manner.

1.14 PROCEDURES

.1 Verify that equipment and systems are complete, clean, and operating in normal and safe manner prior to conducting start-up, testing and Cx.

.2 Conduct start-up and testing in following distinct phases:

.1 Included in delivery and installation:

.1 Verification of conformity to specification, approved shop drawings and completion of PI report forms.

.2 Visual inspection of quality of installation.

.2 Start-up: follow accepted start-up procedures.

.3 Operational testing: document equipment performance.

.4 System PV: include repetition of tests after correcting deficiencies.

.5 Post-substantial performance verification: to include fine-tuning.

.3 Correct deficiencies and obtain approval from Consultant and Cx Authority after distinct phases have been completed and before commencing next phase.

.4 Documents require tests on approved PV forms.

.5 Failure to follow accepted start-up procedures will result in re-evaluation of equipment by an independent testing agency selected by Departmental Representative. If results reveal that equipment start-up was not in accordance with requirements, and resulted in damage to equipment, implement following:

.1 Minor equipment/systems: implement corrective measures approved by Departmental Representative.

.2 Major equipment/systems: if evaluation report concludes that damage is minor, implement corrective measures approved by Departmental Representative.

.3 If evaluation report concludes that major damage has occurred, Departmental Representative shall reject equipment.

.1 Rejected equipment to be remove from site and replace with new.

.2 Subject new equipment/systems to specified start-up procedures.

1.15 START-UP DOCUMENTATION

.1 Assemble start-up documentation and submit to Departmental Representative for approval before commencement of commissioning.

.2 Start-up documentation to include:

.1 Factory and on-site test certificates for specified equipment.

.2 Pre-start-up inspection reports.

.3 Signed installation/start-up check lists.

.4 Start-up reports,

.5 Step-by-step description of complete start-up procedures, to permit Departmental Representative to repeat start-up at any time.

1.16 OPERATION AND MAINTENANCE OF EQUIPMENT AND SYSTEMS

.1 After start-up, operate and maintain equipment and systems as directed by equipment/system manufacturer.

.2 With assistance of manufacturer develop written maintenance program and submit Departmental Representative for approval before implementation.

.3 Operate and maintain systems for length of time required for commissioning to be completed.

.4 After completion of commissioning, operate and maintain systems until issuance of certificate of interim acceptance.

1.17 TEST RESULTS

.1 If start-up, testing and/or PV produce unacceptable results, repair, replace or repeat specified starting and/or PV procedures until acceptable results are achieved.

.2 Provide manpower and materials, assume costs for re-commissioning.

1.18 START OF COMMISSIONING

.1 Notify Departmental Representative at least 14 days prior to start of Cx.

.2 Start Cx after elements of building affecting start-up and performance verification of systems have been completed.

1.19 INSTRUMENTS / EQUIPMENT

.1 Submit to Departmental Representative for review and approval:

.1 Complete list of instruments proposed to be used.

.2 Listed data including, serial number, current calibration certificate, calibration date, calibration expiry date, and calibration accuracy.

.2 Provide the following equipment as required:

.1 2-way radios.

.2 Ladders.

.3 Equipment as required to complete work.

1.20 COMMISSIONING PERFORMANCE VERIFICATION

.1 Carry out Cx:

.1 Under actual operating conditions, over entire operating range, in all modes.

.2 On independent systems and interacting systems.

.2 Cx procedures to be repeatable and reported results are to be verifiable.

.3 Follow equipment manufacturer's operating instructions.

.4 EMCS trending to be available as supporting documentation for performance verification.

1.21 WITNESSING COMMISSIONING

.1 Consultant and Cx Authority to witness activities and verify results.

1.22 AUTHORITIES HAVING JURISDICTION

.1 Where specified start-up, testing or commissioning procedures duplicate verification requirements of authority having jurisdiction, arrange for authority to witness procedures so as to avoid duplication of tests and to facilitate expedient acceptance of facility.

.2 Obtain certificates of approval, acceptance and compliance with rules and regulation of authority having jurisdiction.

.3 Provide copies to Departmental Representative within 10 days of test and with Cx report.

1.23 COMMISSIONING CONSTRAINTS

.1 Commissioning will be undertaken on new equipment and modified equipment provided under this contract. Where these are tied into existing building systems the Cx will need to be coordinated with the building operator.

1.24 EXTRAPOLATION OF RESULTS

.1 Where Cx of weather, occupancy, or seasonal-sensitive equipment or systems cannot be conducted under near-rated or near-design conditions, extrapolate part-load results to design conditions when approved by Departmental Representative in accordance with equipment manufacturer's instructions, using manufacturer's data, with manufacturer's assistance and using approved formulae.

1.25 EXTENT OF VERIFICATION

.1 Tenant areas:

.1 Provide manpower and instrumentation to verify up to 100% of reported results.

.2 Number and location to be at discretion of Departmental Representative.

.3 Conduct tests repeated during verification under same conditions as original tests, using same test equipment, instrumentation.

.4 Review and repeat commissioning of systems if inconsistencies found in more than 20% of reported results.

.5 Perform additional commissioning until results are acceptable to Consultant and Cx Authority.

1.26 REPEAT VERIFICATIONS

.1 Assume costs incurred by Departmental Representative for third and subsequent verifications where:

.1 Verification of reported results fail to receive Consultant's or Cx Authority approval.

.2 Repetition of second verification again fails to receive approval.

.3 Departmental Representative deems Contractor's request for second verification was premature.

1.27 SUNDRY CHECKS AND ADJUSTMENTS

.1 Make adjustments and changes which become apparent as Cx proceeds.

.2 Perform static and operational checks as applicable and as required.

1.28 DEFICIENCIES, FAULTS, DEFECTS

.1 Correct deficiencies found during start-up and Cx to satisfaction of Departmental Representative.

.2 Report problems, faults or defects affecting Cx to Departmental Representative in writing. Stop Cx until problems are rectified. Proceed with written approval from Departmental Representative.

1.29 COMPLETION OF COMMISSIONING

.1 Upon completion of Cx leave systems in normal operating mode.

.2 Except for warranty and seasonal verification activities specified in Cx specifications, complete Cx prior to issuance of Interim Certificate of Completion.

.3 Cx to be considered complete when contract Cx deliverables have been submitted and accepted by Cx Authority.

1.30 ACTIVITIES UPON COMPLETION OF COMMISSIONING

.1 When changes are made to baseline components or system settings established during Cx process, provide updated Cx form for affected item.

1.31 TRAINING

.1 Provide training in accordance with Section 01 91 41 - Commissioning (Cx) - Training and requirements of Contract Specification Sections.

.2 Refer to requirements of ES/SOW-0101 Statement of Work for Procurement and Installation of Electronic Security Systems (CSC) and ES/SOW-0102 Statement of Work for Quality Control for Procurement and Installation of Electronic Security Systems (CSC).

1.32 MAINTENANCE MATERIALS, SPARE PARTS, SPECIAL TOOLS

.1 Supply, deliver, and document maintenance materials, spare parts, and special tools as specified in contract.

1.33 OCCUPANCY

.1 Cooperate fully with Departmental Representative during stages of acceptance; facility will remain fully occupied.

1.34 INSTALLED INSTRUMENTATION

.1 Use instruments installed under Contract for TAB and PV if:

.1 Accuracy complies with these specifications.

.2 Calibration certificates have been deposited with Departmental Representative.

.2 Calibrated EMCS sensors may be used to obtain performance data provided that sensor calibration has been completed and accepted.

1.35 PERFORMANCE VERIFICATION TOLERANCES

.1 Application tolerances:

.1 Specified range of acceptable deviations of measured values from specified values or specified design criteria. Unless noted otherwise in this contract Specifications, to be within +/- 10% of specified values.

.2 Instrument accuracy tolerances:

.1 To be of higher order of magnitude than equipment or system being tested.

.3 Measurement tolerances during verification:

.1 Unless noted otherwise in this contract Specifications actual values to be within +/- 2 % of recorded values.

1.36 OWNER'S PERFORMANCE TESTING

.1 Performance testing of equipment or system by Departmental Representative will not relieve Contractor from compliance with specified start-up and testing procedures.

Part 2 Schedules

2.1 SCHEDULE OF ARCHITECTURAL SYSTEMS

.1 Electronic door hardware

.2 Detention Hardware

.3 Elevator

2.2 CX SCHEDULE FOR MECHANICAL SYSTEMS

.1 Produce schedule of Cx activities in bar chart format to a scale that will ensure legibility. Bar chart to indicate:

.2 Sequences of testing equipment and systems, interrelationship between tests, duration of tests and training periods.

.3 Cx resources which will be committed to this project to ensure completion by prescribed dates.

- .1 Training Plan.
- .2 Cx Documentation Plan.
- .3 Water/fire mains and related site fire hydrants:

.4 Commission as soon as installation is complete, using procedures described in NFPA reference standards to provide protection for exterior envelope of new building during construction.

.5 Wet pipe sprinkler systems:

- .1 Test completed systems in accordance with NFPA 13.

.6 Plumbing systems:

- .1 To be filled, then proceed with flushing, cleaning and disinfection processes.
- .2 Test plumbing and piping systems installed under this project

.7 HVAC systems:

- .1 Ductwork, piping and conduit systems that will be concealed to be tested and certified to specified standards before being concealed. This work is specified in relevant technical sections of Division 23.
- .2 HVAC systems to be initially started up, "bumped" in a stand-alone mode and pre-start-up inspections completed.
- .3 Start after dust-producing construction procedures have been completed and areas are dust-free.
- .4 Start HVAC to replace temporary heating systems after Consultant's written approval.
- .5 Operate HVAC to permit TAB and ensure full compliance with contract documents when weatherstripping, caulking and sealing of exterior envelope has been completed, and interior partitions and doors are installed and ceiling return plenums are in place.

.8 Hydronic systems:

.1 To be filled, pumps "bumped" in stand-alone mode and pre-start-up inspections completed. Then undertake cleaning and flushing processes.

.2 Commission after exterior envelope has been completed and exterior has been caulked, but only after relevant water treatment systems have been commissioned.

.3 Commission at same time as HVAC systems are being TAB'd.

.9 HVAC and related hydronic systems:

.1 Test in conjunction with EMCS, and fire and smoke detection systems.

.10 Items which have a detrimental effect on operation and maintenance. To receive preliminary attention at this point. To be fully commissioned at same time as relevant equipment and systems.

.11 Vibration isolation and seismic control measures:

.1 Test these measures at same time as connected system.

.12 Equipment and systems subject to specified codes and standards or subject to approval of an authority having jurisdiction:

.1 Commission equipment and systems in accordance with those requirements.

.2 Where testing is required as part of a regulatory process, and where Cx procedures are fully developed, are appropriate to project, ensure tests as required by such codes are performed. Consultant to witness tests as part of Quality Assurance role.

.13 EMCS:

.1 Testing and Cx to be specified in Section 25 01 11 - EMCS: Start-Up, Verification and Commissioning, which defines conditions for acceptance.

.2 Point-by-point and end-to-end testing to be carried out by installation Contractor, monitored by Consultant and CxA and verified as part of system verification.

.3 Demonstration of operation of systems under operating conditions and over full operating range to take place prior to 30-day test period and to be witnessed by Consultant and CxA. Includes simulated opposite-season tests. EMCS programming and operation to be verified after HVAC systems have been TAB'd and to include specified 30-day test period.

.14 To reduce VOC concentrations to acceptable levels:

.1 Flow rates of outside air into HVAC systems to be adjusted as required during Cx, after occupancy and as necessary after occupancy.

.15 Commission mechanical systems and associated equipment as follows:

.1 Plumbing systems:

.1 Installation and Operation of all working plumbing fixtures installed under this project.

.2 Installation of all plumbing fixtures not intended for use installed under this project.

.3 All piping installed to serve fixtures.

.2 HVAC and exhaust systems:

.1 HVAC systems (Fan Coil Heat Exchanger System, Fan Coils, Steam Radiation)

.2 Exhaust systems.

.3 Dedicated DX Systems

.3 Fire and life safety systems:

.1 Wet pipe sprinkler systems.

.2 Standpipe and hose systems.

.3 Fire extinguishers.

.4 EMCS (Energy Management Control System:

.1 Entire EMCS system from graphic to device (point-to-point) performance verification.

.16 Product Information forms and Performance Verification will be carried out on the following mechanical systems:

.1 All Fan Coils (PV sample provided) – 30% to be reviewed with Cx Agent after commissioning is complete.

.2 Heat Exchanger HX-1 – 100% to be reviewed with Cx Agent after commissioning is complete.

.3 Pumps P1a and P1b (PI sample provided) – 100% to be reviewed with Cx Agent after commissioning is complete.

.4 Exhaust fans EF-1 to EF-4 (PV and PI sample provided) – 100% to be reviewed with Cx Agent after commissioning is complete.

.5 Air Conditioning Units AC-1 to AC-4 and associated condensing units. – 100% to be reviewed with Cx Agent after commissioning is complete.

.6 System Fill Tanks – 100% to be reviewed with Cx Agent after commissioning is complete.

.7 Radiation: 30% to be reviewed with Cx Agent after commissioning is complete.

.8 Testing and Air Balancing Report: 30% to be reviewed with Cx Agent after commissioning is complete.

2.3 SCHEDULE OF ELECTRICAL SYSTEMS

.1 The following is a listing of the building electrical systems to be commissioned:

.1 Low Voltage Lighting Systems

.2 Low Voltage Switchboards

.3 Panelboards Breaker Type

.4 Motor Starters To 600 V

.5 Lighting
.6 Emergency Lighting
.7 Exit Signs
.8 Fire Alarm Systems
.9 Communication Cable Inside Building

.2 The following is a listing of the CSC security systems to be commissioned:

.1 Patch Panels, Switches, Network Equipment
.2 Public Address System
.3 Cell Call
.4 Cell Door and Barrier Control
.5 Guard Tour System
.6 Intercom System
.7 Audio Recording System
.8 PLC Controls and HMI
.9 Video Surveillance

2.4 INTEGRATED LIFE SAFETY SYSTEMS

.1 Upon completion of individual system tests, test for integration of life safety systems upon

.1 Loss of power
.2 Fire alarm signal

.2 Electronic Hardware and Detention Hardware Systems: Test integration with fire alarm event.

.3 Hydraulic Elevator: Test for homing and shut down with fire alarm event.

.4 Fire Protection Systems: test integrated systems to verify that components work together as designed.

.5 Performance of HVAC, fire protection, EMCS and systems forming part of integrated systems to be verified after systems has been TAB'd to ensure compliance with prescribed requirements.

.6 Fire alarm call out, horn strobes.

.7 Emergency lighting, exit signage.

END OF SECTION

Part 1 General

1.1 SUMMARY

.1 Section Includes:

.1 Commissioning forms to be completed for equipment, system and integrated system.

.2 Where referred to in other Sections comply also with requirements of Section SW0101R3E Procurement and Installation and Section SW0102R6E Quality Control. The commissioning process for Section SW0101R3E Procurement and Installation and Section SW0102R6E Quality Control will be carried out separate from the base building or other tenant fit-up components.

1.2 INSTALLATION/START-UP CHECK LISTS

.1 Include the following data:

.1 Product manufacturer's installation instructions and recommended checks.

.2 Special procedures as specified in relevant technical sections.

.3 Items considered good installation and engineering industry practices deemed appropriate for proper and efficient operation.

.2 Equipment manufacturer's installation/start-up check lists are acceptable for use. As deemed necessary by Departmental Representative supplemental additional data lists may be required for specific project conditions.

.3 Use check lists for equipment installation. Document check list verifying checks have been made, indicate deficiencies and corrective action taken.

.4 Installer to sign check lists upon completion, certifying stated checks and inspections have been performed. Return completed check lists to Departmental Representative. Check lists will be required during Commissioning and will be included in O&M Manual at completion of project.

.5 Use of check lists will not be considered part of commissioning process but will be stringently used for equipment pre-start and start-up procedures.

1.3 PRODUCT INFORMATION (PI) REPORT FORMS

.1 Product Information (PI) forms compiles gathered data on items of equipment produced by equipment manufacturer, includes nameplate information, parts list, operating instructions, maintenance guidelines and pertinent technical data and recommended checks that is necessary to prepare for start-up and functional testing and used during operation and maintenance of equipment. This documentation is included in the Cx Manual at completion of work.

.2 Prior to Performance Verification (PV) of systems complete items on PI forms related to systems and obtain Consultant and Cx Authority approvals.

1.4 PERFORMANCE VERIFICATION (PV) FORMS

.1 PV forms to be used for checks, running dynamic tests and adjustments carried out on equipment and systems to ensure correct operation, efficiently and function independently and interactively with other systems as intended with project requirements.

.2 PV report forms include those developed by Contractor, and records the measured data and readings taken during functional testing and Performance Verification procedures.

.3 Prior to PV of integrated system, complete the PV forms of related systems and obtain Consultant's and Cx Authority approval.

1.5 COMMISSIONING FORMS

.1 The Consultant will develop and provide the Contractor with final project-specific Commissioning forms in hard-copy format complete with specification data.

.2 Revise items on Commissioning forms to suit project requirements.

1.6 COMMISSIONING VERIFICATION PROCESS

.1 Use Commissioning forms to verify installation and record performance of equipment and systems.

.2 Strategy for Use:

.1 Consultant provides Contractor project-specific Commissioning forms with Specification data included.

.2 Contractor will provide required shop drawings information and verify correct installation and operation of items indicated on these forms.

.3 Confirm operation as per design criteria and intent.

.4 Identify variances between design and operation and reasons for variances.

.5 Verify operation in specified normal and emergency modes and under specified load conditions.

.6 Record analytical and substantiating data.

.7 Reported results will be verified by the Consultant and Cx Authority.

.8 Form to bear signatures of recording technician and reviewed and signed off by Consultant and Cx Authority.

.9 Submit immediately after tests are performed.

.10 Reported results in true measured SI unit values.

.11 Originals of completed forms are to be retained on site during start-up, testing and commissioning period. Maintain in Commissioning Manual binder.

.12 Forms to be hard copy with type written results in Commissioning Manual Binder.

END OF SECTION

Ritenburg & Associates Ltd.
Consulting Electrical Engineers

Owner:
Project Name:
RAL File No:
Owner File No:

Section: Electrical

Item: **PANELBOARD**

PIE-3

EQUIPMENT DATA:

DATE / CHECKED BY: _____

	Specified	**Shop Drawings**	**Modifications**	**Installed**	
				ENG	CONT
Manufacturer					
Type					
Model Number					
Volt / Phase / Wire					
No. of Circuits					
Bus Amperage					
Bus Bracing					
Breaker Type					

SIGN-OFFS:

Contractor: Signature: _____ Date:_____

Consultant: Ritenburg & Associates Ltd. Signature: _____ Date:_____

PIE.3

FIXTURE TYPE: ____ Number Installed: _____

EQUIPMENT DATA:

DATE / CHECKED BY: _____

	Specified	**Shop Drawings**	**Modifications**	**Installed**	
				ENG	CONT
Manufacturer					
Catalogue Number					
Voltage					
Lamp Type					
Lamp Wattage					

SIGN-OFFS:

Contractor: Signature: _____ Date:_____

Consultant: Ritenburg & Associates Ltd. Signature: _____ Date:_____

Ritenburg & Associates Ltd.
Consulting Electrical Engineers

Owner: PIE.2
Project Name:
RAL File No:
Owner File No:

Section: Electrical Distribution

Item: **PANELBOARD**

LOCATION DATA: **PVE - 2**

Floor Room Panel _____

EQUIPMENT DATA:

Manufacturer _____
Type
Model Number _____
Serial Number _____
Volt/Phase/Wire
No. of Circuits
Bus Amperage
Bus Bracing

STATIC CHECKS: **DATE / CHECKED BY:** _____

	Specified	Submitted	Installed	Verify	Review
Enclosure Details					
Mounting	Surface				
EEMAC Enclosure Type	_____				
Door Type	_____				
Drip Hood	___ Yes ___ No		Door Lock	___ Yes	___ No
Feeder Details					
Wire Size	_____ AWG		Wire Insulation	_____ Type	
Ground Wire Type & Size	_____ AWG _____ Type		Conduit Size	_____ inch/mm	
Branch Breakers					
Mounting	Bolt-on				
Number of Breakers	_____				
Size of Breakers	_____				
Auxiliary Components					
Main Breaker	_____ A		Interrupting Capacity	_____ KA	
Main Lugs Torqued	___ Yes ___ No		Isolated Ground Bar	___ Yes	___ No
Bus Type	___ Copper ___ Aluminum				
Miscellaneous					
Conduit Skirting	___ Yes ___ No		Lamecoid Accurate	___ Yes	___ No
Spare Conduits	___ Yes ___ No		Breaker Filler Pieces Installed	___ Yes	___ No
Exterior Clean	___ Yes ___ No		Circuit Directory Installed	___ Yes	___ No
Interior Clean	___ Yes ___ No		Top Connectors Sealed	___ Yes	___ No

OPERATION CHECKS: **DATE / MEASURED BY:** _____

Measured Values	**Amperage**		**Voltage**	
	Line A	_____ Amps	AB	_____ Volts
	Line B	_____ Amps	BC	_____ Volts
	Line C	_____ Amps	CA	_____ Volts

SIGN-OFFS:

Contractor: Signature: _____ Date:_____

Consultant: Signature: _____ Date:_____

Ritenburg & Associates Ltd.
Consulting Electrical Engineers

Owner:
Project Name:
RAL File No:
Owner File No:

Section: Electrical

Item: **Emergency Lighting**

PVE.3

STATIC / OPERATION CHECKS: **TIME/DATE MEASURED:** _____

Room Name / Location	Fixture Type	Quantity	Switch Type	Correct Operation	Exterior / Interior Clean	

SIGN-OFFS:

Contractor: Signature: _____ Date:_____

Consultant: Ritenburg & Associates Ltd. Signature: _____ Date:_____

Project Name:	Project #:	05/2013
Shared Learning Facility	Component Form #:	PIM1.1

Product Information Form

Section:

System:	*Equipment:*	*Tag:*
HVAC	EXHAUST FAN	EF-1

INSTALLED EQUIPMENT DATA:

Manufacturer	
Type	Inline Exhaust Fan
Model Number	
Serial Number	

LOCATION DATA:

Building	Shared Learning Facility
Area Served	Medium Cell Range 365
Floor Located	Third Floor
Room	Observation 364

NMMS Equipment Tag Number: 30-260-9-EF1

PERFORMANCE DATA:

	Specified	Shop Drawings	Required Modification	Installed	
Fan:					
Air Flow	990 L/s (2,099 CFM)	(0 CFM)	-	Eng: ☐	Con: ☐
E.S.P.	187 Pa (0.75 in.w.c.)	(0.00 in.w.c.)	-	Eng: ☐	Con: ☐
Sound	5 sones		-		
Fan RPM	1160		-		
Motor Size	0.56 kW (0.75 hp)		-	Eng: ☐	Con: ☐
Voltage / Phase	208V/60/3 phase		-	Eng: ☐	Con: ☐
Control	EMCS via Local Switch				
Options:					
Insulation Lining	25mm Acoustic		-	Eng: ☐	Con: ☐
Backdraft Damper	Yes		-	Eng: ☐	Con: ☐
Isolators	Spring		-	Eng: ☐	Con: ☐
Drive	Belt		-	Eng: ☐	Con: ☐

Comments

SIGN-OFFS:

Contractor: _____ Date: _____

Engineer: _____ Date: _____

CxA: _____ Date: _____

Project Name: Shared Learning Facility	Project #: 05/2013
	Component Form #: PIM2.1

Product Information Form

Section:

System:	*Equipment:*	*Tag:*
HVAC	FAN COIL LOOP PUMPS	P-1a & P-1b

INSTALLED EQUIPMENT DATA:

Manufacturer	
Type	Base mounted pump
Model Number	
Serial Number	

LOCATION DATA:

Building	Shared Learning Facility
Area Served	Basement Mechanical Room
Floor Located	Basement
Room	Mechanical Room

NMMS Equipment Tag Number: 25-400-252-P1a and 25-400-252-P2a

PERFORMANCE DATA:

	Specified	Shop Drawings	Required Modification	Installed	
Pump:					
RPM	1800		-	Eng: ☐	Con: ☐
Pump Size	3x3		-	Eng: ☐	Con: ☐
Flow	15.75 L/s (250 US gpm)		-	Eng: ☐	Con: ☐
Fluid	100% Water		-	Eng: ☐	Con: ☐
Head	224 kPa (75 ft.w.c.)		-	Eng: ☐	Con: ☐
Pump Efficiency	60%		-		
Motor Size	7.46 kW (10.00 hp)		-	Eng: ☐	Con: ☐
Voltage / Phase	208V/60/3 phase		-	Eng: ☐	Con: ☐
Options:					
Control	Self-sensing Variable Speed Control			Eng: ☐	Con: ☐
Support	Inline			Eng: ☐	Con: ☐
			-	Eng: ☐	Con: ☐

Comments

SIGN-OFFS:

Contractor: _____ Date: _____

Engineer: _____ Date: _____

CxA: _____ Date: _____

Project Name: Shared Learning Facility	Project #: 05/2013
	Performance Verification #: PVM1.1

Performance Verification Test Form		*Section:*
System: **Medium Security Exhaust Fan**	*Equipment:* **Exhaust Fan EF-1**	*Tag:* **EF-1**

1. TEST PURPOSE

.1 To test installation of the exhaust fan to ensure that the system and all associated sub-systems operate as intended during normal and abnormal operating conditions.

.2 To document that the system operation performs as intended.

.3 To highlight required modifications and corrections to the system operation and allow those corrections to take place prior to substantial completion and turn over to owner.

2. Test Prerequisites

		C	E
.1	Test prerequisites		
.1	All test prerequisites are completed and form submitted	☐	☐

.2 Note any prerequisites not completed at time of test and identify reason for continuing with test despite prerequisites not being complete

_____

_____

_____

_____

3. Operational Testing

		C	E
.1	Schedule		
.1	Exhaust fan is not scheduled	☐	☐
.2	Fan Control (fan energizes from local switch)	C	E
.1	Record fan run time setting		min
.2	Set run time to 5 minutes		
.3	Switch fan operation to on	☐	☐
.4	Verify fan is "ON"	☐	☐
.5	Verify EMCS shows fan motor status as "ON"	☐	☐
.6	Verify fan operates for set run time	☐	☐
.7	After run time expires verify fan is "OFF"	☐	☐
.8	Verify EMCS shows fan motor status as "OFF"	☐	☐
.9	Reset fan run time setting	☐	☐
.3	Operation	C	E
.1	Ensure fan is on	☐	☐
.2	Verify vibration isolators appear to be functioning	☐	☐
.3	Noise generated is within reason	☐	☐

4. Failure Modes

		C	E
.1	Motor Failure		
.1	Energize fan through from control switch	☐	☐
.2	Cut power to motor (HOA or disconnect switch)	☐	☐
.3	Verify alarm registers at EMCS	☐	☐
.4	Restore power to motor	☐	☐
.5	Acknowledge alarm	☐	☐
.6	Verify EMCS shows fan motor status as "ON"	☐	☐

		C	E
.2	Belt Failure		
.1	Remove belt from drive	☐	☐
.2	Energize fan through temperature control	☐	☐
.3	Verify alarm registers at EMCS	☐	☐
.4	Reinstall belt	☐	☐
.5	Acknowledge alarm	☐	☐
.6	Verify fan operates correctly	☐	☐

Comments

SIGN-OFFS

Contractor: _____ Date:_____

Engineer:_____ Date:_____

CxA:_____ Date:_____

Project Name: Shared Learning Facility	Project #: 05/2013
	Performance Verification #: PVM1.4

Performance Verification Test Form		*Section:*
System: **Elevator Machine Room Exhaust Fan**	*Equipment:* **Exhaust Fan EF-4**	*Tag:* **EF-4**

1. TEST PURPOSE

.1 To test installation of the exhaust fan to ensure that the system and all associated sub-systems operate as intended during normal and abnormal operating conditions.

.2 To document that the system operation performs as intended.

.3 To highlight required modifications and corrections to the system operation and allow those corrections to take place prior to substantial completion and turn over to owner.

2. Test Prerequisites

.1 Test prerequisites ---------- C ☐ E ☐

.1 All test prerequisites are completed and form submitted ---------- ☐ ☐

.2 Note any prerequisites not completed at time of test and identify reason for continuing with test despite prerequisites not being complete

_____

_____

_____

_____

3. Sensor Calibration Verification

.1 Temperature Sensors

.1 Space Temperature ():

.1 Temperature indicated through BMS ---------- _____ ---------- ^{O}C

.2 Actual measured temperature _____ ---------- ^{O}C

4. Operational Testing

.1 Schedule ---------- C ☐ E ☐

.1 Exhaust fan is not scheduled ---------- ☐ ☐

.2 Temperature Control (fan energizes to cool) ---------- C ☐ E ☐

.1 Adjust temperature setpoint to above room temperature ---------- ☐ ☐

.2 Verify fan is "OFF" ---------- ☐ ☐

.3 Verify EMCS shows fan motor status as "OFF" ---------- ☐ ☐

.4 Adjust temperature setpoint to below room temperature ---------- ☐ ☐

.5 Verify fan is "ON" ---------- ☐ ☐

.6 Verify EMCS shows fan motor status as "ON" ---------- ☐ ☐

.3 Operation ---------- C ☐ E ☐

.1 Ensure fan is on ---------- ☐ ☐

.2 Verify vibration isolators appear to be functioning ---------- ☐ ☐

.3 Noise generated is within reason ---------- ☐ ☐

5. Failure Modes

		C	E
.1	Motor Failure		
.1	Energize fan through temperature control	☐	☐
.2	Cut power to motor (HOA)	☐	☐
.3	Verify alarm registers at EMCS	☐	☐
.4	Restore power to motor	☐	☐
.5	Acknowledge alarm	☐	☐
.6	Verify EMCS shows fan motor status as "ON"	☐	☐

Comments

SIGN-OFFS

Contractor: _____ Date:_____

Engineer:_____ Date:_____

CxA:_____ Date:_____

1. TEST PURPOSE

.1 To test operation of the terminal units and installation of the new Energy Management Control System to ensure that they operate as intended during normal and abnormal operating conditions.

.2 To document that each terminal device tested performs as intended.

.3 To highlight required modifications and corrections to terminal device operation and allow those corrections to take place prior to substantial completion and turn over to owner.

.4 To verify that the point-to-point commissioning carried out by the contractor was completed and successful based on a sampling of the spaces utilizing this control sequence.

2. Test Prerequisites

.1 Test prerequisites ---------- C ☐ E ☐

.1 All test prerequisites are completed and form submitted ---------- ☐ ☐

.2 Note any prerequisites not completed at time of test and identify reason for continuing with test despite prerequisites not being complete

_____

_____

_____

_____

_____

.3 Establish trend logs where required to verify operation and provide supporting documentation.

3. Equipment Located in Spaces:

.1 List of all terminal unit equipment serving space and being controlled by sequence of operation:

.1 Fan Coil FC-?

.2 Radiation Valve Quantity _____

.3 Thermostat

4. Schedule

.1 Occupied/Unoccupied Schedule ---------- C ☐ E ☐

.1 Follows unoccupied/occupied schedule for zone: ---------- ☐ ☐

.2 Occupancy Override ---------- C ☐ E ☐

.1 Thermostat Occupancy override functions on thermostat 1: ---------- ☐ ☐

.1 Override time set to? ---------- _____ minutes

5. Sensor Calibration Verification

.1 Temperature Sensors

.1 Space Temperature:

.1 Temperature indicated through BMS ---------- _____ ---------- °C

.2 Actual measured temperature _____ ---------- °C

.2 Air Discharge temperature (FC-?):

.1 Temperature indicated through BMS _____ ---------- °C

.2 Actual measured temperature ---------- °C

6. Temperature Setpoint

.1 Median Reset Schedule

.1 Upper Limit

.1 Outside Temperature ---------- _____ ---------- °C

.2 Median Setpoint _____ ---------- °C

.2 Lower Limit

.1 Outside Temperature ---------- _____ ---------- °C

.2 Median Setpoint _____ ---------- °C

.2 Slider Range

.1 Range set to ± ---------- _____ °C

.3 Night Setback

.1 Winter Night Setback Temperature ---------- _____ ---------- °C

.2 Summer Night Setback Temperature---------- _____ ---------- °C

	C	E
.4 Functional Test - Median Setpoint		
.1 Manually override EMCS outdoor temperature above upper limit:	☐	☐
.2 Median setpoint resets to upper limit for both thermostats:	☐	☐
.3 Manually override EMCS outdoor temperature below lower limit:	☐	☐
.4 Median setpoint resets to lower limit for both thermostats:	☐	☐
.5 Manually override EMCS outdoor temperature between upper and lower limit:	☐	☐
.6 Median setpoint resets to calculated position between upper and lower limit for both thermostats:	☐	☐
.7 Reset EMCS outdoor temperature back to automatic:	☐	☐

	C	E
.5 Functional Test - Slider Adjustment		
.1 Set sliders to center on all thermostats in space:	☐	☐
.2 Adjust slider up maximum amount for Thermostat:	☐	☐
.3 EMCS registers adjustment of slider:	☐	☐
.4 Systems move to control to new setpoint:	☐	☐
.5 Adjust slider down maximum amount for Thermostat:	☐	☐
.6 EMCS registers adjustment of slider:	☐	☐
.7 All systems move to control to new setpoint:	☐	☐
.8 Reset sliders to center:	☐	☐

.6 Functional Test - Night Setback ---------- C ☐ E ☐
- .1 Set system to unoccupied: ---------- ☐ ☐
- .2 Verify space control reverts to night setback temperature setpoint: ---------- ☐ ☐
  - .1 Record season ---------- _____
- .3 Set season flag to opposite of current season: ---------- ☐ ☐
- .4 Night setback control reverts to correct season setpoint: ---------- ☐ ☐
- .5 Reset season flag to automatic ---------- ☐ ☐
- .6 Reset occupancy to occupied ---------- ☐ ☐

7. Temperature Control - Summer Mode (To be tested in summer)

.1 Observe Current Operation ---------- C ☐ E ☐
- .1 Space appears to be in control (on setpoint): ---------- ☐ ☐
- .2 Record space temperature setpoint: ----------
  - .1 Space Setpoint ---------- ---------- ^{O}C
- .3 Record fan coil speed ----------
  - .1 Fan coil speed setting ---------- _____ -----
- .4 Record S/A discharge temperature: ----------
  - .1 At Fan Coil FC-? ---------- ---------- ^{O}C

.2 Turn space temperature setpoint down to 15 deg.C. ---------- C ☐ E ☐
- .1 Steam radiation valves are closed and remain so: ---------- ☐ ☐
- .2 Chilled water coil valve modulates to maximum cooling: ---------- ☐ ☐
- .3 Fan coil speed increases to maximum ---------- ☐ ☐
- .4 Record fan coil speed ----------
  - .1 Fan coil speed setting ---------- _____ -----
- .5 Record S/A discharge temperature: ----------
  - .1 At Fan Coil FC-? ---------- ---------- ^{O}C

.3 Turn space temperature setpoint to current space temperature
- .1 Steam radiation valves are closed and remain so: ---------- ☐ ☐
- .2 Chilled water coil valve modulates to suit space requirements: ---------- ☐ ☐
- .3 Fan coil speed decreases ---------- ☐ ☐
- .4 Record fan coil speed ----------
  - .1 Fan coil speed setting ---------- _____ -----
- .5 Record S/A discharge temperature: ----------
  - .1 At Fan Coil FC-? ---------- ---------- ^{O}C

.4 Turn space temperature setpoint up to 25 Deg.C.
- .1 Steam radiation valves are closed and remain so: ---------- ☐ ☐
- .2 Chilled water coil valve modulates closed: ---------- ☐ ☐
- .3 Fan coil speed decreases to minimum ---------- ☐ ☐
- .4 Record fan coil speed ----------
  - .1 Fan coil speed setting ---------- _____ -----
- .5 Record S/A discharge temperature: ----------
  - .1 At Fan Coil FC-? ---------- ---------- ^{O}C

.5 Reset control to normal operation. ----------C E
.1 Reset space temperature setpoint ---------- ☐ ☐

8. Temperature Control - Winter Mode (To be tested in winter)

.1 Observe Current Operation ----------C E
.1 Space appears to be in control (on setpoint): ---------- ☐ ☐
.2 Record space temperature setpoint:----------
.1 Space Setpoint ---------- ---------- ^{O}C
.3 Record fan coil speed----------
.1 Fan coil speed setting ----------_____ -----
.4 Record S/A discharge temperature:----------
.1 At Fan Coil FC-?---------- ---------- ^{O}C

.2 Turn space temperature setpoint down to 15 deg.C.----------C E
.1 Steam radiation valves modulate closed: ---------- ☐ ☐
.2 Chilled water coil valve is closed and remains so: ---------- ☐ ☐
.3 Fan coil speed stays at minimum---------- ☐ ☐
.4 Record fan coil speed----------
.1 Fan coil speed setting ----------_____ -----
.5 Record S/A discharge temperature:----------
.1 At Fan Coil FC-?---------- ---------- ^{O}C

.3 Turn space temperature setpoint to current space temperature
.1 Steam radiation valves modulate to suit space setpoint:---------- ☐ ☐
.2 Chilled water coil valve is closed and remains so: ---------- ☐ ☐
.3 Fan coil speed stays at minimum---------- ☐ ☐
.4 Record fan coil speed----------
.1 Fan coil speed setting ----------_____ -----
.5 Record S/A discharge temperature:----------
.1 At Fan Coil FC-?---------- ---------- ^{O}C

.4 Turn space temperature setpoint up to 25 Deg.C.
.1 Steam radiation valves modulate to fully open: ---------- ☐ ☐
.2 Chilled water coil valve is closed and remains so: ---------- ☐ ☐
.3 Fan coil speed stays at minimum---------- ☐ ☐
.4 Record fan coil speed----------
.1 Fan coil speed setting ----------_____ -----
.5 Record S/A discharge temperature:----------
.1 At Fan Coil FC-?---------- ---------- ^{O}C

.5 Reset control to normal operation. ----------C E
.1 Reset space temperature setpoint ---------- ☐ ☐

9. Alarms

.1 Discharge Air Temperature----------C E

.1 Raise temperature sensor five degrees above discharge air: ----------☐ ☐

.2 System alarms after delay:

.1 Record Delay ----------_____ mins

Comments

SIGN-OFFS

Contractor: _____ Date:_____

Engineer:_____ Date:_____

CxA:_____ Date:_____

Part 1 General

1.1 SUMMARY

.1 Section Includes:

.1 This Section specifies roles and responsibilities of Training.

.2 Where referred to in other Sections comply also with requirements of Section SW0101R3E Statement of Work for the Procurement and Installation of Electronic Security Systems and Section SW0102R6E Statement of Work for Quality Control for Procurement and Installation of Electronic Security Systems. The commissioning process for the Electronic Security Systems will be carried out as a separate process from the building systems.

1.2 TRAINEES

.1 Trainees: personnel selected for operating and maintaining this facility. Includes Facility Manager, building operators, maintenance staff, security staff, and technical specialists as required.

.2 Trainees will be available for training for purposes of familiarization with systems.

1.3 INSTRUCTORS

.1 Consultant will provide:

.1 Descriptions of systems.

.2 Instruction on design philosophy, design criteria, and design intent.

.2 Contractor and certified factory-trained manufacturers' personnel: to provide instruction on the following:

.1 Start-Up, operation, shut-down of equipment, components and systems.

.2 Control features, reasons for, results of, implications on associated systems of, adjustment of set points of control and safety devices.

.3 Instructions on servicing, maintenance and adjustment of systems, equipment and components.

.3 Contractor and equipment manufacturer to provide instruction on:

.1 Start-up, operation, maintenance and shut-down of equipment they have certified installation, started up and carried out PV tests.

1.4 TRAINING OBJECTIVES

.1 Training to be detailed and duration to ensure:

.1 Safe, reliable, cost-effective, energy-efficient operation of systems in normal and emergency modes under all conditions.

.2 Effective on-going inspection, measurements of system performance.

.3 Proper preventive maintenance, diagnosis and trouble-shooting.

.4 Ability to update documentation.

.5 Ability to operate equipment and systems under emergency conditions until appropriate qualified assistance arrives.

1.5 TRAINING MATERIALS

.1 Instructors to be responsible for content and quality.

.2 Training materials to include:

.1 "As-Built" Contract Documents.
.2 Operating & Maintenance Manual.
.3 TAB and PV Reports.

.3 Departmental Representative will review training manuals.

.4 Training materials to be in a format that permits future training procedures to same degree of detail.

.5 Supplement training materials:

.1 Transparencies for overhead projectors.
.2 Multimedia presentations.
.3 Manufacturer's training videos.
.4 Equipment models.

1.6 SCHEDULING

.1 Include in Commissioning Schedule time for training.

.2 Deliver training during regular working hours, training sessions to be for duration specified in relevant Specification Sections.

.3 Training to be completed prior to acceptance of facility.

1.7 RESPONSIBILITIES

.1 Be responsible for:

.1 Implementation of training activities,
.2 Coordination among instructors,
.3 Quality of training, training materials,

.2 Departmental Representative will evaluate training and materials.

.3 Upon completion of training, provide written report, signed by Instructors, with complete list of attendees, and witnessed by Consultant and Cx Authority.

.4 Coordination with Departmental Representative.

1.8 TRAINING CONTENT

.1 Training to include demonstrations by Instructors using the installed equipment and systems.

.2 Content includes:

.1 Review of facility and occupancy profile.
.2 Functional requirements.
.3 System philosophy, limitations of systems and emergency procedures.
.4 Review of system layout, equipment, components and controls.
.5 Equipment and system start-up, operation, monitoring, servicing, maintenance and shut-down procedures.
.6 System operating sequences, including step-by-step directions for starting up, shut-down, operation of valves, dampers, switches, adjustment of control settings and emergency procedures.
.7 Maintenance and servicing.
.8 Trouble-shooting diagnosis.
.9 Interaction among systems during integrated operation.
.10 Review of O&M documentation.

.3 Provide specialized training as specified in relevant Sections of the Specifications.

1.9 ADDITIONAL REQUIREMENTS FOR CSC SPECIFIC SYSTEMS

.1 The contractor shall provide, install and test the new security electronics equipment and verify that systems are fully functional. The new systems shall meet or exceed all of the performance and operational requirements contained in the SOW's, specifications and standards listed in the specifications.

.2 The following systems apply to the applicable CSC security systems requirements noted below:

.1 Patch Panels, Switches, Network Equipment
.2 Public Address System
.3 Cell Call
.4 Cell Door and Barrier Control
.5 Guard Tour System
.6 Intercom System
.7 Audio Recording System
.8 PLC Controls and HMI
.9 Video Surveillance

.3 Operator Training

.1 The contractor shall prepare and present a one-day training course on each system, in English and French, to two groups with five Operator/Trainers in each group, responsible for the operation of the equipment in accordance with the specification ES/SOW-0101 Statement of Work. The course shall concentrate on

the features and proper operation of the installed systems. The course shall be presented on the site within two weeks of the successful acceptance testing of the system.

.4 Maintenance Training

.1 The contractor shall prepare and present a two-day training course on each system, in English, to five persons responsible for the maintenance of the equipment. The course shall concentrate heavily on the material contained in the technical manual and site manual. The course shall be presented on the site within two weeks of the successful acceptance testing of the system.

.5 Manuals

.1 The contractor shall provide the operator and technical manuals, in PDF and hard copy format, in English and French, in accordance with the specification ES/SOW-0101 Statement of Work. The contractor shall provide ten copies of the operator manual in English, and one copy of the maintenance manual in French and to the site. The contractor shall provide 1 hard copy and 2 disk copies of the operator and maintenance manuals to the CSC Technical Authority. Maintenance manuals shall all include completed ATP forms. The contractor shall provide copies of the completed Maintenance Handover Report Form.

.6 As-Built Drawings

.1 The contractor shall provide as-built drawings of the site installation in AutoCAD 2010 format and in accordance with specification ES/SOW Statement of Work. The contractor shall provide four copies of the as-built drawings to the CSC Technical Authority.

.7 Software

.1 The contractor shall provide CD copies of any system software in accordance with specification ES/SOW-0101 Statement of Work. The contractor shall provide two copies of the software to the site, one to the CSC Technical Authority.

END OF SECTION