

**RETURN BIDS TO:
RETOURNER LES SOUMISSIONS À:**

**Bid Receiving - PWGSC / Réception des
soumissions - TPSGC**
11 Laurier St. / 11, rue Laurier
Place du Portage, Phase III
Core 0A1 / Noyau 0A1
Gatineau, Québec K1A 0S5
Bid Fax: (819) 997-9776

**REQUEST FOR PROPOSAL
DEMANDE DE PROPOSITION**

**Proposal To: Public Works and Government
Services Canada**

We hereby offer to sell to Her Majesty the Queen in right of Canada, in accordance with the terms and conditions set out herein, referred to herein or attached hereto, the goods, services, and construction listed herein and on any attached sheets at the price(s) set out therefor.

**Proposition aux: Travaux Publics et Services
Gouvernementaux Canada**

Nous offrons par la présente de vendre à Sa Majesté la Reine du chef du Canada, aux conditions énoncées ou incluses par référence dans la présente et aux annexes ci-jointes, les biens, services et construction énumérés ici sur toute feuille ci-annexée, au(x) prix indiqué(s).

Comments - Commentaires

Title - Sujet SYSTÈME D'APPEL À PARTIR DE CELLUL	
Solicitation No. - N° de l'invitation 21120-133019/A	Date 2014-03-28
Client Reference No. - N° de référence du client 21120-13-1843019	
GETS Reference No. - N° de référence de SEAG PW-\$\$HN-438-64943	
File No. - N° de dossier hn438.21120-133019	CCC No./N° CCC - FMS No./N° VME
Solicitation Closes - L'invitation prend fin at - à 02:00 PM on - le 2014-05-20	Time Zone Fuseau horaire Eastern Daylight Saving Time EDT
F.O.B. - F.A.B. Plant-Usine: <input type="checkbox"/> Destination: <input checked="" type="checkbox"/> Other-Autre: <input type="checkbox"/>	
Address Enquiries to: - Adresser toutes questions à: Tremblay, Marthe	Buyer Id - Id de l'acheteur hn438
Telephone No. - N° de téléphone (819) 956-3027 ()	FAX No. - N° de FAX () -
Destination - of Goods, Services, and Construction: Destination - des biens, services et construction: Specified Herein Précisé dans les présentes	

Instructions: See Herein

Instructions: Voir aux présentes

Vendor/Firm Name and Address

**Raison sociale et adresse du
fournisseur/de l'entrepreneur**

Issuing Office - Bureau de distribution

Electrical & Electronics Products Division
11 Laurier St./11, rue Laurier
6B1, Place du Portage, Phase III
Gatineau, Québec K1A 0S5

Delivery Required - Livraison exigée See Herein	Delivery Offered - Livraison proposée
Vendor/Firm Name and Address Raison sociale et adresse du fournisseur/de l'entrepreneur	
Telephone No. - N° de téléphone Facsimile No. - N° de télécopieur	
Name and title of person authorized to sign on behalf of Vendor/Firm (type or print) Nom et titre de la personne autorisée à signer au nom du fournisseur/ de l'entrepreneur (taper ou écrire en caractères d'imprimerie)	
Signature	Date



Destination Code - Code destinataire	Destination Address - Adresse de la destination	Invoice Code - Code bur.-comptable	Invoice Address - Adresse de facturation
D - 1	CORRECTIONAL SERVICE Canada REGIONAL PSYCHIATRIC CENTRE PO BOX 9243 2520 CENTRAL AVE SASKATOON SASK S7K 3X5 CANADA	21120	CORRECTIONAL SERVICE OF CANADA 340 LAURIER AVE W. ATT: TBD OTTAWA Ontario K1A0P9 Canada



Item Article	Description	Dest. Code Dest.	Inv. Code Fact.	Qty Qté	U. of I. U. de D.	Destination	Unit Price/Prix unitaire FOB/FAM	Plant/Usine	Delivery Req. Livraison Req.	Del. Offered Liv. offerte
1	SYST'ÈME D'APPEL À PARTIR DE CELLU L	D - 1	21120	1	Each	\$	XXXXXXXXXXXXXX		See Herein	
2	PIÈCES DE RECHANGE	D - 1	21120	1	Each	\$	XXXXXXXXXXXXXX		See Herein	

IMPORTANT NOTE TO BIDDERS:

Specifications are now available for viewing and downloading in a Portable Document Format (PDF) from the Government Electronic Tendering Service (Buy and Sell). Bidders should note that Attachment 1 (ATT 1) which consists of PDF files, contains the Statement of Technical Requirement and applicable Electronic Engineering Specifications and Standards.

It is the responsibility of the Bidders to ensure that all amendments issued through Buy and Sell prior to tender closing have been obtained and addressed in the submitted tender.

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List of Annexes:

The following annexes form part of this requirement:

Annex "A" Pricing Sheet to replace and upgrade the current Door Intercom System at the CSC Regional Psychiatric Center in Saskatoon, Saskatchewan.

Annex "B" Point Rated Technical Evaluation Criteria

SUPPLIED UNDER SEPARATE COVER (ATTACHMENT 1):

- 1) Statement of Technical Requirements (STR), Statements of Work and applicable Electronic Engineering Specifications and Standards

FORM

The following form is attached to the solicitation document:

- 1) **Institutional Access - CPIC Clearance Request, CSC/SCC 1279**
- 2) **Design Change/Deviation, PWGSC-TPSGC 9038**

PART 1 - GENERAL INFORMATION

1. Introduction

The bid solicitation and resulting contract document is divided into seven parts plus annexes as follows:

Part 1 General Information: provides a general description of the requirement;

Part 2 Bidder Instructions: provides the instructions, clauses and conditions applicable to the bid solicitation and states that the Bidder agrees to be bound by the clauses and conditions contained in all parts of the bid solicitation;

Part 3 Bid Preparation Instructions: provides bidders with instructions on how to prepare their bid;

Part 4 Evaluation Procedures and Basis of Selection: indicates how the evaluation will be conducted, the evaluation criteria that must be addressed in the bid, if applicable, and the basis of selection;

Part 5 Certifications: includes the certifications to be provided;

Part 6 Security, Financial and Other Requirements: includes specific requirements that must be addressed by bidders; and

Part 7 Resulting Contract Clauses: includes the clauses and conditions that will apply to any resulting contract.

2. Requirement

2.1 Summary

The Correctional Service of Canada (CSC) has a requirement to Purchase and Install a Door Control System & Integrated Intercom for the Regional Psychiatric Center in Saskatoon, Saskatchewan.

The CSC Regional Psychiatric Center in Saskatoon, Saskatchewan is a medium security institution. Work will have to be accomplished with minimum disruption to the daily operation and security of the institution.

The work includes the design, supply, installation, testing and provision of operational and technical training on the upgrade of the Door Control System & Integrated Intercom described in the Statement of Technical Requirements (STR).

There is a security requirement associated with this requirement. For additional information, see Part 6 -Security, Financial and Other Requirements, and Part 7 - Resulting Contract Clauses.

2.2 Delivery Requirement

Delivery is requested to be completed within **28 weeks after contract award.**

2.2.1 Delivery Offered

While delivery is requested as indicated above, the best delivery that could be offered is:_____

2.3 Contractor Contacts

Name and telephone number of the person responsible for :

General enquiries

Name: _____
 Telephone No.: _____
 Facsimile No.: _____
 E-mail address: _____

Delivery follow-up

Name: _____
 Telephone No.: _____
 Facsimile No.: _____
 E-mail address: _____

2.4 Warranty Repairs

It may be necessary for warranty repairs to be performed on site. You are requested to provide response time and location of nearest office/depot providing staff for this work. Response time shall not exceed forty-eight (48) hours. The contact person is as follows:

Response Time: _____

Name: _____

Telephone No.: _____

Facsimile No.: _____

Email/Internet Address: _____

2.5 Emergency Services/Repairs

If requested by Correctional Service Canada, the Contractor shall be required to provide on-site emergency service/repairs not covered under the warranty provision of the General Conditions 2030 during the contract period. The emergency crew shall be paid as indicated herein. The response time shall not exceed four (4) hours. The contact person is as follows:

Name: _____

Telephone No.: _____

Facsimile No.: _____

Email/Internet Address : _____

2.6 Lifetime Spares

It shall be a condition of any contract resulting here from that the Contractor undertakes to supply spare parts for the equipment proposed during the life expectancy of the equipment.

The Bidder must indicate the number of years for the life of the equipment. _____ years.

3. Debriefings

After contract award, bidders may request a debriefing on the results of the bid solicitation process. Bidders should make the request to the Contracting Authority within 15 working days of receipt of the results of the bid solicitation process. The debriefing may be in writing, by telephone or in person.

PART 2 - BIDDER INSTRUCTIONS

1. Standard Instructions, Clauses and Conditions

The 2003 (16/05/2011) Standard Instructions - Goods or Services - Competitive Requirements, are incorporated by reference into and form part of the bid solicitation.

The text under Subsection 4 of Section 01 - Code of Conduct and Certifications of 2003 referenced above is replaced by:

Bidders should provide, with their bid or promptly thereafter, a complete list of names of all individuals who are currently directors of the Bidder. If such a list has not been received by the time the evaluation of bids is completed, Canada will inform the Bidder of a time frame within which to provide the information. Failure to provide such a list within the required time frame will render the bid non-responsive. Bidders must always submit the list of directors before contract award.

Canada may, at any time, request that a Bidder provide properly completed and Signed Consent **Forms (Consent to a Criminal Record Verification form - PWGSC-TPSGC 229)** for any or all individuals named in the aforementioned list within a specified delay. Failure to provide such Consent Forms within the delay will result in the bid being declared non-responsive.

The text under Subsection 5 of Section 01 - Code of Conduct and Certifications of 2003 referenced above is replaced by:

The Bidder must diligently maintain the list up-to-date by informing Canada in writing of any change occurring during the validity period of the bid, and must also provide Canada, when requested, with the corresponding Consent Forms. The Bidder will also be required to diligently maintain the list and when requested, provide Consent Forms during the period of any contract arising from this bid solicitation.

2. Submission of Bids

Bids must be submitted only to Public Works and Government Services Canada (PWGSC) BID RECEIVING UNIT by the date, time and place indicated on page 1 of the bid solicitation.

Due to the nature of the bid solicitation, bids transmitted by facsimile to PWGSC will not be accepted.

3. Enquiries - Bid Solicitation

All enquiries must be submitted in writing to the Contracting Authority **no later than ten (10) calendar days** before the bid closing date. Enquiries received after that time may not be answered.

Bidders should reference as accurately as possible the numbered item of the bid solicitation to which the enquiry relates. Care should be taken by bidders to explain each question in sufficient detail in order to enable Canada to provide an accurate answer. Technical enquiries that are of a "proprietary" nature must be clearly marked "proprietary" at each relevant item. Items identified as proprietary will be treated as such except where Canada determines that the enquiry is not of a proprietary nature.

Canada may edit the questions or may request that the Bidder do so, so that the proprietary nature of the question is eliminated, and the enquiry can be answered with copies to all bidders. Enquiries not submitted in a form that can be distributed to all bidders may not be answered by Canada.

4. Applicable Laws

Any resulting contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in **Ontario**.

Bidders may, at their discretion, substitute the applicable laws of a Canadian province or territory of their choice without affecting the validity of their bid, by deleting the name of the Canadian province or territory specified and inserting the name of the Canadian province or territory of their choice. If no change is made, it acknowledges that the applicable laws specified are acceptable to the bidders.

5. Mandatory Site Visit

It is mandatory that the Bidder or a representative of the Bidder attend the mandatory site visit. Arrangements have been made for site the mandatory site visits to be held at the CSC Regional Psychiatric Center in Saskatoon, Saskatchewan.

Interested Bidders must meet at the the Principal Entrance at:

Regional Psychiatric Centre

**2520 Central Avenue North
PO Box 9243
Saskatoon, Saskatchewan
S7K 3X5**

Tel: (306) 975-5400

Fax: (306) 975-6024

April 23, 2014 at 10:00 a.m. Local Time

- Bidders will be required to sign an attendance form at each site visit;
- Bidders should confirm in their bids that they have attended the site visit;
- Bidders who do not attend the mandatory site visit or send a representative to the mandatory site visit will not be given an alternative appointment and their bids will be rejected as non-compliant;
- Interested Bidders must meet at the main gate 10 minutes before the start of the site visit;

The onus is on the bidders to arrive at the site visit in a timely manner. Bidders arriving late may not be permitted to attend the site visit;

The Bidder must have at least one attendee at the site visit;

It is also a mandatory condition of this requirement that all attendees have a site clearance prior to the site visits. To apply for the site clearance, the bidders **MUST** complete a CPIC Clearance Request form (preferably in typed format) and submit the **ORIGINAL** duly completed and signed form by each participant and mail to:

Marthe Tremblay
Procurement Officer
Division des produits électrique et électroniques/
Electrical & Electronics Products Division
PWGSC 7B3-HN Division
TEL:819-956-3027
FAX: 819-953-4944
Du Portage Phase III
11 Rue Laurier, Gatineau, PQ K1A 0S5
Marthe.tremblay@tpsgc.pwgsc.gc.ca

- **It is a mandatory condition that the CPIC Clearance Request be submitted for the site visits;**
- **It is requested that the CPIC Clearance Requests be received by this office no later than April 09, 2014;**
- **Site Clearance Request Forms received after April 11, 2014 may not be accepted;**
- **A site clearance obtained for work performed under similar requirements is not acceptable;**
- **Bidders are requested to clearly identify the name of the participant, the name of the company they represent, telephone number, facsimile number and e-mail address;**
- **Bidders should submit in writing to the Contracting Authority, a list of issues that they wish to table and the language they would like to address questions and answers, no later than five (5) calendar days prior to the scheduled site visit;**

Bidders are advised that any clarifications or changes resulting from the site visit shall be included as an amendment to the bid solicitation document through Buy & Sale.

As proof of attendance, the Bidder must sign the attendance form provided by the CSC representative at the site visit.

PART 3 - BID PREPARATION INSTRUCTIONS

1. Bid Preparation Instructions

Canada requests that bidders provide their bid in separately bound sections as follows:

- Section I: Technical Bid (3 hard copies)
- Section II: Management Bid (3 hard copies)
- Section III: Support Bid (3 hard copies)
- Section IV: Financial Bid (1 hard copy)

Prices must appear in the financial bid only. No prices must be indicated in any other section of the bid.

Canada requests that bidders follow the format instructions described below in the preparation of their bid:

- (a) use 8.5 x 11 inch (216 mm x 279 mm) paper;
- (b) use a numbering system that corresponds to the bid solicitation.
- (c) include the certifications as a separate section of the bid.

The Technical, Management and Support Bids should be concise and address, but not necessarily be limited to, the points that are subject to the evaluation criteria against which the bid will be evaluated. Bidders should address these evaluation criteria in sufficient depth in their bid. Simply repeating the statement contained in the solicitation document is not sufficient. Bidders should explain and demonstrate how they propose to meet the requirements and how they will carry out the Work.

In order to facilitate the evaluation of the bid, Canada requests bidders to address and present topics in the order of the evaluation criteria under the same headings. To avoid duplication, bidders may refer to different sections of their bid by identifying the specific paragraph and page number where the subject topic has already been addressed.

THE BIDDER MUST ADDRESS ON A PARAGRAPH BY PARAGRAPH BASIS THE STATEMENT OF TECHNICAL REQUIREMENTS, THE STATEMENT OF WORK AND THE ELECTRONIC ENGINEERING SPECIFICATIONS AND STANDARDS, BY INDICATING WHERE APPLICABLE "COMPLY, UNDERSTOOD, NOTED, OR NOT APPLICABLE". WHERE REQUIRED, THE BIDDER MUST PROVIDE ADDITIONAL INFORMATION.

Section I: Technical Bid

In their technical bid, bidders must demonstrate their understanding of the requirement and describe how they intend to meet the technical requirements.

THE TECHNICAL PROPOSAL MUST MEET ALL OF THE TECHNICAL REQUIREMENTS OF THE STATEMENT OF REQUIREMENT (STR) AND APPLICABLE STATEMENTS OF WORK AND ELECTRONIC ENGINEERING SPECIFICATIONS AND STANDARDS. FAILURE TO MEET THE TECHNICAL REQUIREMENTS WILL RENDER YOUR BID NON- RESPONSIVE AND NO FURTHER CONSIDERATION WILL BE GIVEN.

Section II: Management Bid

In their management bid, bidders must describe their capability and experience, the project management team and provide client contact(s).

Section III: Support Bid

In their support bid, bidders must demonstrate their understanding of the requirement and describe how they intend to meet the support requirements (operator / maintenance training, manuals, spare parts list and plan).

Section IV : Financial Bid

1.1 Bidders must submit their financial bid on **Annex "A" Pricing Sheet** in accordance with the following Basis of Pricing:

1.2 Basis of Pricing

All prices must be firm in Canadian dollars, Delivery Duty Paid (Destination), Goods and Services Tax or the Harmonized Sales Tax extra, transportation costs to destination and all applicable Custom Duties and Excise Taxes included.

1.2.1 Design and Equipment

The bidder must submit a firm lot price for the design and related equipment to replace and upgrade the current Door Intercom System at the CSC Regional Psychiatric Center in Saskatoon, Saskatchewan, excluding spare parts and test equipment.

1.2.2 Installation and Testing Costs

1 The bidder must submit a firm lot price. The price must include all costs, excluding travel and living, related to the installation and testing of the equipment.

2 Installation and Testing of Equipment for Emergency Repairs, Delays and Design Changes.

The bidder must submit a firm hourly rate for installation and testing during and outside normal working hours for each labour category required.

These hourly rates will apply for emergency repairs, delays, design changes including the options and will be in effect for the entire length of any resulting contract.

Normal working hours are Monday to Friday, 7:30 to 16:30 with exception of statutory holidays.

1.2.3 Travel and living expenses

The bidder must indicate if there are travel and living expenses associated with the installation and testing of the equipment (excluding training). Where applicable, the bidder must submit a firm lot price, the estimated number of people and the estimated number of days (excluding training).

The Contractor will be reimbursed its authorized travel and living expenses reasonably and properly incurred in the performance of the Work, at cost, without any allowance for profit and/or administrative overhead, in accordance with the meal, private vehicle and incidental expenses provided in Appendices B, C and D of the Treasury Board Travel Directive (http://www.tbs-sct.gc.ca/pubs_pol/hrpubs/TBM_113/td-dv_e.asp), and with the other provisions of the directive referring to "travellers", rather than those referring to "employees".

All travel must have the prior authorization of the Technical Authority.

1.2.4 On-site training as detailed in the STR, paragraphs 6.3.

The bidder must submit a firm lot price for on-site training session including any associated travel expenses.

1.2.5 Documentation

The bidder must submit a firm lot price for the following:

- As-built drawings as detailed in STR, paragraph 5.1.
- Operator and Maintenance Manuals as detailed in STR, paragraph 5.1.

1.2.6 Software/Integration

The bidder must submit a firm lot price for the software/integration detailed in the STR, paragraph 5.2

1.2.7 Spare parts/Test Equipment List (s)

Spare Parts and/or Test Equipment List(s) as detailed in STR, paragraph 9.2. The bidder must submit a Spare Parts and/or Test Equipment List identifying each recommended spare parts and/or test equipment required. The bidder must also submit a firm unit price for each recommended spare part required.

1.3 SACC Manual Clauses

C3011T (11/01/2010), Exchange Rate Fluctuation

PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION

1. Evaluation Procedures

(a) Bids will be assessed in accordance with the entire requirement of the bid solicitation including the technical, management, support and financial evaluation criteria specified below.

(b) An evaluation team composed of representatives of Canada will evaluate the bids.

1.1 Technical Evaluation

1.1.1 Mandatory Technical Criteria

To be declared responsive, a bid must:

- a) address on a paragraph by paragraph basis the Statement of Technical Requirements, the Statement of Work and the technical specifications, by indicating where applicable "comply, understood, noted, or not applicable". Where required, the bidder should provide additional information;
- b) comply with all of the technical requirements of the statement of requirement (STR); applicable statements of work and electronic engineering specifications and standards as well as all amendments to the bid solicitation issued prior to bid closing date;
- c) obtain the required minimum points (70%) for the technical, management and support evaluation criteria which are subject to point rating;

1.1.2 Point Rated Technical Criteria

The Technical Bid will be evaluated and rated as per Annex "B" attached.

1.2 Financial Evaluation

1.2.1 Mandatory Financial Criteria

The following **Mandatory** factors will be taken into consideration in the evaluation of each bid;

- Compliance with Basis of Pricing;
- Prices must be submitted for all items listed in the **Annex "A" - Pricing Sheet.**

Solicitation No. - N° de l'invitation

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File No. - N° du dossier

hn43821120-133019

Buyer ID - Id de l'acheteur

hn438

CCC No./N° CCC - FMS No/ N° VME

21120-13-1843019

The Aggregate Bid Price will be determined by adding the firm lot prices in ANNEX "A" including Spare Parts Item 1 to 6 (except Item 7) Spare Pars and/or Test Equipment is to be excluded in the calculation of the Aggregate Bid Price.

2. Basis of Selection

The responsive bidder with the lowest evaluated aggregate bid price will be recommended for award of a contract.

PART 5 - CERTIFICATIONS

Bidders must provide the required certifications to be awarded a contract.

The certifications provided by bidders to Canada are subject to verification by Canada at all times. Canada will declare a bid non-responsive or will declare a contractor in default, if any certification made the Bidder is found to be untrue whether during the bid evaluation period or during the contract period.

The Contracting Authority will have the right to ask for additional information to verify the Bidder's certifications. Failure to comply with this request will also render the bid non-responsive or will constitute a default under the Contract.

1. Mandatory Certifications Required Precedent to Contract Award

1. Code of Conduct Certifications - Related documentation

1.1 By submitting a bid the Bidder certifies that the Bidder and its affiliates are in compliance with the provisions as stated in Section 01 Code of Conduct and Certifications - Bid of Standard Instruction 2003. The related documentation therein required will assist Canada in confirming that the certifications are true.

1.2 Federal Contractors Program for Employment Equity - Bid Certification

By submitting a bid, the Bidder certifies that the Bidder, and any of the Bidder's members if the Bidder is a Joint Venture, is not named on the Federal Contractors Program (FCF) for employment equity ``FCF Limited Eligibility to Bid`` list (http://www.labour.gc.ca/eng/standards_equity/eq/emp/fcf/list/inelig.shtml) available from Human Resources and Skills Development Canada (HRSDC) - Labour's website.

Canada will have the right to declare a bid non-responsive if the Bidder, or any member of the Bidder if the Bidder is a Joint Venture, appears on the ``FCP Limited Eligibility to Bid``

2. Additional Certification Required with the bid

Bidder must submit the following duly completed certifications as part of their bid.

2.1 Status and Availability of Resources

The Bidder certifies that, should it be awarded a contract as a result of the bid solicitation, every individual proposed in its bid will be available to perform the Work as required by Canada's representatives and at the time specified in the bid solicitation or agreed to with Canada's representatives. If for reasons beyond its control, the Bidder is unable to provide the services of an individual named in its bid, the Bidder may propose a substitute with similar qualifications and experience. The Bidder must advise the Contracting Authority of the reason for the substitution and provide the name, qualifications and experience of the proposed replacement. For the purposes of this clause, only the following reasons will be considered as beyond the control of the Bidder: death, sickness, retirement, resignation, dismissal for cause or termination of an agreement for default.

If the Bidder has proposed any individual who is not an employee of the Bidder, the Bidder certifies that it has the permission from that individual to propose his/her services in relation to the Work to be performed and to submit his/her résumé to Canada. The Bidder must, upon request from the Contracting Authority, provide a written confirmation, signed by the individual, of the permission given to the Bidder and of his/her availability. Failure to comply with the request may result in the bid being declared non-responsive.

Signature

Date

PART 6 - SECURITY, FINANCIAL AND OTHER REQUIREMENTS

1. Security Requirement

A site clearance is required prior to the site visit and prior to admittance to the institution. For additional information, see Part 2, Article 5 - Mandatory Site visit and Part 7, article 3, Security Requirement.

2. Financial Capability

1. Financial Capability Requirement: The Bidder must have the financial capability to fulfill this requirement. To determine the Bidder's financial capability, the Contracting Authority may, by written notice to the Bidder, require the submission of some or all of the financial information detailed below during the evaluation of bids. The Bidder must provide the following information to the Contracting Authority within fifteen (15) working days of the request or as specified by the Contracting Authority in the notice:
 - (a) Audited financial statements, if available, or the unaudited financial statements (prepared by the Bidder's outside accounting firm, if available, or prepared in-house if no external statements have been prepared) for the Bidder's last three fiscal years, or for the years that the Bidder has been in business if this is less than three years (including, as a minimum, the Balance Sheet, the Statement of Retained Earnings, the Income Statement and any notes to the statements).
 - (b) If the date of the financial statements in (a) above is more than five months before the date of the request for information by the Contracting Authority, the Bidder must also provide, unless this is prohibited by legislation for public companies, the last quarterly financial statements (consisting of a Balance Sheet and a year-to-date Income Statement), as of two months before the date on which the Contracting Authority requests this information.
 - (c) If the Bidder has not been in business for at least one full fiscal year, the following must be provided:
 - (i) the opening Balance Sheet on commencement of business (in the case of a Corporation, the date of incorporation); and
 - (ii) the last quarterly financial statements (consisting of a Balance Sheet and a year-to-date Income Statement) as of two months before the date on which the Contracting Authority requests this information.

-
- (d) A certification from the Chief Financial Officer or an authorized signing officer of the Bidder that the financial information provided is complete and accurate.
- (e) A confirmation letter from all of the financial institution(s) that have provided short-term financing to the Bidder outlining the total of lines of credit granted to the Bidder and the amount of credit that remains available and not drawn upon as of one month prior to the date on which the Contracting Authority requests this information.
- (f) A detailed monthly Cash Flow Statement covering all the Bidder's activities (including the requirement) for the first two years of the requirement that is the subject of the bid solicitation, unless this is prohibited by legislation. This statement must detail the Bidder's major sources and amounts of cash and the major items of cash expenditures on a monthly basis, for all the Bidder's activities. All assumptions made should be explained as well as details of how cash shortfalls will be financed.
- (g) A detailed monthly Project Cash Flow Statement covering the first two years of the requirement that is the subject of the bid solicitation, unless this is prohibited by legislation. This statement must detail the Bidder's major sources and amounts of cash and the major items of cash expenditures, for the requirement, on a monthly basis. All assumptions made should be explained as well as details of how cash shortfalls will be financed.
2. If the Bidder is a joint venture, the financial information required by the Contracting Authority must be provided by each member of the joint venture.
3. If the Bidder is a subsidiary of another company, then any financial information in 1. (a) to (f) above required by the Contracting Authority must be provided by the ultimate parent company. Provision of parent company financial information does not satisfy the requirement for the provision of the financial information of the Bidder, and the financial capability of a parent cannot be substituted for the financial capability of the Bidder itself unless an agreement by the parent company to sign a Parental Guarantee, as drawn up by Public Works and Government Services Canada (PWGSC), is provided with the required information.
4. Financial Information Already Provided to PWGSC: The Bidder is not required to resubmit any financial information requested by the Contracting Authority that is already on file at PWGSC with the Cost and Price Analysis Group of the Policy, Risk, Integrity and Strategic Management Sector, provided that within the above-noted time frame:
- a) the Bidder identifies to the Contracting Authority in writing the specific information that is on file and the requirement for which this information was provided; and

b) the Bidder authorizes the use of the information for this requirement.

It is the Bidder's responsibility to confirm with the Contracting Authority that this information is still on file with PWGSC.

5. Other Information: Canada reserves the right to request from the Bidder any other information that Canada requires to conduct a complete financial capability assessment of the Bidder.
6. Confidentiality: If the Bidder provides the information required above to Canada in confidence while indicating that the disclosed information is confidential, then Canada will treat the information in a confidential manner as permitted by the Access to Information Act, R.S., 1985, c. A-1, Section 20(1) (b) and (c).
7. Security: In determining the Bidder's financial capability to fulfill this requirement, Canada may consider any security the Bidder is capable of providing, at the Bidder's sole expense (for example, an irrevocable letter of credit from a registered financial institution drawn in favour of Canada, a performance guarantee from a third party or some other form of security, as determined by Canada).

3. Condition of Materiel

SACC Manual clause B1000T (30/11/2007) Condition of Materiel

PART 7 - RESULTING CONTRACT CLAUSES

The following clauses and conditions apply to and form part of any contract resulting from the bid solicitation.

1. Requirement

The Contractor shall design, supply, install, test and provide operational and technical training on the upgrade of the existing **Door Control System & Integrated Intercom for Regional Psychiatric Center in Saskatoon, Saskatchewan** as described in the Statement of Technical Requirement (STR). The contractor shall provide acceptable documentation for the maintenance of this system.

Refer to Attachment #1 for Statement of Technical Requirements (STR), Statements of Work and applicable Electronic Engineering Specifications and Standards. The purpose of the STR document is to define the technical aspects for the upgrade of the existing **Door Control System & Integrated Intercom for Regional Psychiatric Center in Saskatoon, Saskatchewan.** The STR will indicate the extent to which both general and particular CSC specifications are applicable to the implementation of this requirement.

1.1 Additional Work

The Design Authority may, at any time before issuing the final acceptance notice, order work or material in addition to that provided for in the Statement of Work. The contractor shall perform the work in accordance with such orders, deletions and changes pursuant to Part 7, Article 13 - Design Change, Additional Work of New Work and on the same terms and conditions contained or referenced herein.

1.2 Option to Purchase Spare Parts/Test Equipment

- a) The Contractor hereby grants to Canada and Canada shall retain an irrevocable option exercisable at any time during the Contract to procure any or all of the spare parts and/or test equipment described in the supplier's proposal.
- b) The Contractor shall be given a minimum of "30" working days notice in writing by the Contracting Authority indicating that Canada intends to exercise the option.
- c) The option may only be exercised by the Contracting Authority, and the exercise of the option will be evidenced through a formal Contract Amendment.
- d) Price support may be requested.

2. Standard Clauses and Conditions

All clauses and conditions identified in the Contract by number, date and title are set out in the *Standard Acquisition Clauses and Conditions* (<http://ccua-sacc.tpsgc-pwgsc.gc.ca/pub/acho-eng.jsp>) Manual issued by Public Works and Government Services Canada.

2.1 General Conditions

2030, (16/05/2011), General Conditions - Higher Complexity - Goods, apply to and form part of the Contract.

2.2 Supplemental General Conditions

- 4003 (16/08/2010) Licensed Software
- 4006 (16/08/2010) Contractor to Own Intellectual Property Rights in Foreground Information

2.3 SACC Manual Clauses

SACC Reference	Section	Date
B1501C	Electrical Equipment	16/06/2006
A9068C	Site Regulations	11/01/2010
A2000C	Foreign Nationals (Canadian Contractor)	16/06/2006
A2001C	Foreign Nationals (Foreign Contractor)	16/06/2006

3. Security Requirement

3.1 Site clearance

A site clearance is required prior to admittance to the institution. The contractor must submit completed CPIC forms for all staff who will be working at the institution(s). The duly completed and signed CPIC forms must be submitted ten (10) working days prior to start-up date as stipulated in the Statement of Technical Requirement.

3.2 Classification of this document is "Not Classified".

1. NIL security screening required, no access to sensitive information or assets. Contractor personnel will be escorted in specific areas of the institution as /where required, by authorized Correctional Service Canada personnel.

2. Contractor personnel shall submit to a local verification of identity/information, by Correctional Service Canada, prior to admittance to the institution. Correctional Service Canada reserves the right to deny access to the institution, of any Contractor personnel, at any time..

4. Term of Contract

4.1 Period of Contract

The system design, the delivery of all related equipment, the completion of all installation, testing and contract related work is to be completed at the Institution on or before (*Delivery as offered and as accepted will be inserted at contract award*)

NOTE : Date of delivery will be of the essence of any resulting contract. Your attention is drawn to article 10 of General Conditions, 2030.

The Contractor must submit a final delivery and installation schedule within 10 calendar days after the contract award date.

4.2 Shipping Instructions - Delivery at Destination

1. Shipment shall be consigned to the destination specified in and delivered:

DDP Delivered Duty Paid CSC Regional Psychiatric Center in Saskatoon, Saskatchewan
Incoterms 2000 for shipments from a commercial supplier.

4.3 Inspection and Acceptance

1) Inspection

Inspection shall be carried out by the Design Authority or the authorized representative at destination.

2) Final Acceptance

a) The Contractor shall be required to present the work, for final acceptance, when such work has been designed, manufactured, delivered to site and installed and has successfully passed all tests in strict accordance with the specification and terms and conditions, and the Contractor has performed all other work and complied with all the terms and conditions of the contract.

b) Upon verification of the above, the Design Authority will by written notice to the Contractor so acknowledge, and such notice shall constitute final acceptance.

Final Inspection and acceptance will take place at destination when all goods are delivered/ services rendered, and after all deficiencies identified by the Design Authority or the authorized representative are rectified and accepted..

5. Authorities

5.1 Contracting Authority

The Contracting Authority for the Contract is:

Marthe Tremblay
 Procurement Officer
 Public Works and Government Services Canada
 Acquisitions Branch
 Logistics, Electrical, Fuel and Transportation Directorate
 "HN" Division
 7B3, Place du Portage, Phase III
 11 Laurier Street
 Gatineau, QC, K1A 0S5
 Telephone: (819) 956-3027
 Facsimile: (819) 953-4944
 E-mail address: marthe.tremblay@pwgsc-tpsgc.gc.ca

The Contracting Authority is responsible for the management of the Contract and any changes to the Contract must be authorized in writing by the Contracting Authority. The Contractor must not perform work in excess of or outside the scope of the Contract based on verbal or written requests or instructions from anybody other than the Contracting Authority.

5.2 Technical Authority (*or Design Authority*)

The Technical Authority for the Contract is:

will be inserted at contract

_____ (*Name of Technical Authority*)

_____ (*Title*)

_____ (*Fill in Organization*)

_____ (*Fill in address*)

Telephone: _____

Facsimile: _____

E-mail address: _____

The Technical Authority is the representative of the department or agency for whom the Work is being carried out under the Contract and is responsible for all matters concerning the technical content of the Work under the Contract. Technical matters may be discussed with the Technical Authority; however, the Technical Authority has no authority to authorize changes to the scope of the Work. Changes to the scope of the Work can only be made through a contract amendment issued by the Contracting Authority.

5.3 Contractor Contacts

Name and telephone number of the person responsible for :

General enquiries

Name: will be inserted at contract
 Telephone No. will be inserted at contract
 Facsimile No. will be inserted at contract
 E-mail address: will be inserted at contract

Delivery follow-up

Name: will be inserted at contract
 Telephone No. will be inserted at contract
 Facsimile No. will be inserted at contract
 E-mail address: will be inserted at contract

5.4 Warranty Repairs

The contact person for warranty repairs to be performed on site as it may be necessary is as follows:

Response Time: will be inserted at contract
 Name: will be inserted at contract
 Telephone No.: will be inserted at contract
 Facsimile No.: will be inserted at contract
 Email/Internet Address: will be inserted at contract

5.5 Emergency Services/Repairs

If requested by Correctional Service Canada, the Contractor shall be required to provide on-site emergency service/repairs not covered under the warranty provision of the General Conditions 2030 during the contract period. The emergency crew shall be paid as indicated herein. The response time shall not exceed four (4) hours. The contact person is as follows:

Name: will be inserted at contract

Telephone No.: will be inserted at contract

Facsimile No.: will be inserted at contract

Email/Internet Address: will be inserted at contract

6. Payment

6.1 Basis of Payment

The Contractor will be paid the firm lot prices for the equipment, installation and testing, travel expenses, on-site training, as-built drawings and manuals for the existing **Door Control System & Integrated Intercom for Regional Psychiatric Center in Saskatoon, Saskatchewan.** as specified in the Contract. Customs duties are included and Goods and Services Tax or Harmonized Sales Tax is extra, if applicable.

The Contractor will be paid a firm hourly rate for each labor category specified for the installation and testing for normal and outside working hours associated with emergency repairs, delays, design changes and unscheduled work arisings.

Travel and living expenses for emergency repairs, delays and design changes during the performance of the contract will be paid without any allowance for overhead or profit. These costs will be reimbursed in accordance with Treasury Board directives in effect at time of travel. The payments are subject to Government Audit. All travel must receive prior authorization from the Project Authority.

6.2 Limitation of Price

Canada will not pay the Contractor for any design changes, modifications or interpretations of the Work unless they have been approved, in writing, by the Contracting Authority before their incorporation into the Work.

6.3 Insurance

The Contractor is responsible for deciding if insurance coverage is necessary to fulfill its obligation under the Contract and to ensure compliance with any applicable law. Any insurance acquired or maintained by the Contractor is at its own expense and for its own benefit and protection. It does not release the Contractor from or reduce its liability under the Contract.

6.4 Method of payment

6.4.1 Milestone Payments

1. Canada will make milestone payments in accordance with the Schedule of Milestones detailed in the Contract and the payment provisions of the Contract, up to 90 percent of the amount claimed and approved by Canada if:

- (a) an accurate and complete claim for payment using form PWGSC-TPSGC 1111 (<http://www.tpsgc-pwgsc.gc.ca/app-acq/forms/documents/1111.pdf>) and any other document required by the Contract have been submitted in accordance with the invoicing instructions provided in the Contract;
- (b) the total amount for all milestone payments paid by Canada does not exceed 90 percent of the total amount to be paid under the Contract;
- (c) all the certificates appearing on form PWGSC-TPSGC 1111 have been signed by the respective authorized representatives;
- (d) all work associated with the milestone and as applicable any deliverable required have been completed and accepted by Canada.

2. The balance of the amount payable will be paid in accordance with the payment provisions of the Contract upon completion and delivery of all Work required under the Contract if the Work has been accepted by Canada and a final claim for the payment is submitted.

6.4.2 Schedule of Milestones

The schedule of milestones for which payments will be made in accordance with the Contract is as follows:

- **1st milestone: design of the system (less 10% holdback); not to exceed 10% of the Total Price;**
- **2nd milestone: completion of 50% of installation, including travel and living expenses (less 10% holdback); not to exceed 25% of the Total Price;**
- **3rd milestone: delivery of equipment (less 10% holdback); not to exceed 20% of the Total Price);**
- **4th milestone: installation completion, software / integration and testing, including travel and living expenses (less 10% holdback); not to exceed 40% of the Total Price;**
- **5th milestone: on-site training and documentation (less 10% holdback); not to exceed 5% of the Total Price;**
- **6th milestone: holdbacks**

Payment will be made in accordance with the standard payment and interest policies.

6.5 Method of Payment - [Emergency repairs, delays and design changes payments]

6.5.1 Single Payment

Canada will pay the Contractor upon completion and delivery of the Work in accordance with the payment provisions of the Contract if:

- a) an accurate and complete invoice and any other documents required by the Contract have been submitted in accordance with the invoicing instructions provided in the Contract;
- b) all such documents have been verified by Canada;
- c) the Work delivered has been accepted by Canada.

6.5.2 Travel and living Expenses

The Contractor will be reimbursed its authorized travel and living expenses reasonably and properly incurred in the performance of the Work, at cost, without any allowance for profit and/or administrative overhead, in accordance with the meal, private vehicle and incidental expenses provided in Appendices B, C and D of the Treasury Board Travel Directive (http://www.tbs-sct.gc.ca/pubs_pol/hrpubs/TBM_113/td-dv_e.asp), and with the other provisions of the directive referring to "travellers", rather than those referring to "employees".

All travel must have the prior authorization of the Technical Authority.

All payments are subject to government audit.

7. Invoicing Instructions

7.1.1 Invoicing Instructions - Progress Claim

1. The Contractor must submit a claim for payment using form PWGSC-TPSGC 1111 (<http://www.tpsgc-pwgsc.gc.ca/app-acq/forms/formulaires-forms-eng.html>).

Each claim must show:

- (a) all information required on form PWGSC-TPSGC 1111;
- (b) all applicable information detailed under the section entitled "Invoice Submission" of the general conditions;
- (c) the description and value of the milestone claimed as detailed in the Contract.

2. Goods and Services Tax or Harmonized Sales Tax (GST/HST), as applicable, must be calculated on the total amount of the claim before the holdback is applied. At the time the holdback is claimed, there will be no GST/HST payable as it was claimed and payable under the previous claims for progress payments.

3. The Contractor must prepare and certify one original and two (2) copies of the claim on form PWGSC-TPSGC 1111, and forward it to the Technical Authority identified under the section entitled "Authorities" of the Contract for appropriate certification after inspection and acceptance of the Work takes place.

The Technical Authority will then forward the original and two (2) copies of the claim to the Contracting Authority for certification and onward submission to the Payment Office for the remaining certification and payment action.

4. The Contractor must not submit claims until all work identified in the claim is completed.

7.1.2 Invoicing Instructions - Emergency repairs, delays and design changes payments

1. The Contractor must submit invoices in accordance with the section entitled "Invoice Submission" of the general conditions. Invoices cannot be submitted until all work identified in the claim is completed.

2. Claims must be distributed as follows:

- (a) The original and two (2) copies must be forwarded to the following address for certification and payment:

Correctional Service Canada
340 Laurier Avenue West
Ottawa, Ontario
K1A 0P9
Attention: _____

- (b) One (1) copy must be forwarded to the Contracting Authority identified under the section entitled "Authorities" of the Contract.

Marthe Tremblay
Procurement Officer
Public Works and Government Services Canada
Acquisitions Branch
Logistics, Electrical, Fuel and Transportation Directorate
"HN" Division
7B3, Place du Portage, Phase III
11 Laurier Street
Gatineau, QC, K1A 0S5
Telephone: (819) 956-3027
Facsimile: (819) 953-4944
E-mail address: marthe.tremblay@pwgsc-tpsgc.gc.ca

8. Certifications

Compliance with the certifications provided by the Contractor in its bid is a condition of the Contract and subject to verification by Canada during the entire contract period. If the Contractor does not comply with any certification or it is determined that any certification made by the Contractor in its bid is untrue, whether made knowingly or unknowingly, Canada has the right, pursuant to the default provision of the Contract, to terminate the Contract for default.

9. Applicable Laws

The Contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in **Ontario**.

10. Meetings

A meeting may be convened after contract award at a location to be determined by the Contracting Authority to review contractual and technical requirements. The Contractor will be responsible for the preparation and distribution of the minutes of meeting. The meeting will be held with representatives of the Contractor, the Department of Public Works and Government Services and Correctional Service Canada.

11. Contractor's Facilities

The Contracting Authority and the Design Authority, or their delegated representative shall be afforded access to the Contractor's plant and all other premises where pertinent processes are being performed.

12. Delay by Canada

In the event that an installation crew proceeds to the site but is unable to perform the work due to an inmate disturbance or other delays caused by Canada at the site, the Contractor shall immediately notify the Design Authority. The cost of holding the installation crew on standby shall be paid as indicated herein. In no event shall a crew remain on standby for more than four (4) hours per day without prior authorization.

13. Procedures for Design Change or Additional Work

The Contractor must follow these procedures for any proposed design change/deviation to contract specifications.

The Contractor must complete Part 1 of form PWGSC-TPSGC 9038, Design Change/Deviation, and forward one (1) copy to the Technical Authority and one (1) copy to the Contracting Authority.

The Contractor will be authorized to proceed upon receipt of the design change/deviation form signed by the Contracting Authority. A contract amendment will be issued to incorporate the design change/deviation in the Contract.

14. Priority of Documents

If there is a discrepancy between the wording of any documents that appear on the list, the wording of the document that first appears on the list has priority over the wording of any document that subsequently appears on the list.

- (a) the Articles of Agreement;
- (b) Supplemental General Conditions 4003 (16/08/2010) - Licensed Software;
- (c) Supplemental General Conditions 4006 (16/08/2010) - Contractor to Own Intellectual Property Rights in Foreground Information;
- (d) General Conditions 2030 (16/08/2011) General Conditions - Higher Complexity - Goods;
- (e) Statement of Technical Requirement
- (f) Annex "A", Pricing Sheet;
- (g) the Contractor's bid dated (*will be inserted at contract*), as amended _____ (*date(s) of amendment(s) if applicable will be inserted at contract*)

15. After Sales Services

The Contractor certifies that it is capable of providing after sales service, subsequent to the warranty period, including servicing personnel and facilities during the lifetime expectancy of the equipment.

16. Lifetime Spares

It shall be a condition of any contract resulting herefrom that the Contractor undertakes to supply spare parts for the equipment proposed during the life expectancy of the equipment.

Life of the equipment: _____ years.

Should the Contractor discontinue the manufacture of the equipment being procured during the life expectancy of the equipment, it shall notify Canada sufficiently in advance to permit the purchase of spares for the remaining life of the equipment or, at the discretion of Canada, either make satisfactory arrangements with a third party to establish a continuing source of spares or provide to Canada, at no charge, a non-exclusive royalty free license to manufacture and have manufactured for its own use spare parts, and provide copies of all drawings, technical information, specifications, manufacturing instructions and patterns necessary to manufacture the spares.

17. Disclosure of Information

The Contractor shall keep confidential and shall not publish or otherwise reuse, release, disclose or make available to any third party any Background or Foreground Information concerning “**as built drawings**”, **site drawings and manuals**, except as may be necessary to carry out the work under the Contract in which case the Contractor shall impose the same obligation of confidentiality on any person to whom the information is disclosed.

18. T1204 - Information Reporting by Contractor

1. Pursuant to paragraph 221 (1)(d) of the Income Tax Act, R.S.C. 1985, c.1 (5th Supp.), payments made by departments and agencies to contractors under applicable services contracts (including contracts involving a mix of goods and services) must be reported on a T1204 Government Service Contract Payments slip.

2. To enable departments and agencies to comply with this requirement, the Contractor must provide the following information within **45 calendar days** from date of contract award:

(a) the legal name of the Contractor, i.e. the legal name associated with its business number or Social Insurance Number (SIN), as well as its address and postal code;

(b) the status of the Contractor, i.e. an individual, a sole proprietorship, a corporation, or a partnership;

(c) the business number of the Contractor if the Contractor is a corporation or a partnership and the SIN if the Contractor is an individual or a sole proprietorship. In the case of a partnership, if the partnership does not have a business number, the partner who has signed the Contract must provide its SIN;

(d) in the case of a joint venture, the business number of all parties to the joint venture who have a business number or their SIN if they do not have a business number.

3. The information must be sent to the person and address specified below. If the information includes a SIN, the information should be provided in an envelope marked "PROTECTED".

Contact: Anne Boisvenue

Address: 340 Laurier Avenue West, Ottawa, Ontario, K1A 0P9

**ANNEX "A"
PRICING SHEET**

**REPLACE AND UPGRADE THE EXISTING
DOOR INTERCOM SYSTEM AT THE
REGIONAL PSYCHIATRIC CENTER IN SASKATOON, SASKATCHEWAN**

All prices must be firm in Canadian dollars, Delivered Duty Paid (**CSC Regional Psychiatric Center in Saskatoon, Saskatchewan**, Goods and Services Tax or the Harmonized Sales Tax extra, transportation costs to destination and all applicable Custom Duties and Excise Taxes included.

1. DESIGN AND EQUIPMENT

Firm Lot Price for the design and all related equipment, excluding spare parts.

DESIGN - FIRM LOT PRICE \$ _____

EQUIPMENT - FIRM LOT PRICE \$ _____

2. INSTALLATION AND TESTING COSTS

2.1 The price must include all costs excluding travel and living expenses, related to the installation and testing of the equipment.

INSTALLATION - FIRM LOT PRICE \$ _____

TESTING COST - FIRM LOT PRICE \$ _____

2.2 INSTALLATION AND TESTING OF EQUIPMENT (FIRM HOURLY RATES)

The following outlined labour rates will apply for emergency repairs, delays and design changes.

Labour Categories	Hourly Rate During	Hourly Rate Outside
_____	\$ _____	\$ _____
_____	\$ _____	\$ _____
_____	\$ _____	\$ _____
_____	\$ _____	\$ _____

The bidder must submit a firm hourly rate for installation and testing during and outside normal working hours for each labour category required.

3. ON-SITE TRAINING

Firm Lot Price including travel and living expenses as per STR paragraphs **6.3** .

FIRM LOT PRICE \$ _____

4. DOCUMENTATION

5. AS-BUILT DRAWINGS

Firm lot price for As-Built drawings as per STR, paragraph **5.1**.

FIRM LOT PRICE \$ _____

5.1 OPERATOR AND MAINTENANCE MANUALS

Firm lot price for all operator and maintenance manual documentation packages as per STR, paragraph **5.1**.

FIRM LOT PRICE \$ _____

5.2 SOFTWARE/INTEGRATION

Firm Lot Price the software/integration as indicated in the STR, paragraph **5.2**.

FIRM LOT PRICE \$ _____

TOTAL BID PRICE \$ _____

OPTION
6. TRAVEL AND LIVING EXPENSES ASSOCIATED WITH THE INSTALLATION AND TESTING OF THE EQUIPMENT

INSTITUTION	ESTIMATED COST
<u>Regional Psychiatric Center in Saskatoon, Saskatchewan</u> Travel required ___yes ___no Estimated Number of Individuals ____ Estimated Number of Days _____	\$ _____

The Contractor will be reimbursed its authorized travel and living expenses reasonably and properly incurred in the performance of the Work, at cost, without any allowance for profit and/or administrative overhead, in accordance with the meal, private vehicle and incidental expenses provided in Appendices B, C and D of the Treasury Board Travel Directive (http://www.tbs-sct.gc.ca/pubs_pol/hrpubs/TBM_113/td-dv_e.asp), and with the other provisions of the directive referring to "travellers", rather than those referring to "employees".

All travel must have the prior authorization of the Technical Authority.

7. OPTIONAL SPARE PARTS AND/OR TEST EQUIPMENT

The bidder must submit a spare parts and/or test equipment list identifying each recommended spare parts and/or test equipment required. The bidder must also submit a firm unit price for each recommended spare parts required as per STR, 6.6.

FIRM LOT PRICE \$ _____

ANNEX "B"
POINT RATED TECHNICAL EVALUATION CRITERIA

1. Point Rated Technical Proposal Criteria

The Bidder must obtain an overall pass score of 70 percent of the Technical Proposal. The rating is performed on a scale of 100 points. The Technical Proposal should include, but not be limited to:

Point Rated Technical Proposal Criteria	Maximum Points
<p>1. Understanding of the Technical Requirements (Max 30 Points)</p> <p>The bidder should demonstrate their understanding of the technical requirements of the system which could include preliminary drawings, diagrams, photographs and sketches showing system architecture, equipment configuration, and technical information/literature/brochure on products offered.</p> <p>(0 Points) Has not demonstrated that the Bidder understands the requirements. The Bidder has misjudged the scope of the work required. We are left with many questions. The proposal is vague.</p> <p>(10 Points) The proposal indicates that the Bidder generally understands the main concept of what is required but there are some questions that arise.</p> <p>(20 Points) The proposal indicates that the Bidder understands the main concept of what is required. The Bidder's solution meets the operability requirements, environmental requirements, reliability and maintainability requirements, and the testing and validation requirements.</p> <p>(30 Points) It is very clear that the Bidder understands exactly what is required and the proposed solution exceeds the requirement in some areas.</p>	<p>30</p>

<p>2. Compliance with the Statement of Technical Requirements (STR) (Max 40 points)</p> <p>Paragraph by paragraph compliance the Statement of Technical Requirements (STR), Statements of Work (SOW), Specifications and Standards of how each requirement will be met.</p> <p>(0 Points) Has not demonstrated that the Bidder complies with the requirements. The Bidder has misjudged the scope of the work required. The proposal is vague.</p> <p>(15 Points) The proposal indicates that the Bidder generally complies with the requirements but there are some questions that arise.</p> <p>(30 Points) The proposal indicates that the Bidder complies with the requirements. The Bidder's solution meets the operability requirements, reliability and maintainability requirements, and the testing requirements.</p> <p>(40 Points) It is very clear that the Bidder complies exactly what is required and the proposed solution exceeds the requirement in some areas.</p>	40
<p>3. Quality Assurance and Acceptance Test Plan (Max 20 Points)</p> <p>Description of the proposed quality assurance procedures/processes, and acceptance test plan(s) to ensure quality requirements are met and how the bidder intends to demonstrate to the Crown that the system functions correctly, both in the plant (Factory Acceptance Testing) and after installation (Site Acceptance Testing), a detailed list of tests to be performed with pass/fail parameters. Maximum points are broken down as follows:</p>	20

3.1 Quality Assurance (Max 10 Points)

How the Bidder intends to ensure quality requirements are met, a description of inspection, testing, and documentation procedures as well as quality metrics.

(0 Points) The scope does not address the applicable products, the quality objective, limitations and validity conditions.

(7 Points) The proposal indicates when how and by whom the quality requirements are to be reviewed results recorded/analyzed and conflicts resolved. The proposal indicates how documents and data are to be controlled. The proposal indicates relevant quality control for important purchases. The proposal indicates how the production, assembly and on-site installation processes will be controlled to ensure quality requirements are met.

(10 Points) On top of the criteria above the proposal indicates how measuring and test equipment is controlled and describes the format and test results to be provided. The proposal indicates how non-conforming products are identified and controlled to prevent misuse until proper disposal.

3.2 Acceptance Test Plan (Max 10 Points)

How the bidder intends to demonstrate to the Crown that the system functions correctly, both in the plant (Factory Acceptance Testing) and after installation (Site Acceptance Testing), a detailed list of tests to be performed with pass/fail parameters.

(0 Points) The Bidder has not addressed the requirements for testing the system.

(7 Points) The Bidder has provided test sheets and only pass/fail parameters, but has not provided specific parameters for testing the elements of the system.

<p>(10 Points) The Bidder has provided test sheets, pass/fail parameters as well as specific parameters, and has demonstrated that the system will be fully tested, both in the factory and on site.</p>	
<p>4. Technical Risk Elements (Max 10 Points)</p> <p>The Bidder should demonstrate how they intends to meet the technical requirements, by providing a description of the technical risks elements and detailing how the bidder can mitigate them.</p> <p>(0 Points) The Bidder has not identified technical risk elements or technical risk mitigation.</p> <p>(4 Points) The Bidder has identified technical risk elements but the Bidder does not provide a technical risk mitigation plan. The Bidder has a risk management process.</p> <p>(7.5 Points) The Bidder has identified technical risk elements, provided a risk mitigation plan and has a risk management process.</p> <p>(10 Points) The Bidder has a technical risk management process and has addressed project risks. Management, schedule, scope changes, cost overruns, cash flow, and resources issues are addressed. The impact of the technical risks is identified. The identified technical risks are associated with the bidder, supplier, subcontractor, customer, integration, or equipment performance. Mitigation strategies are described for the identified technical risks. Decision points are identified for any project mitigation approaches. Mitigation approaches support the requirements of the project.</p>	<p>10</p>
<p>Total Technical Proposal (maximum 100 Points)</p>	

2. Point Rated Project Management Proposal Criteria

The bidder must obtain an overall pass score of 70 percent for the Project Management Proposal. The rating is performed on a scale of 100 points. The Project Management Proposal should include, but not be limited to:

Point Rated Project Management Proposal Criteria	Maximum Points
<p>1. Previous Project Management Experience</p> <p>Identification of the bidder, project manager, project supervisor and technicians. Detailed description of the qualification and previous experience pertaining to similar projects in terms of size, tasks, clients, responsibilities etc. Maximum points are broken down as follows:</p>	<p>40</p>
<p>1.1 Experience of the bidder within the last four (4) years. (Max 10 Points)</p> <p>Each project(s) must have been completed successfully and must demonstrate the following; experience pertaining to the following:</p> <ul style="list-style-type: none"> a. similarity of project in terms of scope and/or clients; b. dollar value over \$ 100K; c. Installation; d. training; e. drawings; and f. manuals. <p>(0 Points) Bidder has experience with only three elements.</p> <p>(4 Points) Bidder has experience with only four of the elements.</p> <p>(7.5 Points) Bidder has experience with five or more of the elements.</p> <p>(10 Points) Bidder has experience with six elements.</p>	
<p>1.2 Range of experience within the last four (4) years in the design, supply, installation and integration of systems similar to those described in the Statement of Technical Requirements (STR). (Max10 Points)</p>	

(0 Points) Bidder has no experience in the design, supply, installation and integration of the systems similar to those described in the Statement of Technical Requirements (STR).

(4 Points) Bidder has experience in the design, supply, installation and integration of the systems similar to those described in the Statement of Technical Requirements (STR) for private industry or provincial government.

(7.5 Points) Bidder has experience in the design, supply, installation and integration of the systems similar to those described in the Statement of Technical Requirements (STR) for correctional services or similar organizations.

(10 Points) Bidder has experience in the design, supply, installation and integration of the systems similar to those described in the Statement of Technical Requirements (STR) for Correctional Service Canada (CSC).

1.3 Project Manager's Overall Experience (years, size of project & complexity) and Qualifications. (Max 10 Points)

(0 Points) The project manager has no experience in project management of similar projects.

(4 Points) The project manager has less than four (4) years experience in project management of similar projects and does not hold any Project Management Institute (PMI) certification.

(7.5 Points) The project manager has 4 to 10 years experience in the management of projects of equal size or complexity and the project manager holds a Project Management Institute (PMI) certification or the project manager has over 15 years of experience in the management of projects of equal size and complexity or similar scope.

(10 Points) The project manager has more than 10 years experience in the management of projects of equal size and complexity or similar scope and the project manager holds a Project Management Institute (PMI) certification, MBA or comparable credentials.

1.4 Supervisor's Overall Experience (years, size of project & complexity) and Qualifications. (Max 5 Points)

(0 Points) The supervisor has no experience as a project supervisor of similar projects.

(2 Points) The supervisor has less than four (4) years experience as a project supervisor of similar projects and does not hold any Project Management Institute (PMI) certification.

(3.5 Points) The supervisor has 4 to 10 years experience in supervising projects of equal size or complexity. The supervisor holds a Project Management Institute (PMI) certification or comparable credentials.

(5 Points) The supervisor has more than 10 years experience in supervising in projects of equal size or complexity. The supervisor holds Project Management Institute (PMI) certification or comparable credentials.

1.5 Technicians' Overall Experience (years, size of project & complexity) and Qualifications. (Max 5 Points)

(0 Points) The technicians have no experience with similar projects.

(2 Points) The technicians have less than four (4) years experience with similar projects and do not hold any Technician Diploma in any of the electrical, electro-mechanical, electronics or mechanical field.

(3.5 Points) The technicians have 4 to 10 years experience in engineering in projects of equal size or complexity. The technicians hold Technician Diploma in any of the electrical, electro-mechanical, electronics or mechanical field.

(5 Points) The technicians have more than 10 years experience in engineering in projects of equal size or complexity. The technicians hold a Technical Diploma in any of the electrical, electro-mechanical, electronics, mechanical or telecommunications field.

<p>2. Project Management Structure and Procedures</p> <p>Project management structure and procedures describing the implementation of this project. Maximum points are broken down as follows:</p>	<p>30</p>
<p>2.1 Project Management Organization and Responsibilities. (Max 10 Points)</p> <p>This refers only to management personnel and the way that the bidder plans to organize the project team for this contract.</p> <p>(0 Points) No organization in place and no plans to designate a separate project management team.</p> <p>(4 Points) No project management organization in place but has a well-developed plan in place to set up a team of trained personnel.</p> <p>(7.5 Points) There is a project management organization/structure defined with 'matrix' personnel resources that can be made available to this project. Personnel are identified for the positions of Project Manager, the Project Supervisor, technicians and electricians. Their responsibilities are defined.</p> <p>(10 Points) Project management team structure is well defined with a back-up team. Their responsibilities are defined. Personnel resources are identified and tied to specific tasks.</p>	
<p>2.2 Project Management Procedures. (Max 20 Points)</p> <p>This factor will rate the Bidders on their systems used to implement project management.</p> <p>(0 Points) The Project Management (PM) implementation is not addressed.</p> <p>(7.5 Points) The PM implementation is addressed but the bidder has not provided sufficient details to demonstrate that a PM system is in place.</p>	

(15 Points) A PM system is in place that will allow the bidder to manage the project. Bidder has supplied a detailed plan of his PM implementation.

(20 Points) A well working PM system is in place and being used successfully. The PM system closely tracks status and progress of tasks. Project management based on PERT/CM techniques. Work breakdown structure is linked to project management.

3. Schedule, Milestones and Project Management Tools

20

A project schedule of events for all deliverables with milestones and rationale of how realistic and achievable they are. Availability and usage of a Project Management specific tool and capability of supporting a secure customer facing portal that provides real time access to project specific information. Maximum points are broken down as follows:

3.1 Schedule/Milestones (Max 10 Points)

A project schedule/schedule of events for all deliverables with milestones and rationale of how realistic and achievable they are including tools for addressing project slippage.

(0 Points) No schedule is proposed or the proposal is lacking in 3 of the following areas: 1) major milestones are identified; 2) logical sequence; 3) contingency time identified; 4) time estimates are realistic.

(5 Points) The proposed schedule is lacking in no more than 2 of the following areas: 1) major milestones are identified; 2) logical sequence; 3) contingency time identified; 4) time estimates are not realistic.

(7.5 Points) The proposed schedule meets all of the following: 1) major milestones are identified; 2) logical sequence; 3) contingency time identified; 4) time estimates are realistic. The proposed schedule contains milestones, significant contract events, projected delivery dates and production schedules. The schedule is realistic and achievable, may lack of contingency time.

(10 Points) The proposed schedule meets all of the following: 1) major milestones are identified; 2) logical sequence; 3) contingency time identified; 4) time estimates are realistic. The proposed schedule contains milestones, significant contract events, projected delivery dates and production schedules. The schedule is realistic and achievable, with contingency time is built in.

3.2 Project Management Tools. (Max 10 Points)

This factor will rate the Bidder on their availability and usage of a Project Management specific tool and capability of supporting a secure customer facing portal that provides real time access to project specific information.

(0 Points) The Bidder has not identified the Project Management specific software.

(7.5 Points) The Bidder has identified the specialized PM software but does not support a secure customer facing portal that provides real time access to project specific information.

(10 Points) The Bidder has identified the specialized PM software and supports a secure customer facing portal that provides real time access to project specific information including schedules, reports and meeting minutes.

4. Project Risks (Max 10 Points)

A description of the project risks related to the proposed approach and processes for managing all project risk elements (such as resources, cost, schedule and all external elements) of the project detailing how well the Bidder understands the project risks and how they propose to mitigate them.

(0 Points) The Bidder has not identified project risks or risk mitigation.

(4 Points) The Bidder has identified project risks but the Bidder does not provide a risk mitigation plan. The Bidder has a risk management process. Project risks are identified and there is a mitigation plan for any high risk items.

10

<p>(7.5 Points) The Bidder has identified project risks and the Bidder has proposed a risk mitigation plan. The Bidder has a risk management process. Project risks are identified and there is a mitigation plan for any high risk items.</p>	
<p>(10 Points) The Bidder has a risk management process and has addressed project risks. Management, schedule, scope changes, cost overruns, cash flow, and resources issues are addressed. The impact of the risks is identified. The identified risks are associated with the bidder, subcontractor, customer, integration, or equipment performance. Mitigation strategies are described for the identified risks. Decision points are identified for any project mitigation approaches. Mitigation approaches support the requirements of the project.</p>	
<p>Total Project Management Proposal (maximum 100 Points)</p>	

Point Rated Support Proposal Criteria

The bidder must obtain an overall pass score of 70 percent for the Support Proposal. The rating is performed on a scale of 100 points. The Support Proposal should include, but not be limited to:

Point Rated Support Proposal Criteria	Maximum Points
<p>1. Operator Training Plan Outline, Training and Manuals</p> <p>An understanding of the Operator Training requirements. Description of the proposed training plan, approach, team and information to meet the Operator training requirements. Maximum points are broken down as follows:</p>	<p style="text-align: center;">45</p>
<p>1.1 Operator training plan outline. (Max 15 Points)</p> <p>(0 Points) The operator training plan outline does not meet the requirements.</p> <p>(10 Points) The operator training plan outline meets the requirements.</p> <p>(15 Points) The operator training plan outline meets and exceeds the requirements.</p>	

<p>1.2 Training approach, methodology and team. (Max 15 Points)</p> <p>(0 Points) Has not demonstrated that the Bidder understands the objective and that the Bidder has misjudged the scope of the work required. The proposal does not meet the training requirements.</p> <p>(6 Points) The proposal meets the training requirements and the training team is identified. The training approach meets the requirements.</p> <p>(12 Points) The proposal meets and exceeds the training requirements and they have a well established training team with proven processes.</p> <p>(15 Points) The proposal meets and exceeds the training requirements and they have a well established training team with proven processes and the proposal identifies different training levels and different training outlines to meet the needs of different levels of operators.</p>	
<p>1.3 Manuals. (Max 15 Points)</p> <p>(0 Points) The information does not meet the requirements.</p> <p>(10 Points) The information meets the requirements.</p> <p>(15 Points) The information meets and exceeds the requirements.</p>	
<p>Maintenance Personnel Training Outline, Training and Manuals</p> <p>An understanding of the Maintenance Training requirements. Description of te proposal training plan, approach, team and information to meet the Maintenance training requirements. Maximum points are broken down as follows:</p>	45
<p>2.1 Maintenance Training Plan outline. (Max 15 Points)</p> <p>(0 Points) The maintenance training plan outline does not meet the requirements.</p> <p>(10 Points) The maintenance training plan outline meets the requirements.</p>	

<p>(15 Points) The maintenance training plan outline meets and exceeds the requirements.</p>	
<p>2.2 Training Approach, Methodology and Team. (Max 15 Points)</p> <p>(0 Points) Has not demonstrated that the Bidder understands the objective and that the Bidder has misjudged the scope of the work required. The proposal does not meet the training requirements.</p> <p>(10 Points) The proposal meets the training requirements and the training team is identified. The training approach meets the requirements.</p> <p>(15 Points) The proposal meets and exceeds the training requirements and they have a well established training team with proven processes.</p>	
<p>2.3 Manuals (Max 15 Points)</p> <p>(0 Points) The information does not meet the requirements.</p> <p>(10 Points) The information meets the requirements.</p> <p>(15 Points) The information meets and exceeds the requirements.</p>	
<p>3. Spare Plan and Spare Parts List (Max 15 points)</p> <p>An understanding of the Spare Plan and spare parts requirements. Description of the proposed Spare Plan and Spare Parts List approach, and information to meet the Spare Plan and Spare Parts List Requirement.</p> <p>(0 Points) The spare plan and spare parts list are not provided.</p> <p>(4 Points) The spare plan and spare parts list are incomplete.</p> <p>(7.5 Points) The spare plan and spare parts list meet the requirement.</p> <p>(10 Points) The spare plan and spare parts list exceeds the requirement.</p>	<p>10</p>
<p>Total Support Proposal (maximum 100 Points)</p>	

**Correctional Service Canada
Technical Services Branch
Electronics Systems**

**Issue 1
13 Nov, 2013**

**STATEMENT
OF
TECHNICAL REQUIREMENTS**

**DOOR INTERCOM SYSTEM
REPLACEMENT AND AUGMENTATION
AT
REGIONAL PSYCHIATRIC CENTER**

AUTHORITY

This Statement of Technical Requirements is approved by the Correctional Service of Canada for the replacement and augmentation of the Public Address System at Regional Psychiatric Center in Saskatoon, SK

Prepared by:

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RTEO PRA**

Approved by:

**Marc St-Amand
Director,
Electronic Security Systems**

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Provided with STR

- Intercom System Block Diagram

ABBREVIATIONS and DEFINITIONS

AGC	Automatic Gain Control
CER	Common Equipment Room
COD	Call Origination Device
COTS	Commercial-Off-The-Shelf
CSA	Canadian Standards Association
CSC	Correctional Service of Canada
DES	Director of Engineering Services
DSP	Digital Signal Processing
GFE	Government Furnished Equipment
GPI	General Purpose Interface
LCIS	Limited Call Intercom System
MCCP	Main Communications and Control Post
MTBF	Mean Time Between Failures
MTTR	Mean Time To Repair
PA	Public Address
PC	Personal Computer
PLC	Programmable Logic Controller
PTT	Push-to-Talk
SCC	Security Control Centre
SCP	Secondary Control Panel
SOW	Statement of Work
STR	Statement of Technical Requirements
UPS	Uninterruptible Power Supply
VDU	Video Display Unit

1. INTRODUCTION

1.1. General

This Statement of Technical Requirements (STR) defines the specific requirements for an intercom system for use in the CSC Regional Psychiatric Center in Saskatoon, SK.

1.2. Function

This system is intended to replace and upgrade the current Dukane Starcall intercom system along with adding new areas not currently covered by intercom. The system will provide two-way intercom capability integrated with the Door Control systems infrastructure and presented on the existing user interface for that system as well as call ups on the camera system mirroring current configuration.

The system described in this STR is intended to replace existing equipment in the intercom system at the Institution.

1.3 Requirement

The purpose of this Statement of Technical Requirement (STR) is to define the technical aspects of the installation of the intercom system at Regional Psychiatric Center in Saskatoon.

This STR will indicate the extent to which both general and particular CSC specifications are applicable to the implementation of this requirement.

1.4 Site Visits

The Design Authority, or the authorized representative, shall coordinate the site visit, and identify to the contractors the exact locations of the speakers, interconnecting cables, amplifier and other electronic equipment.

The visit may be useful to determine:

- c. The exact location and mounting of the remote and control stations as required,
- b. Mounting location of the electronic equipment, and
- c. Conduit and cabling requirements.

2. APPLICABLE DOCUMENTS

The following Specifications, Standards and Publications of the issue in effect on the date of the Invitation to Tender form a part of this STR to the extent specified herein.

ES/SOW-0101	Statement of Work for Electronic Systems for the Correctional Service of Canada Institutions
ES/SOW-0102	Statement of Work for Quality Control for the Installation of Electronic Security Systems in Federal Correctional Institutions
EIA-310-C	Electronic Industry Association Standard for Racks, Panels and Associated Equipment
ES/SPEC-0303	Electronic Engineering Specification – Limited Call Intercom System for use in Federal Correctional Institutions
ES/SOW-0110	Statement of Work for structured cable systems for electronic security installations for the correctional service of Canada institutions

3. REQUIREMENTS

3.1. System Components

The system shall consist of the following components.

- Control Stations
- Remote Stations
- Handsets (if required)
- Pre-announce and other tone generators as required
- Amplifiers as required
- Cable and interconnection hardware
- Other miscellaneous items as described in the STR
- Any other items that may be required to provide a complete and functional system capable of meeting the intent of this STR.

3.2. Intercom Stations

The system will incorporate two control stations and numerous remote stations. The intercom remote station locations are replacing existing units in most cases. There will be added locations and capability for the front entrance and sally-port. Locations are identified on system drawings.

3.3. System Components

3.3.1. Control stations

The Control Stations will be located in two locations

- Main Control Post
- Front Entrance

The door intercom system must be integrated with the touch screen door control system in such a fashion that the map display indicates which door intercom has been activated. Software changes must be programmed to integrate the intercom in the following manner:

1. When the user selects a door on the existing touch screen map display a pre-announce tone will annunciate over the selected door/remote station and control station speakers. This will enable two-way communication to the door/remote station selected via a PTT on the master station and call up the assigned camera on the CCTV monitor.
2. The remote stations must utilize full-duplex hands free communication to the control station when activated. To activate a remote station, a user will depress a call button on the remote station panel and a pre-announce tone must sound over the remote station and master station speakers. The tone must continue to alert in 3 second intervals until the call is answered or acknowledged by the master station. Calls can be acknowledged by the master station without having to be answered.
3. For doors with an intercom panel on either side of the door, an individual selection button must be integrated on the DCS touch screen

The microphone paging signals from the CONTROL STATION's shall be controlled by AGC systems to provide consistent and adequate audio levels.

3.3.2. Remote Stations

The remote stations must be located throughout the institution with approximate locations as indicated on map.

The remote stations shall consist of Vandal Resistant Stainless steel faceplate with speaker and call switch as required for mounting on new or existing back boxes:

- Loudspeaker and call switch
- Stainless steel faceplate with speaker as required for mounting on new or existing back boxes.
- Outdoor units will be designed for all-weather operation
- The remote stations will utilize existing wiring consisting of a twisted pair

3.3.3. Wire, Cable, Conduit, Ducts

Existing wiring and conduits can be reused wherever feasible. Some areas may require new wiring. Any new wiring and required conduits to speakers, amplifiers and control locations will be supplied by the contractor.

The contractor must connect this equipment to the existing AC supply of the institution. Controllers and Displays must be connected to existing UPS supplied Power.

It is essential that all wiring be installed in a manner that facilitates quick and simple troubleshooting should any wiring be suspect. A cable termination system and demarcation at building entrances shall be employed.

3.4. Specific Location Requirements

The following sections itemize the work that is required in specific areas of the Regional Psychiatric Center. Note that this list is provided as a reference only and is not intended to be an all-inclusive list of tasks.

3.4.1. Door Intercom Remote Stations

Remote stations will be required to be replaced on all internal/external doors that currently utilize one. The door intercom system currently has 20 remote stations, including the living unit entrances. In addition, two remote stations will be added and wiring run to the front entrance and sally port areas.

3.4.2. Wiring

The existing 2 twisted pair system wiring will be reused wherever feasible. New wiring may be required in some locations

3.4.3. Other

- Install wiring and new conduit as required for system.
- Supply and install new intercom control systems as required.

3.5. Functional Operation

3.5.1. Master Control Station

Two identical Control stations integrated with the GUI door control system shall be provided. The central control system must be configured in such a manner to permit both control stations to be active at any time; however the control station located in the MCCP shall have priority in the event that both control stations attempt simultaneous call to the same station. The control station located in the front entrance is a new addition and will have access to the sally-port and front entry remote stations only.

Each control station will be equipped with a handset or gooseneck microphone and a station mounted microphone/speaker for hands-free operation.

The control station shall be capable of maintaining a queue of incoming calls and allow the operator to answer these calls in any order. The control station shall provide the operator with the ability to page and/or monitor specific locations. An incoming call shall generate an audible tone to alert the operator. It shall be possible to clear a call from the queue without answering the call. The CONTROL STATION will show the origin of calls in the queue by indicating door number and side (if applicable). Camera switching shall be integrated in such a manner that selection of a door number (incoming or outgoing) triggers the camera view(s) to coincide with the station being selected.

The current video display and recording deployed at RPC utilizes a Genetec Omnicast video solution with Pivot 3 archiving.

3.5.2. Remote Stations

The REMOTE STATION's will be a standard outdoor Half duplex intercom unit with call-switch, all-weather stainless steel enclosure and active LED. When REMOTE STATION is inactive, the LED will remain off. When the REMOTE STATION button is pressed, the LED indicator will flash until call is answered by the CONTROL STATION at which time the LED will turn on solid. Anytime a CONTROL STATION accesses an individual REMOTE STATION, an announce tone will come over the REMOTE STATION being accessed and the LED will flash and then go solid.

In order to place a call, the user is required to push the button on the REMOTE STATION. This will activate a tone and door number/side on the CONTROL STATION master station. The system will place the call in a queue if the master station is busy.

Existing REMOTE STATION locations are as follows:

- 101 – Main Entrance
- 102 – Assiniboine Unit
- 103 – Churchill Unit
- 104 – Mackenzie Unit
- 105 – Clearwater Unit
- 106 – Aboriginal Programs
- 107 – Main Control
- 108 – Administration

- 109 – Gymnasium
- 110 – Bow Unit
- 111 – SE Riot Gate (Assiniboine)
- 112 – N Riot Gate (Kitchen)
- 113 – South Corridor
- 114 – West Corridor
- 115 – NW Corridor
- 116 – North Corridor
- 132 – East Corridor
- 117 – Spare Door 1
- 118 – Spare Door 2
- 119 – Spare Gate 1

Additional REMOTE STATION's Required:

- Sally Port
- Front Entrance

3.6. Other System Functions

3.6.1. Activity Log

The system shall generate a comprehensive event activity log that will permit subsequent analysis of requests and events through a Report Generation User Interface.

3.7. System Capacity

The central system shall include future capacity for at least two additional CONTROL STATION's and fifty remote stations.

It shall be possible to add CONTROL STATION's without making substantial changes to the balance of the system.

3.8. Environmental Conditions

3.8.1. Equipment Operating Environment

The system shall operate under environmental conditions as specified by the Environmental Conditions of ES/SOW-0102. The electronic equipment will be located in an indoor environment.

4. QUALITY ASSURANCE

4.1. General

The contractor shall conduct a quality assurance plan that shall include the complete test results of in-plant and on-site tests.

All on-site installation and testing shall be in accordance with CSC document ES/SOW-0102.

4.2. Availability

The contractor shall include an availability model as a part of his proposal as specified by CSC document ES/SOW-0101.

4.3. Reliability

The proposal of the contractor shall include expected MTBF and MTTR figures for all system components. Industrial grade electronic components shall be used exclusively throughout the system. Wherever possible, COTS equipment is to be used.

Wherever possible, the failure of a single component shall not result in the failure of the entire system. The contractor shall address possible failure modes and system fault tolerance in his proposal. MTTR shall be provided for any single-point failure modes.

5. PREPARATION FOR DELIVERY

5.1. Manuals and Drawings

The contractor shall provide at least four sets of complete documentation including 4 CD's, which shall include operation manuals, service manuals, and as-built documentation for the system in English; including drawings in AutoCAD 2010 and PDF format. This documentation shall be in accordance with CSC document ES/SOW-0101.

5.2. Software Documentation

The contractor shall outline in his proposal specifically what software is to be used and what documentation will be provided with the system.

The contractor shall supply operation manuals documenting all supplied software. The supplier must indicate whether any site-specific source code will be supplied. It is deemed advantageous to supply source code in order to facilitate future revisions by Correctional Service of Canada personnel and subsequent contractors.

Systems that operate on open software systems (non-proprietary) are preferred.

6. OTHER

6.1. Existing Conditions

There is an existing intercom system in use at the institution. The new system mirrors the functionality of the existing system. The new system also expands functionality to include intercom capability at the Front entrance vestibule and sally-port area.

6.2. Continuity of Use

To the greatest extent possible, the cutover from the old system to the new system should result in minimal disruption to the institution. The contractor shall discuss a cutover plan in his proposal.

6.3. Training

The contractor shall provide operator and technical training in accordance with CSC document ES/SOW-0101. The training plan shall be included with the proposal.

6.4. Custom Equipment

To the maximum extent possible, it is preferred that systems consist or readily available off-the-shelf equipment. Custom assemblies and software shall be used only when such off-the-shelf equipment or software does not exist.

To the maximum extent possible, it is preferred that system configuration and changes be executed by means of software changes, not changes in hardware.

It is expected that manufacturers of major components of the system have a network of national distribution with local supply and service available in larger cities across Canada.

All equipment including any custom assemblies will require CSA approval as per CSC document ES/SOW-0102.

6.5. System Reliability and Redundancy

Wherever possible, the failure of a single component shall not result in the failure of the entire system. The contractor shall address possible failure modes and system fault tolerance in his proposal. MTTR shall be provided for any single-point failure modes.

6.6. Sparing Plan

The contractor shall include an itemized list of recommended spare parts and/or test equipment with his proposal. This list shall include current unit costs.

6.7. Existing Equipment Integration

It will be necessary to physically integrate this equipment with other equipment in some cases. This shall be accomplished in accordance with accepted human engineering principles.

6.8. Existing Equipment Removal

It is the responsibility of the contractor to remove from service any equipment that is being decommissioned as a result of this Intercom System upgrade. Equipment will be turned over to the local CSC Design Authority or other designated authority.

The contractor shall pull out and dispose of all of the wiring rendered redundant, as a result of an advanced design, off site in an environmentally friendly way.



Design Change/Deviation Modification/Écart par rapport au modèle

Project No. - N° de projet	File No. - N° de dossier	Contract No. - N° de contrat
Customer Department - Ministère client		Design Change Serial No. N° de série de la modification
Contractor - Entrepreneur		<input type="checkbox"/> Permanent Change Modification définitive <input type="checkbox"/> Deviation Écart

1. Description of change and Reasons - Description de la modification et motifs

Total Estimated Cost - Prix de revient total prévu	<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="border-top: 1px solid black; width: 60%; text-align: center;">Contractor's Signature - Signature de l'entrepreneur</div> <div style="border-top: 1px solid black; width: 35%; text-align: center;">Date</div> </div>
----------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

2. Customer Department - Ministère client

<div style="border-top: 1px solid black; width: 80%; margin: 0 auto;"></div> Approved - Approuvé	<div style="border-top: 1px solid black; width: 80%; margin: 0 auto;"></div> Date
--------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------

3. Total Firm Price of Change - Prix Globale de la modification

4. Change, if any, on Delivery Schedule - Modification éventuelle du calendrier de livraison

5. Aggregate Value of Design Changes - Valeur totale des modifications



**INSTITUTIONAL ACCESS
CPIC CLEARANCE REQUEST**

**ACCÈS À UN ÉTABLISSEMENT
DEMANDE DE VÉRIFICATION
DU DOSSIER AU CIPC**

PUT AWAY ON FILE – CLASSER AU DOSSIER
ADMINISTRATIVE OR OPERATIONAL FILE
DOSSIER ADMINISTRATIF OU OPÉRATIONNEL
▶ Original = 3170-12

PLEASE PRINT INFORMATION CLEARLY - VEUILLEZ ÉCRIRE EN LETTRES MOULÉES

Institution – Établissement

Request received / Demande reçue le Date (YYAA-MM-DJ)

PUT AWAY ON FILE / CLASSER AU DOSSIER ▶ 3170-12

A. PERSONAL INFORMATION – RENSEIGNEMENTS PERSONNELS

Surname / Nom de famille Full name (no nicknames or initials) / Nom au complet (pas de surnoms ou d'initiales) Maiden name (if applicable) / Nom de jeune fille (s'il y a lieu)

Date of birth / Date de naissance (YYAA-MM-DJ) Place of birth – Lieu de naissance / City/Town – Ville ou municipalité Province/State – Province ou état Country – Pays

B. PHYSICAL DESCRIPTION – DESCRIPTION PHYSIQUE

Male / Homme Female / Femme Height – Grandeur Weight – Poids Eye color – Couleur des yeux Hair color / Couleur des cheveux

C. ADDRESS – ADRESSE

Street – Rue City/Town – Ville ou municipalité Province Postal Code - Code postal Telephone number – Numéro de téléphone / Home – Domicile / Work – Bureau

Representing (name of company/organization) – Représente (nom de la compagnie ou de l'organisation)

D. GENERAL INFORMATION – RENSEIGNEMENTS GÉNÉRAUX

1. Have you ever been convicted of a criminal offence for which you have not been granted a pardon, or an offence for which you have been granted a pardon and such a pardon has been revoked? / Avez-vous déjà été reconnu coupable d'une infraction criminelle pour laquelle on ne vous a pas octroyé un pardon ou d'une infraction pour laquelle on vous a octroyé un pardon qui a été révoqué? Yes / Oui No / Non

2. Do you personally know of any person incarcerated in a correctional facility? / Connaissez-vous personnellement une personne qui est incarcérée dans un établissement correctionnel? Yes / Oui No / Non If so, provide names - Si oui, fournir son nom :

3. Do you have any reason to believe coming into contact with this person could pose a risk to your or their personal safety? / Avez-vous des raisons de croire que le fait d'entrer en contact avec cette personne pourrait présenter un risque pour votre sécurité personnelle ou la sienne? Yes / Oui No / Non

4. Are you related/associated to an inmate or on an inmate's visiting list? / Êtes-vous apparenté ou associé à un détenu ou inscrit sur la liste des visiteurs d'un détenu? Yes / Oui No / Non

If you have answered YES to any of the above, please explain below. – Si vous avez répondu OUI à une des questions ci-dessus, veuillez fournir une explication ci-après.

E. SIGNATURE (When sections A to E are filled out completely, please return the completed form to the institution for approval.)

(Une fois que les sections A à E ont été remplies, veuillez retourner le formulaire dûment rempli à l'établissement aux fins d'approbation.)

In making this application, I hereby give the Correctional Service of Canada my consent to use the information provided on this form to conduct such inquiries with police authorities as may be necessary to ascertain my suitability. Finally, I acknowledge that the Correctional Service of Canada has no responsibility for any harm that may come to me in the course of my activities, except where such harm is a direct result of negligence on the part of an employee(s) of the Service.

En soumettant la présente demande, j'autorise le Service correctionnel du Canada à se servir des renseignements fournis dans le formulaire afin de mener, auprès des services de police, toute enquête jugée nécessaire pour vérifier mon admissibilité. Par ailleurs, je conviens que le Service correctionnel du Canada ne peut être tenu responsable d'un préjudice subi dans le cadre de mes activités sauf si ce préjudice est directement attribuable à la négligence d'un ou de plusieurs employés du Service.

NOTE: Access may be denied for submitting false information. Passes may be issued for those receiving clearance and approval.

NOTA : Tout demandeur qui fournit de faux renseignements peut se voir refuser l'accès à l'établissement. Un laissez-passe peut être émis aux demandeurs dont la demande d'accès est approuvée.

Applicant's signature – Signature du demandeur Date (YYAA-MM-DJ)

F. FOR OFFICE USE ONLY – RÉSERVÉ AU SCC

Reason for clearance – Motif justifiant la demande d'accès

Department making the request (please print) / Unité qui soumet la demande (en lettres mouluées s.v.p.) Signature of Division Head / Signature du chef de la division Date (YYAA-MM-DJ)

No criminal record / Aucun casier judiciaire A possible criminal record #: / Numéro du casier judiciaire possible : Last entry: / Dernière entrée :

An outstanding warrant/charge held by: / Auteur du mandat non exécuté/accusation en instance :

SIGNATURES

Approved / Approuvée Not approved / Non approuvée The individual has been advised. – Le demandeur a été informé de la décision. Yes / Oui No / Non By: / Par :

Security Intelligence Officer / Agent de renseignements de sécurité Date (YYAA-MM-DJ) Institutional Head / Directeur de l'établissement Date (YYAA-MM-DJ) Visit Review Board / Comité des visites Date (YYAA-MM-DJ)

**Correctional Service Canada
Technical Services Branch
Electronics Systems**

**ES/SPEC-0303
Revision 2
29 April 2002**

**ELECTRONICS ENGINEERING
SPECIFICATION**

**LIMITED CALL INTERCOM SYSTEM
FOR USE IN
FEDERAL CORRECTIONAL INSTITUTIONS**

AUTHORITY

This Specification is approved by the Correctional Service of Canada for the procurement and Installation of a Perimeter Intrusion Detection System (PIDS) in Canadian federal correctional institutions.

Recommended corrections, additions or deletions should be addressed to the Design Authority at the following address: Director, Engineering Services, Correctional Service of Canada, 340 Laurier Avenue West, Ottawa, Ontario, K1A 0P9

Prepared by:

**Manager,
Electronics Systems Research**

Approved by:

**Director,
Engineering Services**

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ABBREVIATIONS

The following abbreviations are used in this specification:

CER	Common Equipment Room
COTS	Commercial-Off-The- Shelf
CSA	Canadian Standards Association
CSC	Correctional Service Canada
DES	Director Engineering Services
EIA	Electronic Industries Association
GFE	Government Furnished Equipment
LCIS	Limited Call Intercom System
MCCP	Main Communications and Control Post
PTT	Push-to-Talk
RFP	Request for Proposal
SOW	Statement of Work
TES	Terminal Equipment Space

DEFINITIONS

The following definitions are used in this specification:

Design Authority	Director, Engineering Services (DES) - Correctional Service Canada (CSC) is responsible for all technical aspects of the system design and implementation.
Contract Authority	Public Works and Government Services Canada (PW&GSC) is responsible for all contractual matters associated with the system design and implementation.
Contractor	The company selected as the successful bidder.
Project Officer	A CSC employee or a contracted person designated by DES to be responsible for the implementation of the project.
Off-the-shelf	Equipment currently on the market with available field reliability data, manuals, engineering drawings and parts price list.
Custom Equipment	Equipment designed and/or manufactured specifically for a specific contract.

1.0 INTRODUCTION

1.1 General

This specification defines the essential technical and functional requirements of the Correctional Service Canada (CSC) for the procurement and installation of a Limited Call Intercom System (LCIS) for federal correctional institutions.

1.2 Purpose

The purpose of the LCIS is to provide a means of two-way (half-duplex) voice communication between an attendant at a master control station and another staff member at a remote station.

The primary use of the system is to enable staff in remote locations to pass queries or status reports to a master control station. The attendant at the control panel can then use the system to further communicate with the specific remote location if required.

The LCIS described herein would be applicable to new institutions to be constructed. It could also be retrofitted into existing institutions whenever it becomes necessary to add a Limited Call Intercom capability or replace existing obsolete equipment.

1.3 Commercial-Off-The-Self Equipment

The LCIS shall use commercial off-the-shelf (COTS) equipment and proven designs to the maximum extent possible. All new equipment shall meet the specified lifespan requirements. New equipment designs shall be restricted to unique interfaces and common control console.

1.4 Technical Acceptability

The Correctional Service Canada (CSC) operational environment is unique for its diversity of locations, climate exposures and the physical restrictive construction techniques of penal institutions. Maintaining national security, the safety of staff and offenders alike is CSC's commitment to the government and public. Electronic security systems operating in this unique environment shall maintain very high standards of dependability and reliability.

The CSC Engineering Services Division has established technical specifications and equipment standards for specific electronic security systems which are based on very specific and restrictive operational performance criteria as detailed in its Electronic Engineering Standard. Technical acceptability of these systems means that the equipment complies with the pertinent CSC specifications and standards.

The technical acceptance process shall involve system and subsystem evaluation in accordance with the applicable CSC specifications in one of CSC facilities. CSC may when it deems necessary,

request the supplier to arrange for a full site demonstration. CSC shall verify in depth any of the system technical specifications called up. CSC may rely on manufacturer's test results for specific areas of the specification where an independent test facility has conducted the test, and the facility is deemed acceptable to CSC.

It is the supplier's responsibility to make new developments in products available to CSC for evaluation. Equipment qualification is an ongoing process and can be initiated at any time by a vendor. Any vendor can have access to the CSC specifications and standards. Any new development or products should be submitted to the CSC Engineering Services Division, Technical Authority in a suitable time frame prior to any tendering process to allow for an acceptable evaluation period. The evaluation period may take up to sixteen (16) months.

1.5 Equipment Procurement

Any ordering of equipment/material before the approval of the LCIS system design report will be undertaken at the contractor's own risk. The Design Authority may authorize the procurement of certain long lead items at, or shortly after a preliminary design review of the proposed system.

1.6 Quantity of Equipment

The quantity and location of the LCIS equipment required for CSC institutions will be contained in the specification identified in the Request for Proposal (RFP).

2.0 **APPLICABLE DOCUMENTS**

The following documents of the issue in effect on the date of the Request for Proposal (RFP) shall form a part of this specification to the extent specified herein.

ES/SOW-0101	Statement of Work for Electronic Systems for Correctional Service of Canada Institutions.
ES/SOW-0102	Statement of Work for Quality Control for installation of Electronic Systems in Federal Correctional Institutions.
EIA-310-C	Electronic Industry Association Standard for Racks, Panels and Associated Equipment

3.0 **REQUIREMENTS**

3.1 **General**

The contractor shall design, supply, install, test and provide documentation and training for an LCIS in accordance with the Specifications, Standards and Statement of Works specified in Section 2.0 of this specification.

3.1.1 **System Configuration**

The LCIS shall consist of the following elements in the quantities given in the Statement of Technical Requirements (STR):

- a. Control Station consisting of a control panel and a telephone handset/speaker combination;
- b. Remote Stations consisting of a microphone/speaker combination, a call button (if specified) and an enclosure;
- c. Common equipment (amplifiers, power supplies, switchers, a voice tape recorder, etc.);
- d. Interconnecting wiring, cables, etc.; and
- e. Conduit, ducts, outlet boxes, etc.

3.1.2 **Period of Operation**

The LCIS and all associated equipment shall be rated for and capable of 24 hours per day, seven days per week operation.

3.2 **System Requirements**

3.2.1 **General**

The LCIS shall provide satisfactory sound distribution within each designated area of the institution. The equipment shall produce high speech intelligibility throughout the area covered by the system at all normal microphone distances. The system shall be free of audible transients as circuits are selected and disabled and microphones are switched.

3.2.2 Control Station

The control station, consisting of a control panel and a telephone handset or microphone/speaker combination, allows an operator controls over a number of remote stations. The location of the control station will be identified in the STR.

3.2.3 Control Panel

The control panel shall contain the necessary controls and annunciators to permit the operator to have independent control over each remote station. Only one half-duplex voice path between the control station and any of the remote stations may exist at one time.

The required physical configuration of the control panel and the number of remote stations may vary with each particular application and will be specified in the Statement of Technical Requirement.

3.2.4 Handset or Microphone/Speaker

A handset or microphone/speaker combination (as specified in the STR) shall be supplied with each control panel. The handset/microphone shall contain a PUSH-TO-TALK (PTT) switch to enable a selected voice path. This switch shall be a non-latching type which automatically disables the transmitter/microphone when released. The location of the speaker (mounted on the control panel or in a separate enclosure) and the requirement for a volume control will be detailed in the STR.

3.2.5 Remote Station

Different types of remote station assemblies may be required depending on the specific application:

- a. indoor ceiling/wall-mounted (e.g., living units);
- b. indoor desk top mounted (e.g., office); or
- c. outdoor wall-mounted (e.g., exterior doors).

The assemblies for outdoor mounting shall be rugged, weather proof units capable of satisfactory operation under the environmental conditions specified in this specification.

All assemblies shall have high resistance to damage and destruction due to deliberate physical abuse. The contractor shall submit a prototype sample of each type of assembly for approval by the Design Authority prior to proceeding with the procurement of system quantities.

3.2.6 Handset or Microphone/Speaker

The handset or microphone/speaker combination shall be capable of transmitting/handling the required power levels and shall be compatible with the enclosure in which they are housed. The requirement for a volume control will be defined in the STR.

3.2.7 Call Button

In some installations (i.e., wall-mounted), the intercom assembly shall incorporate a CALL button enabling a person at a remote station to signal the attendant at the control station. The STR will specify if this option is required.

3.2.8 Enclosure

The intercom enclosure shall be physically rugged to prevent damage by physical abuse. The STR will specify whether the enclosures are Government Furnished Equipment (GFE) or are to be supplied by the contractor.

3.2.9 Common Equipment

Where feasible and practical all common equipment (e.g., power supplies, logic boards, amplifiers, etc.) shall be located in the Terminal Equipment Spaces supplied for that purpose. This area will be identified in the STR. Consistent with the foregoing, only items of equipment such as visual and audible annunciators, switches, actuators, etc. which the operator must access directly shall be located in the control panels.

To the maximum practical extent, off-the-shelf equipment shall be selected for use in the LCIS. New designs shall be restricted to common interface areas, control panels and consoles, or unique devices for which an off-the-shelf item does not exist.

3.2.10 Wires, Cables, Conduits, Ducts

The contractor shall supply all necessary terminations, cross connection cabinets, conduits, wire and cabling and any other items that may be required for the satisfactory completion of the specified system. All installation workmanship shall be performed in accordance with ES/SOW-0102, Statement of Work and all applicable national, provincial, and local electrical codes.

A wiring diagram shall be supplied in the Installation section of the Maintenance Manual to detail where module connections terminate and how wires are routed and terminated.

Conduits, cables, ducts, trays, etc. may be either Government Furnished Equipment (GFE) or supplied and installed by the contractor depending on the particular institution. The determination will be made by the Design Authority and will be identified in the STR.

Connectors provided on the ends of any cable must mate with the corresponding connector on the equipment. Adapters from one type of connector to another are not acceptable.

3.2.11 **Interface to Voice Tape Recorder**

The contractor shall supply and install all necessary wiring and control equipment required to interface the LCIS to a good quality Voice Tape Recorder (if required).

3.3 **Design Requirements**

3.3.1 **General**

To the maximum practical extent, off-the-shelf equipment should be selected for use in the system. New designs should be restricted to common interface areas, control panels and consoles, or unique devices for which an off-the-shelf item does not exist.

A design objective is to minimize the number of wires required between all elements of the system.

A space-diversity approach to system planning shall be employed to ensure that loss of one interconnection routing does not impair the operational capability of the complete system.

3.3.2 **Wiring Supervision**

Wiring shall be supervised in all system modes. An alarm shall occur if any system wiring is cut or shorted to other wires or if the system devices are tampered with by unauthorized people or environmental conditions.

3.3.3 **Sabotage, Tampering and Survivability**

Elements of the LCIS shall have high resistance to damage, destruction, or conversion to other uses (including weapons). All interconnecting service must be secure against tampering or improper interference. Elements of the system shall be isolated from one another to prevent the passage of contraband between inmate and visitor.

3.3.4 **Power Failure**

Loss or restoration of primary power to the LCIS shall not procedure spurious oscillations, clicks, or other unwanted noise in the speaker outputs. When power is restarted after a power failure, the system shall resume normal operation without operator action and shall automatically restart either in a "no-circuits-selected" condition or in the same state as existed before the power failure.

3.3.5 System Failure

An LCIS failure shall be deemed to have occurred when any required communication is not produced or when any required control function cannot be performed.

3.3.6 Human Factors

Elements of the system which are used directly by staff or inmates (i.e., control panels, annunciators, etc.) shall conform with accepted principles of good human factors design.

3.3.7 Existing Equipment

In most installations, control elements of the system will share console space with other electrical/electronic equipment such as door controls, lighting controls, etc. and will be operated by the same staff member. In such cases it is important that effort be made to coordinate the functional and operational design of the system according to accepted human engineering principles to ensure a uniform appearance and commonality of a layout to assist the operator in the performance of his duties.

3.3.8 Control Panels

Mounting space within control posts is usually limited and the problem of determining a suitable equipment mounting location is minimized if the control panels are small. Therefore, the designer should make maximum possible use of annunciation and control devices which combine two or more functions into a single unit (e.g., a lighted push-button instead of a separate light and an unlit push-button).

The LCIS may use EIA standard display and control panels or video display units. The design of either display and control method shall be in accordance with ES/STD-0802 or ES/STD-0803, Standards.

3.4 Operational Requirements

3.4.1 Wall-Mounted Remote Station Operation

The normal sequence of events relating to the use of the wall-mounted intercom station shall be as follows:

- a. a person at a remote station presses the CALL button causing:
 - (1) the annunciator light identifying that station on the control panel to flash continuously;

-
- (2) a brief chime note to be automatically repeated at the control station. The chime interval shall be adjustable (from the rear of the panel) between 5 and 15 seconds. Chime volume shall be adjustable from the rear of the control panel or from the common control equipment.

Depressing the CALL button again before the control station has responded shall have no effect on the system, i.e., the chime sequence shall continue unaffected and the associated annunciator light shall continue flashing.
This condition shall persist until:

- b. the attendant at the control station depresses the push-button switch associated with the flashing annunciator light. This shall cause:

- (1) the annunciator light to change to a steady ON condition.
(2) the audible annunciator to turn OFF.

This action shall also enable the voice path between the two stations, with the remote unit in the TALK mode and the control station in the LISTEN mode.

- c. to talk to the remote station, the operator at the control station depresses the PTT switch on the handset/microphone. This shall put the remote station in the LISTEN mode. The annunciator light shall remain steady ON throughout with the audible chime annunciator OFF.
- d. when the conversation is completed the attendant at the control station once again depresses the illuminated visual annunciator switch causing it to extinguish and the voice path to be disabled.

If a new call request from a remote unit is initiated before an existing call has been completed, the system shall:

- a. if the existing call has not yet been answered:
- (1) leave the audible annunciator on.
(2) flash the visual annunciators associated with both calls.
- b. if the existing call has been answered:
- (1) flash the visual annunciator for the new call and leave the one for the existing call steady ON.
(2) the audible annunciator will not resume in this case.

In either cases a. or b. the control station operator may select any of the incoming call requests in any order by depressing the appropriate flashing push-button as per a single call.

3.4.2 **Ceiling-Mounted Remote Station Operation**

The operation of the ceiling-mounted remote station shall be similar to that of the wall-mounted version except that there is no call button. The request by an officer in the range to establish the voice circuit will be communicated visually to the officer at the control station. The voice path may then be enabled/disabled from the control panel in the same manner as previously detailed for the wall-mounted remote station. These remote stations shall be automatically disabled as soon as the Public Address system in that zone is activated.

3.4.3 **Interface With PA System in Living Units**

Provision of a suitable interface in the Living Units will permit interconnection with the PA System.

3.4.4 **All Call**

The control station handset shall be selected to all intercom links simultaneously by the activation of a manually operated switch. The handset transmitter shall then have established precedence at all activated remote stations. The "all call" selection shall be visually annunciated on the control panel by a steady ON indicator.

3.4.5 **Pre-Announcement Chime**

A brief pre-announcement chime shall be interjected onto the selected intercom link(s) subsequent to an "all call" selection. The chime shall be heard at the selected remote station(s) and the receiver of the handset at the control station.

3.5 **Environmental Requirements**

The LCIS shall operate over the following environmental conditions:

- 3.5.1 Temperature: 0° C to +50° C (indoor equipment),
-40° C to +55° C (outdoor equipment); and
- 3.5.2 Humidity: 0 to 95% relative, non-condensing (indoor equipment),
Up to 100% relative, condensing.

-
- 3.5.3 Location indoor equipment in a sheltered environment; and
outdoor equipment includes but is not limited to extremes of sun, wind, driving rain, hail, snow, ice loading, blown sand and dust.

3.6 Power Requirements

The LCIS shall use VAC power within the following limits:

- 3.6.1 Voltage: 120 VAC \pm 10%;
- 3.6.2 Frequency: 60 Hz \pm 1.5%;
- 3.6.3 Transients: up to 5 times nominal voltage for up to 100 msec durations. Changes in the input power or any fluctuations within the above limits shall not cause damage to the unit; and
- 3.6.4 Power: power consumption shall not exceed 100 watts.

3.7 Installation Requirements

The Restricted Visit Intercom System shall be installed at the site in accordance with the ES/SOW-0101, Statement of Work and the ES/SOW-0102, Statement of Work.

3.8 Documentation Requirements

All final system documentation shall be provided with a Copyright Release for the documentation delivered in support of the system. The documentation shall be in accordance with the ES/SOW-0101, Statement of Work.

3.9 Support Requirements

The LCIS maintenance and spares support shall be provided in accordance with the ES/SOW-0101, Statement of Work.

3.10 Training Requirements

Operator training and maintenance training on the system shall be in accordance with the ES/SOW-0101, Statement of Work.

4.0 **QUALITY ASSURANCE**

4.1 **General**

The system Quality Assurance programme shall be provided as detailed in the ES/SOW-0101, Statement of Work.

All on-site installation work, test plans and system acceptance testing shall be conducted in accordance with the ES/SOW-0101, Statement of Work.

5.0 **DELIVERY**

Delivery requirements for the LCIS documents, drawings, plans, manuals, etc. (where applicable) shall be in accordance with the ES/SOW-0101, Statement of Work.

Delivery requirements of the system equipment shall be in accordance with the ES/SOW-0102, Statement of Work.

6.0 **INTERFERENCE**

Performance of the LCIS shall not be affected by the use of standard electronic equipment used at the institution. Distance limits of standard electronic equipment shall be in accordance with ES/SOW-0101, Statement of Work.

7.0 **SAFETY**

The LCIS shall meet the applicable Canadian Standards Association (CSA) standards.

- END OF TEXT -

Correctional Service Canada
Technical Services Branch
Electronics Systems

ES/SOW-0101
Revision 3
15 April 2004

ELECTRONICS ENGINEERING
STATEMENT OF WORK

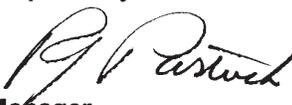
PROCUREMENT & INSTALLATION OF
ELECTRONIC SECURITY SYSTEMS

AUTHORITY

This Statement of Work is approved by Correctional Service Canada for the procurement and installation of all telecommunications and electronic security systems, subsystems, and equipment in Canadian penal institutions.

Recommended corrections, additions or deletions should be addressed to the Design Authority at the following address: Director, Engineering Services, Correctional Service of Canada, 340 Laurier Avenue West, Ottawa, Ontario, K1A 0P9

Prepared by:


Manager,
Electronics Systems Research

Approved by:

Director, 
Engineering Services
15 Apr 04

RECORD OF REVISIONS

Revision	Paragraph	Comment
3	10.1 – Manuals and Drawings	Added equipment operating software
	10.4 – Documentation Format	Added equipment operating software

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ABBREVIATIONS

The following abbreviations are used in this specification:

ATP	Acceptance Test Plan
CM	Corrective Maintenance
COTS	Commercial-Off-The-Shelf
CSC	Correctional Service Canada
DA	Design Authority
DCR	Design Change Request
DES	Director, Engineering Services
DL	Deficiency List
FDR	Final Design Report
MRT	Mean Response Time
MTBF	Mean Time Between Failures
MTTR	Mean Time To Repair
PDR	Preliminary Design Report
PM	Preventative Maintenance
PW&GSC	Public Works & Government Services Canada
QA	Quality Assurance
RFP	Request For Proposal
SOW	Statement of Work
STR	Statement of Technical Requirement

DEFINITIONS

The following definitions are used in this specification:

Design Authority	Director, Engineering Services (DES) - Correctional Service Canada (CSC) is responsible for all technical aspects of the system design and implementation.
Contract Authority	Public Works and Government Services Canada (PW&GSC) is responsible for all contractual matters associated with the system design and implementation.
Contractor	The company selected as the successful bidder.
Project Officer	A CSC employee or a contracted person designated by DES to be responsible for the implementation of the project.
Off-the-shelf	Equipment currently on the market with available field reliability data, manuals, engineering drawings and parts price list.
Custom Equipment	Equipment designed and/or manufactured specifically for a specific contract.

1.0 **INTRODUCTION**

This Statement of Work (SOW) defines the work and responsibilities for the design, procurement, installation, test and integration of all telecommunications and electronic security equipment in CSC Institutions.

The SOW provides guidelines, procedures and responsibilities to the contractor and/or the project officer for the implementation of all telecommunications and electronic security systems in CSC facilities.

All work performed shall adhere to this SOW, CSC Specifications, Standards and Statement of Technical Requirements (STRs).

1.1 **Commercial-Off-The-Shelf Equipment**

The contractor shall use commercial off-the-shelf (COTS) equipment and proven designs to the maximum extent possible. All new equipment shall meet the specified lifespan requirements. New equipment designs shall be restricted to unique interfaces and common control console.

1.2 **Technical Acceptability**

The Correctional Service Canada (CSC) operational environment is unique for its diversity of locations, climate exposures and the physical restrictive construction techniques of penal institutions. Maintaining national security, the safety of staff and offenders alike is CSC's commitment to the government and public. Electronic security systems operating in this unique environment shall maintain very high standards of dependability and reliability.

The CSC Engineering Services Division has established technical specifications and equipment standards for specific electronic security systems which are based on very specific and restrictive operational performance criteria as detailed in its Electronic Engineering Standard. Technical acceptability of these systems means that the equipment complies with the pertinent CSC specifications and standards.

The technical acceptance process shall involve system and subsystem evaluation in accordance with the applicable CSC specifications in one of CSC facilities or may be tested in a CSC facility to verify the effectiveness of the proposed technologies when subjected to the restrictive operational environment.

CSC shall also verify in depth any of the system technical specifications called up. CSC may when it deems necessary, request the supplier to arrange for a full site demonstration. CSC may rely on manufacturer's test results for specific areas of the specification where an independent test facility has conducted the test, and the facility is deemed acceptable to CSC.

It is the supplier's responsibility to make new developments in products available to CSC for evaluation. Equipment qualification is an ongoing process and can be initiated at any time by a vendor. Any vendor can have access to the CSC specifications and standards. Any new development or products should be submitted to the CSC Engineering Services Division, Technical Authority in a suitable time frame prior to any tendering process to allow for an acceptable evaluation period. The evaluation period may take up to sixteen (16) months.

1.3 Equipment Procurement

Any ordering of equipment/material before the approval of the final design report will be undertaken at the contractor's own risk. The Design Authority may authorize the procurement of certain long lead items at, or shortly after the preliminary design review.

1.4 Quantity of Equipment

The quantity and location of the equipment required for CSC institutions will be contained in the specification identified in the STR.

2.0 APPLICABLE DOCUMENTS

CSC Specifications, Standards and STRs are approved by the Director of Engineering Services (DES) for the procurement and installation of all telecommunications and electronic security systems in all CSC facilities. These documents promulgate DES policy and shall not be modified or changed without prior consultation and approval of the Director. The documents of the issue in effect will form part of the Request for Proposal (RFP) issued by the contract authority.

3.0 REQUIREMENTS

3.1 The contractor shall:

- a. Design, procure or manufacture, install, test and document the installation of all electronic security and telecommunications systems in accordance with the CSC specifications, standards and STR;
- b. Provide the operator and maintenance training in accordance with the CSC requirements;
- c. Provide the maintenance support and spares in accordance with the CSC maintenance requirements;
- d. Provide quality assurance (QA) to ensure equipment performance and reliability are in accordance to CSC requirements;
- e. Provide warranty coverage to include spare parts provision and equipment repair;
- f. Provide a program schedule to show all major elements from a contract award to completion of the warranty period and shall include anticipated time of occurrence, interrelationships between events, and time scale; and
- g. Be responsible for the integration of the proposed system to any existing telecommunications and electronic security systems.
- h. Provide a lightning protection system for the installation of all electronic security systems/equipment in the CSC facilities. As a minimum, surge suppression type lightning arrestors shall be required for all power, communications and antenna cables/wires entering or leaving a building.

4.0 **SYSTEM DEVELOPMENT**

The contractor shall design systems and equipment to meet all of the requirements stipulated in the applicable CSC specifications. The system design shall be modular and address the following criteria:

- a. ease of operation and maintenance;
- b. optimize and concentrate control functions and capabilities;
- c. enhance the security of the working environment, extend staff capabilities to observe and control; and
- d. minimize the number and types of display and control devices.

4.1 **Preliminary Design**

The preliminary design baseline shall be established by the review and approval of the preliminary design report (PDR) by the Design Authority (DA) or his designate. Specifications, drawings and the approved PDR shall make up the preliminary design baseline.

The contractor shall prepare and submit two (2) copies of the PDR to the Design Authority and one (1) copy to the Contract Authority at least ten (10) days prior to the PDR meeting. The PDR shall consist of:

- a. performance specifications with functional block diagrams of the proposed system. The technical analysis and equipment performance data shall verify system requirements;
- b. preliminary equipment layouts including control consoles and racks;
- c. list of off-the-shelf equipment with part number, model number, manufacturer and the quantity of each item;
- d. list of custom designed equipment with model number and the quantity of each item;
- e. functional schematics for all custom designed equipment;
- f. conceptual drawings for all custom designed equipment;
- g. a proposed product assurance plan;
- h. a proposed maintenance plan;

- i. proposed sparing plan; and
- j. proposed training plan.

4.2 **Preliminary Design Review**

The PDR meeting shall be convened by the contractor to review the PDR contents. The contractor shall provide the venue and all of the necessary facilities. The Design Authority will identify any portions of the PDR that are not acceptable to CSC.

4.3 **Final Design**

The final design baseline shall be established by the review and approval of the Design Authority of the final design report (FDR). It establishes the start of change control in equipment design and performance. The FDR shall consist of:

- a. all elements of the preliminary design baseline;
- b. control console mockups, ergonomics considerations, etc., as necessary;
- c. drawings and operational descriptions for the custom designed equipment including interface specifications;
- d. Installation drawings and instructions; and
- e. availability model and analysis updates to reflect the final system design and hardware selection.

The FDR shall be prepared to good commercial practice. Two (2) copies shall be submitted to the Design Authority at least ten (10) working days before the FDR meeting.

4.4 **Final Design Review**

The final design review meeting shall be convened to review the contents of the FDR. The contractor shall provide the venue and all of the necessary facilities. All of the contractor's staff responsible for the system/equipment engineering shall be available.

4.5 **Design Change Control**

Design changes shall be in accordance with the following procedure:

- 4.5.1 **Type I.** Changes that affect cost, schedule, reliability, maintainability, or availability shall be submitted as a design change request (DCR).

Changes shall not be actioned until specifically directed in writing by the Design Authority through the Contract Authority.

- 4.5.2 **Type II.** Changes to correct a design error without affecting cost, schedule, reliability, maintainability, or availability shall not require a DCR.

Changes shall be reported to the Design Authority and the final design baseline shall be updated by the contractor. The Design Authority will review and acknowledge the change.

4.6 **Design Change Request (DCR)**

Type I changes shall be forwarded to the Design Authority through the Contract Authority on DCRs initiated by either the contractor or the Design Authority.

DCRs shall be reviewed and approved before implementation and shall include:

- a. specification requirement being effected;
- b. final design baseline element being changed;
- c. description of the design change;
- d. reason for the change;
- e. impact on cost, schedule, reliability, maintainability and availability; and
- f. trade-off recommendations.

4.7 **In-Plant Testing**

Details of in-plant tests are contained in the ES/SOW-0102, Statement of Work. In-plant tests shall be performed according to the Design Authority approved procedures.

Equipment with deficiencies as the result of the in-plant tests shall be subject to retest. The Design Authority reserves the right to add or modify tests.

5.0 **SYSTEM INSTALLATION**

The contractor shall be responsible for ensuring that sufficient site utilities are available. No work will be permitted at the site before the approval of the Design Authority. All installation activities shall be conducted in accordance with ES/SOW-0102, Statement of Work.

5.1 **Schedule**

The contractor shall provide a detailed work schedule for the installation activities. This schedule shall reflect the complete implementation plan by identifying the nature of the work to be performed and the area affected.

5.2 **On-Site Inspections**

Design Authority or an appointed CSC representative shall perform ongoing inspections of the contractor's activities. These inspections shall verify compliance with the project requirements, the quality of work performed and assess the contractor's progress in relation to the approved schedule. Installation deficiencies requiring corrective action will be brought immediately to the contractor's attention in writing.

5.3 **On-Site Coordination**

Design Authority shall be responsible for the appointment of an on-site CSC representative. This representative will handle all site related matters and will periodically inspect the installation.

When electronic system installations are part of a construction program or a major redevelopment that involves Public Works & Government Services of Canada, the electronic system installation contractor shall coordinate all activities with the relevant site manager and shall comply with this SOW.

5.4 **Facility Criteria**

The contractor shall provide the facility criteria data in the proposal. Details as to the power, cooling, space and/or other requirements relating to electronic security system installation at the site must be provided. Final facility criteria information must be provided as part of the FDR.

5.5 **Installation Design**

The system installation design and planning shall make maximum use of existing ducts, conduits, and other cable routing facilities. Where this is not possible, the contractor shall design and install facilities in a manner acceptable to the Design Authority.

5.6 **Subcontractor Supervision**

The contractor shall provide an on-site supervision of all subcontractors. The subcontractors shall abide by the regulations of this Statement of Work and the conditions in the contract.

5.7 **System Checkout**

Before conducting the formal on-site testing for the CSC acceptance, the contractor shall conduct and document a system checkout to assure the system readiness for formal testing and on-line operations. The test sheets used for the system checkout shall be signed by a company representative and provided to the Design Authority at least seven (7) days prior to the scheduled date of the Acceptance testing. The Design Authority will verify readiness through review of the checkout report. The report may be used as reference during the formal witnessed testing for acceptance.

5.8 **As-Built Drawings**

Thirty (30) days after the system installation acceptance, the contractor shall deliver a complete set of equipment and installation as-built drawings for Design Authority's review and approval. Within thirty (30) days after CSC approval, two (2) complete sets of revised drawings shall be delivered to the Design Authority.

The contractor shall update these drawings throughout the warranty period by the design control procedures. Within thirty (30) days of completion of the warranty period, the contractor shall deliver one (1) set of final revised drawings reflecting all changes to the Design Authority. Upon final CSC approval, the contractor shall deliver two (2) sets of original prints of the final drawings.

6.0 **SYSTEM ACCEPTANCE**

System acceptance shall occur when the acceptance testing has been completed according to the ES/SOW-0102, Statement of Work and when all of the other requirements of the contract have been completed to the satisfaction of the Design Authority. A final acceptance certificate signed by the Design Authority shall certify the system acceptance.

On-site system acceptance testing shall not begin until all of the on-site installation activities have been completed.

6.1 **Acceptance Test Plans (ATPs)**

The contractor shall provide ATPs for all system, subsystem and equipment tests for Design Authority review and approval. The requirements for the ATP are detailed in the ES/SOW-0102, Statement of Work.

6.2 **System Testing**

The contractor shall conduct the approved ATP and record the results. The Design Authority or an appointed CSC representative shall witness the tests.

6.3 **Deficiency Lists (DL)**

The contractor shall prepare and submit a list of deficiencies divided into three categories:

- a. Visual/Mechanical,
- b. Operational, and
- c. Technical/Functional.

6.4 **Technical Acceptance**

Upon verifying that all of the deficiencies have been corrected, the Design Authority shall issue a letter of Technical Acceptance.

7.0 **QUALITY ASSURANCE (QA)**

The QA program shall include quality control and system tests/verification programs to verify that new design and off-the-shelf equipment requirements have been met. System tests/verification will be conducted by the contractor in-plant and on-site, and may be witnessed by the CSC representatives where appropriate. The system shall pass all tests before approval will be given to commence the operator and maintenance training programs and warranty period.

7.1 **Quality Control Program**

The contractor shall provide a description of their internal quality control programs for CSC review and approval. CSC reserves the right to audit and verify that all materials destined for use in CSC systems have been thoroughly inspected and that QA procedures are applied during production and testing.

7.2 **System Test Program**

The contractor shall prepare and provide the documents describing: number, type and details of equipment, subsystem and system tests for CSC review and approval. These documents must be approved before any formal testing and will consist of the following:

7.2.1 **System Test Plan.**

This plan shall contain the test philosophy, the tests to be conducted, the pass-fail criteria, the retest requirements, and the instructions for the validation and the sign-off of all final design baseline requirements.

Before witnessing these tests, the CSC representative will perform a visual and mechanical inspection to ensure that the system installation meets the requirements of ES/SOW-0102, Statement of Work.

7.2.2 **Test Procedures.** These procedures shall ensure that:

- a. all equipment supplied meets the performance specification;
- b. each subsystem meets the applicable performance requirements; and
- c. the overall system meets the performance requirements.
- d. test procedure contains the step sequence for each test to be conducted, and the expected results.

7.2.3 Contractor Testing.

All tests are conducted by the contractor and may be witnessed by an appointed CSC representative. Tests are conducted as stipulated in the approved plan and procedures. The contractor shall inform CSC at least five (5) working days before the test start date.

7.2.4 Test Reports.

The contractor shall submit final copies of the test results for CSC review and approval within ten (10) working days of the completion of the testing. Two copies of the report shall be submitted and shall include:

- a. a summary description of the tests;
- b. test results consisting of completed test procedures verified by a CSC representative;
- c. incident reports, including analysis and corrective action; and
- d. results of any retest.

8.0 TRAINING

The contractor shall develop, document and conduct training for both the operational and the technical staff. The training shall be conducted on-site at the institution in the period designated by the schedule.

8.1 Classroom Training

Classroom lectures and demonstrations will be conducted on-site to train operations staff in the use and technical personnel in the maintenance of the systems.

8.2 Training Documentation

The contractor shall develop and deliver a complete training plan to the Design Authority for comments and approval. This plan must be submitted to CSC at least thirty (30) days in advance of the training date to allow for CSC review. As a minimum, the training material shall contain:

- a. training plans for CSC operations trainers and technical personnel;
- b. manuals for each student to add notes;
- c. training aids; and
- d. student materials.

Training material shall be provided in the language that is dominant at the site (French in Quebec). Sufficient copies of all student materials shall be provided by the contractor at the beginning of the training course to assure one copy for each student. CSC shall stipulate the number of staffs who are to be trained. Upon approval by the Design Authority, two (2) copies of all material shall be delivered to CSC.

9.0 **MAINTENANCE and SPARES**

The contractor shall provide maintenance and spares support plans according to the ES/SOW-0102, Statement of Work for the Design Authority approval. These plans shall be submitted according to the schedule.

9.1 **Maintenance Plan**

The maintenance plan shall describe the philosophy, the Preventive Maintenance (PM) procedures and schedules, the Corrective Maintenance (CM) methods and response times, Mean-Time-To-Repair (MTTR) for all systems. The plan shall recommend tools, jigs and test equipment, and detail the recommended manning method for the system. Issue of the final maintenance support plan will be contingent on Design Authority approval.

9.2 **Spares Plan**

The spares plan shall list the required spares and recommended quantities. The quantity recommendations shall be supported by system availability and reliability analysis and available experience data. The bidder shall identify spare parts and components by their original manufacturer's code, cross-referenced to the equipment vendor's part number.

9.3 **Spares List**

The spares list shall identify the following:

- a. the spare parts and the subassemblies with the recommended quantities;
- b. the cross-reference listings between the vendors and the original manufacturer's codes;
- c. the unit and extended prices for stocking; and
- d. the expected life or the annual consumption of each part.

The contractor shall maintain the spares plan through to the end of the warranty period, and shall ensure that any changes because of approved design changes are incorporated in the spares list.

9.4 **Test Equipment**

The contractor shall provide a list of test equipment required for the on-site maintenance of the system within thirty (30) days from Design Authority's acceptance of the final design.

10.0 DOCUMENTATION

All final documentation in hard-copy format shall be in a 3-ring binder with all foldout pages having reinforced ring holes.

10.1 Manuals and Drawings

The following items make up the final documentation requirements:

- a. Operator Manual,
- b. Maintenance Manual,
- c. Installation As-built Drawings,
- d. Equipment As-built Drawings, and
- e. Equipment Operating Software.

The contractor shall prepare and submit all manuals and drawings to the Design Authority for review and approval. The manuals and drawings will be approved when all changes have been satisfactorily incorporated. All drawings must be produced with AUTOCAD (latest available version)

10.2 List of Equipment

The contractor shall provide a list of equipment itemizing the location, quantity, model number, serial number and revision level of all installed equipment.

10.3 Baseline Measurements

The contractor shall provide a copy of the final test results. These results will be used as a reference baseline measurement for monitoring system degradation over time.

10.4 Documentation Format

All manuals, documentation including as-built drawings, lists of equipment and baseline measurements shall be submitted as per the following schedule:

- One (1) hard-copy version of all documentation.
- One (1) electronic version of all documentation in a 'read-only' format on a 3½ inch diskette medium; suitable for duplication without any special requirements.

- One (1) electronic version of all documentation in a full 'read-write' format to serve as a master of the documents and drawings.
- all software requirements to access the electronic versions of the documentation.
- One (1) CD containing the equipment operating software.

10.5 Operator Manuals

The contractor shall provide CSC approved manuals to support the operation of the system in the format as outlined in section 10.4 of this specification. These manuals shall be prepared to the best commercial standards. Photo copies shall not be accepted. All hard-copy versions shall be on paper stock 8 ½" x 11" and shall be presented in a 3-ring binder. The manuals shall comply with the following format and content requirements:

- a. title page;
- b. revision notice page, lined, with columns for revision numbers, dates and initials;
- c. table of contents;
- d. warnings and cautions;
- e. introduction - general information including a description of equipment or system and summary of capabilities;
- f. theory of operation including an explanation of all major system components;
- g. detailed description and use of all user accessible computer screens; and
- h. block diagrams.

A hard copy draft version of the manual(s) shall be submitted for CSC approval on or before the date given in the schedule. Upon acceptance and approval by the Design Authority, a total of two copies shall be provided for use during the warranty period. The contractor shall update these manuals through the warranty period and provide revision bulletins to record manufacturers' recommended modifications, etc. during the life of the equipment.

Within thirty (30) days of the warranty expiry date the contractor shall submit one (1) set of final, updated manuals for CSC approval. Following the final CSC approval, the required number of sets of operator manuals shall be delivered to the Design Authority in the format as specified in section 10.4 of this Statement of Work.

10.6 Maintenance Manuals

The contractor shall provide CSC approved manuals to support the maintenance of the system in the format as outlined in section 10.4 of this specification. These manuals shall be prepared to the best commercial standards. Photo copies shall not be accepted. All hard-copy versions shall be on paper stock 8 ½" x 11" and shall be presented in a 3-ring binder. The manuals shall comply with the following format and content requirements:

- a. title page;
- b. warranty page - explaining the warranty period and expiry dates;
- c. revision notice page, lined, with columns for revision numbers, dates and initials;
- d. table of contents;
- e. introduction - general information including a full description of equipment or system, technical summary, specifications and detailed block diagrams;
- f. theory of operation including a detailed explanation of all circuits and parts;
- g. alignment and test procedures;
- h. repair procedures including step by step fault finding or fault localizing;
- i. block diagrams;
- j. circuit schematics (clear, easy to read, foldout type);
- k. complete parts list;
- l. mechanical drawings, chassis layout illustrations and wiring data lists; and
- m. drawings including as-built and as-installed drawings.

A hard copy draft version of the manual(s) shall be submitted for CSC approval on or before the date given in the schedule. Upon acceptance and approval by the Design Authority, a total of two copies shall be provided for use during the warranty period. The contractor shall update these manuals through the warranty period and provide revision bulletins to record manufacturers' recommended modifications, etc. during the life of the equipment.

Within thirty (30) days of the warranty expiry date the contractor shall submit one (1) set of final, updated manuals for CSC approval. Following the final CSC approval, the required number of sets of maintenance manuals shall be delivered to the Design Authority in the format as specified in section 10.4 of this Statement of Work.

11.0 PROJECT PROVISIONS

11.1 Monthly Progress Reports

The contractor shall submit monthly progress reports. These reports shall report the activities for the previous period. One (1) copy shall be delivered to the Design Authority and one (1) copy to the Contract Authority by the fifth (5th) day of each month. A review meeting may be required.

Monthly reports shall contain the following:

- a. summary of the month's activities;
- b. scheduled shortfalls and rescheduled dates;
- c. problem areas and proposed solutions;
- d. review of next month's activities;
- e. summary of meetings held during the month; and
- f. cash flow forecast.

11.2 Monthly Review Meetings

Review meetings shall be held at the contractor's premises, Design Authority's office, Contract Authority's office, or the site depending on the need. The contractor shall make the design staff members available upon request by the Design Authority.

11.3 Maintenance Support

During the training period, the contractor shall provide maintenance support. This support is expected to be not less than on-site coverage during the normal working day.

11.4 **Shipment and Delivery**

Contractor shall be responsible for the shipment and delivery of equipment and materials to the site. Packing, crating, and shipment of equipment shall be to good commercial practice, and any damage to, or loss of equipment shall be repaired or replaced to the satisfaction of CSC. The contractor must properly label all shipments to assure correct identification and disposition on arrival at the site, as specified in ES/SOW-0102, Statement of Work.

12.0 **SYSTEM AVAILABILITY**

All elements of customed and off-the-shelf equipment shall be designed to operate in a highly reliable fashion, consistent with available technology, with a minimum of system downtime due to scheduled and unscheduled maintenance. System availability will be achieved when each of the included subsystems availabilities have been proved as required.

12.1 **Common Facilities**

Where units or subsystems are integrated into common facilities no single failure of a component, assembly subassembly, or subsystem shall result in the failure of any other subsystem; nor result in reduced capacity or quality of performance of other subsystems or parts of it.

12.2 **Single Point of Failure**

The system shall be designed such that no failure of a single component, unit, subassembly or subsystem will result in failure of the next higher hierarchical elements of that subsystem or the system.

12.3 **Availability Model**

The bidder's technical proposal shall include a complete model and analysis of the availability of each subsystem and of the complete system being offered. This analysis shall include both MTBF and MTTR calculations and shall treat the Mean-Response-Time (MRT) as zero. This availability analysis may be based on either:

- a. summation of failure rates of the individual components; or
- b. the bidder's documented experience with the same equipment operating in a similar physical environment.

In either case, the source of all failure-rate shall be clearly shown.

The contractor shall maintain the availability model and analysis up-to-date throughout the contract period. A statement of impact of the proposed change would have on the availability model and analysis shall be submitted with all Type I DCRs.

12.4 **Availability**

Availability is the probability that the system, or subsystem will meet operational performance requirements at all time. Time includes the operating time, the active repair time and the administrative and logistic time. To calculate this availability, the contractor must include all of the pertinent factors such as:

12.4.1 **Mean Time Between Failure (MTBF).**

The total operating time of the equipment divided by the total number of failures of that equipment.

12.4.2 **Mean Time To Repair (MTTR).**

The repair time divided by the number of failures.

12.4.3 **Mean Response Time (MRT).**

The time to respond to a call for service divided by the number of calls.

12.5 **Expected Life Duration**

This is the time during which the equipment is expected to provide useful service, without an unusual amount of service and without becoming obsolete.

13.0 **INTERFERENCE**

13.1 **Interference to the System**

Performance of the system shall not be affected by the use of standard electronic equipment used at the institution. Distance limits of standard electronic equipment are as follows:

13.1.1 CB transceivers at 1 metre or more;

13.1.2 VHF and UHF transceivers at 1 metre or more;

13.1.3 Other radio frequency transmitting, receiving and re-distribution equipment at 5 metres or more;
and

13.1.4 Personal computer and/or computer work stations at 5 metres or more.

13.2 **Interference by the System**

The system shall not interfere with any standard electronic equipment used at the institution, any commercial TV or radio equipment at a minimum distance of 5 metres, or any other electronic security systems at a distance of 1 metre or more.

14.0 **LIGHTNING PROTECTION**

Surge suppression-type lightning arrestors shall be installed to protect all power, communications and antenna cables or wires entering or leaving a building.

These arrestors must be installed where the cable enters the building i.e. not in the CER or other equipment room.

Correctional Service Canada
Technical Services Branch
Electronics Systems

ES/SOW-0102
Revision 6
1 May, 2008

ELECTRONICS ENGINEERING
STATEMENT OF WORK

QUALITY CONTROL FOR
PROCUREMENT AND INSTALLATIONS OF
ELECTRONIC SECURITY SYSTEMS

AUTHORITY

This Statement of Work is approved by Correctional Service Canada for the procurement and installation of all telecommunications and electronic security systems, subsystems, and equipment in Canadian penal institutions.

Recommended corrections, additions or deletions should be addressed to the Design Authority at the following address: Director, Engineering Services, Correctional Service Canada, 340 Laurier Avenue West, Ottawa, Ontario, K1A 0P9

Prepared by:



Manager,
Electronics Systems Research

Approved by:



Director,
Engineering Services

18 Aug 08

RECORD OF REVISIONS

Revision	Paragraph	Comment
3	5.1 - Design Considerations	Tabletop or wall mount power supplies/transformers
4	3.1.1 - Wiring/Cabling Methods	Wiring/cable access
	3.2.1 - AC Wiring	Power outlet strip
		Separate circuit breakers connected to opposite phases of the AC feed
	3.2.2 - AC Power Connections	Power connections via flexible armoured cable
5	Abbreviations	Additions
	1.4 – Manufactured Equipment	Approval of custom equipment
	1.5 – Commonality of Equipment	Add security screws
	3.1.1 – Wiring and cabling	Single conductor wire only on IDC connectors
		Identification of conductors
	3.1.2 – Cable/Wiring Labelling	Acceptable labelling
	3.2.1 – AC Wiring	Mounting of power strips
	3.3.4 - Labelling	Acceptable labelling of racks, boxes, etc.
	5.1 – Design Considerations	DIN rail power supplies preferred
6	2.1 – Environmental Conditions	Expand airborne containments
	2.6 – Finish Application	Change finish material definition
	2.2.2 - Plastic	Remove last sentence
	3.1.1 – Wiring/Cabling Methods	Change “Hydro Codes” to “Electrical Authority”
	3.3.2 - Enclosures	Add requirement to meet IP64

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ABBREVIATIONS

The following abbreviations are used in this specification:

AC	Alternating Current
ATP	Acceptance Test Procedure
BER	Beyond economical repair (repair cost in excess of 60% of replacement cost)
CER	Common Equipment Room
COTS	Commercial -of-the-Shelf
CSC	Correctional Service Canada
CSA	Canadian Standards Association
DC	Direct Current
DA	Design Authority
DES	Director, Engineering Services
EIA	Electronic Industries Association
EMT	Electrical Metallic Tubing
IDC	Insulation Displacement Connector
ISO	International Standards Organization
PCB	Printed Circuit Board
PVC	Polyvinyl Chloride
QA	Quality Assurance
RFP	Request For Proposal
STR	Statement of Technical Requirements

DEFINITIONS

The following definitions are used in this specification:

Design Authority	Director, Engineering Services (DES), Correctional Service Canada (CSC) is responsible for all technical aspects of the system design and implementation.
Contract Authority	Public Works and Government Service Canada (PW&GSC) and/or the Materiel Management Division of CSC is responsible for all contractual matters associated with the system design and implementation.
Project Manager	A CSC employee and/or a contracted person designated by DES to be responsible for the implementation of the project.
Project Officer	A CSC employee and/or a contracted person designated by DES to provide technical and/or engineering services in support of the project.
Contractor	The company selected as the successful bidder.
Off-the-shelf	Equipment which is commercially, complete with field reliability data, manuals, engineering drawings and parts price list.
Custom Equipment	Equipment designed and/or manufactured specifically for a specific contract.

APPLICABLE DOCUMENTS

The following documents of the issue in effect on the date of the Request For Proposal (RFP) shall form a part of the specification to the extent specified herein.

CSA STANDARD C22.1-1986 Canadian Electrical Code - Part 1 Safety Standard for Electrical Installations

EIA STANDARD EIA-310-D Racks, Panels and Associated Equipment

CSA STANDARD C22.2 Canadian Electrical Code - Part II

EIA RS-406/IPC-C--405A Connectors, Electric, Printed Wiring Boards

Any other applicable industrial safety and control standards governing specific aspects for equipment and/or installations.

1.0 **INTRODUCTION**

1.1 **General**

This document defines the quality control requirements for the design, installation, testing and acceptance of telecommunications and electronic security systems in all Correctional Service Canada (CSC) facilities.

1.2 **Scope**

This specification has been developed to ensure high standards for the installation of electronic systems. It defines workmanship standards which may not be fully covered in subsidiary specifications. All contractor's documentation and installation procedures shall meet this specification for equipment reliability, maintainability, longevity, appearance and operational use.

1.3 **Off-The-Shelf Equipment**

The contractor shall provide commercial off-the-shelf (COTS) equipment wherever possible. COTS equipment shall meet or exceed the manufacturing standards as listed in this specification.

1.4 **Manufactured Equipment**

Where COTS equipment is unavailable or unsuitable for a specific application, the contractor may manufacture or arrange for the manufacturing of a particular item to suit the requirements. Manufactured equipment shall meet or exceed the best commercial equipment manufacturing standards. Approval of the final design, appearance and ergonomics of all custom manufactured equipment shall rest with the DES, Project Manager or CSC delegate.

1.5 **Commonality of Equipment**

The contractor shall provide commonality of hardware components within the design parameters ie. switch locks, racks, panels, security screws, etc. All equipment, if appropriate shall be interchangeable.

2.0 MATERIAL AND EQUIPMENT REQUIREMENTS

2.1 Environmental Conditions

All materials and equipment which is used in CSC installations shall be equal to, or better than the standards established in the original equipment and shall be chosen with due consideration being given to the intended use, safety, retention of appearance, maintainability and durability under rugged operating conditions. These materials shall be suitable to perform over the following environmental ranges:

a. Indoor Equipment

Temperature: 0° C to 40° C; and
Humidity: 20% to 95% non-condensing.

b. Outdoor Equipment

Temperature: -40° C to +50° C; and
Humidity: 0 to 100%, condensing.

Outdoor equipment shall operate reliably and not be damaged by combinations of direct exposure to the sun, wind, rain, lightning, hail, snow and ice as may be expected to occur at each institution location.

Complete assemblies of indoor equipment shall be resistant to liquid spills, airborne contaminants (dust, pollen and water droplets), shock and vibration.

2.2 Materials

2.2.1 Metals

Metals used shall be either corrosion resistant or be suitably treated to resist corrosion in all potential atmospheric conditions, including tear gas, to which the installation may be subjected.

For the connection of copper to a cadmium or galvanized surface, effective "wiping" of the copper surface shall be considered satisfactory protection.

No cut galvanized fitting shall be used without protection equal to or greater than the original galvanized surface. All parts shall be free from burrs and sharp edges.

Metal which has been cut, scraped, or drilled shall be properly treated (primed and painted) to retain a uniform appearance.

2.2.2 **Plastic**

Plastic materials must be stable and shall retain their original shape and finish over the range of operating environmental conditions specified in 2.1

No material shall be used that softens or hardens within the storage environment in a way which is detrimental to its suitability as replacement parts for existing equipment.

Metal screws shall not be threaded into plastic materials.

2.2.3 **Natural Rubber**

The use of natural rubber is prohibited.

2.2.4 **Wood**

The use of wood or wood products is not acceptable.

2.3 **Toxic Materials**

Materials capable of producing harmful toxic effects under any operating condition, equipment malfunction, or accidental cause shall not be used.

2.4 **Flammable Materials**

Materials, used either for electrical insulation or mechanical purposes which are combustible or capable of causing an explosion, shall not be used.

2.5 **Fungus and Insect Supporting Materials**

Materials capable of providing a nutrient medium for fungus or insects shall not be used.

2.6 **Finish Application**

Finish shall be applied to all surfaces where consideration of appearance and protection against corrosion, toxicity, and other deterioration exists.

Application of finish shall not impair equipment performance, and will maintain uniformity in outward appearance.

Finish materials must be scratch resistant, not react to normal cleaning products and applied so as to last at least ten years.

3.0 **INSTALLATION REQUIREMENTS**

3.1 **Wiring and Cabling**

Prior to the installation, all wires and cables shall be tested in accordance with the manufacturer's instructions and shall meet all performance parameters.

Wire and cable harnesses shall be neatly formed and clamped in position. If brackets, forms or clamps are required, these shall be the responsibility of the contractor.

All wires and cables shall be stranded. Single conductor type wires are not acceptable except when such cables are specified to terminate on an IDC type connector. This does not apply to coaxial cables with single centre conductors.

Electrical tape, masking tape, or its equivalent shall not be used on wires, cables or any installed equipment.

3.1.1 **Wiring/Cabling Methods**

Three (3) or more individual wires or cables which are located in one(1) cable run shall be formed into a cable harness, properly dressed, supported and securely tied with flat lacing twine or equivalent.

Wires and cables which are installed by the contractor external to consoles, equipment racks, pull boxes and junction boxes shall be contained in securely mounted conduit or cable tray systems.

Plastic PVC conduits may be used in underground installations unless otherwise specified at time of bidder's conference.

A rigid steel conduit shall be used in indoor, security sensitive areas and outdoor above-ground applications.

Signal and 120 VAC power wiring shall not be run in the same conduit, cable tray, or raceway; and shall be separated in accordance with the local Electrical Authority.

Wire splicing in cable runs shall not be permitted. All cable runs shall be continuous. If continuous cable runs are not possible, terminal block configurations are acceptable provided they are approved by the Design Authority.

Cross-connects installed on BIX. or similar blocks, must not pass across the face of the block, but must be carried around the block, so as not to impede access to the connections.

BIX, or similar, blocks are to be used for solid wire only. Stranded wires are not to be directly terminated on BIX, or other IDC terminations.

Wires in multi-conductor cables which terminate on connectors, and which are not being used, must be twisted around the cable in a neat fashion. They are not to be cut off.

Wires in multi-conductor cables which terminate on BIX or similar IDC connector blocks, and which are not being used, must be punched down on the block. They are not to be cut off.

All conductors on IDC and any other type of terminal block will be identified with a cable marker and cross referenced in the as-built drawings.

Rectangular slots shall be cut in the computer floor, underneath any cabinets, racks, and consoles, for the running of cables. These slots must constitute at least 1/2 of the available floor area. Sharp edges on the computer floor shall be supplied with suitable protection to eliminate possible nicks, tears or wear in cable insulation sheaths. Individually drilled holes for the purpose of carrying cables from the under floor to the inside of the cabinet, rack or enclosure are not permitted.

3.1.2 Cable/Wiring Labelling

The contractor shall label all cables and cable runs. The labelling method shall be logical and conform to industry standards.

All cables shall be identified with commercially produced or machine printed alpha numeric labels protected by clear heat shrink tubing. Hand printed labels are not acceptable.

All wiring shall be identified at both ends of the wire. The coding shall enable a technician to identify the wire or cable without referring to manual tracing methods, test equipment or as-built drawings.

Cable identification labels shall be attached as follows:

- a. within 30 cm of the termination for both ends.
- b. in the middle of any access point, i.e. pull box, wall shaft opening, cable tray, etc.

All individual wires shall be labelled according to a cable numbering system or wire function plan, which is acceptable to the Design Authority.

All terminal strips shall be identified with its own unique terminal number and function.

3.1.3 Exterior Cabling

Where a cable enters or exits an exterior box, chassis, or conduit, the cable entrance shall be completely sealed to prevent an influx of water. A drip loop shall be formed in the cable to assist in maintaining this weather tight seal.

Conduit bushings shall be used on all conduit entrances/exits.

Sharp edges on metal boxes or chassis enclosures shall be supplied with suitable protection to eliminate possible nicks, tears or wear in cable insulation sheaths.

3.1.4 **Slack**

Wires and cables shall be as short as practical, with sufficient slack to:

- a. allow a minimum of three (3) reconnects due to wire breakage;
- b. prevent undue stress on cable forms, wires, terminals and connections;
- c. enable parts to be removed and replaced during servicing without disconnecting adjoining wires or circuits;
- d. facilitate movement of equipment for maintenance purposes; and
- e. provide drip loops in exterior cabling.

Slack shall be provided in junction boxes where space permits. Slack shall not exceed one single loop of cable forming the circumference of the junction box.

Slack shall be provided below equipment racks and shall be neatly coiled below the access flooring. The length of slack shall be equal to the height of the associated equipment rack. Units in drawers and slide out racks shall be provided with sufficient slack to permit removing the units without severing connections.

All cross connection wiring shall be neat and tidy, properly bundled, and tied. This procedure shall allow sufficient slack for tracing of individual wires via manual methods.

Parts mounted on a hinged door shall be wired by means of a single cable, and arranged to flex without being damaged by the opening and closing of a door. If physical separation between wires is essential so as to make a single cable impractical, more than one flexible cable may be utilized.

3.1.5 **Terminations**

All terminations relying on friction for electrical and mechanical connection shall be tested in accordance with the manufacturer's instructions and shall meet the performance requirements detailed therein.

Terminal fanning strips shall be used where a number of wires are contained in a harness, shall be used unless a multi-pin connector is provided.

Spade terminal lugs shall be used on all wiring, connections to screw-thread terminals, except where solder or other type of terminal is specified.

Where wires are connected to lugs, which are clamped under screw terminals in the form of a terminal connection strip, no more than one wire shall be attached to each lug, in order that each wire may be removed individually. This requirement will not apply in the case of common connections, daisy chain distribution circuits, or similar terminations where wires will not need to be disconnected for servicing.

No more than two (2) lugs shall be attached to each terminal.

Wire and cable insulation shall be stripped back to allow for proper connection to the lug. No bare wire shall be visible between the terminal lug and the insulator.

Terminal strips must be fastened to a hard surface using a screw, or nut and bolt. Adhesive supports to secure the terminal strip, or floating terminal strips are not acceptable.

3.1.6 **Splicing and Joining**

Splicing of wires on new installations is not permitted.

Where connectors are used on cable assemblies, they shall be a locking type which will not disengage under tension.

All joints or splices in underground cable runs shall be located inside accessible, secure, waterproof, and lockable steel enclosures. The enclosures shall be located at least one (1) metre above grade and be firmly secured to existing structures or to stub pole supports.

Splices in underground cable runs, if required to repair Crown caused damage, shall be subject to approval from the Design Authority.

Stranded conductor splices shall be held by wire binding terminals in order to prevent stray strands from causing either short circuits or grounds.

Joints and splices shall be soldered and encased in waterproof shrink tubing for protection against leaching, oxidization, moisture damage, etc.

Joints and splices shall be clearly and accurately identified on applicable as-built drawings.

3.1.7 **Shielding**

Shielding shall be secured on wires and cables to prevent accidental contacting or shorting exposed current-carrying parts, grounded metal objects, or structures.

Shielding shall terminate at sufficient distance from the exposed conductors of the cable to prevent shorting or arcing between the cable conductor and the shielding.

Ends of the shielding material shall be secured against fraying.

3.1.8 Protection

Wires and cables shall be strategically located and protected to avoid contact with rough, irregular surfaces or sharp edges.

Wires and cables shall be protected by suitable grommets or bushings when passing through openings in metal.

Guards or other suitable protection shall be provided on insulated high voltage cables.

3.1.9 Support

Wires and cables shall be properly supported with adequate strain relief to prevent excessive strain on the connections, devices, or joints of any electrical apparatus connected therein.

Adhesive supports with ty-wrap products shall not be used unless they are secured by a nut and bolt device.

3.1.10 Clearance

Physical clearance between wires/cables and associated heat emitting parts, i.e. amplifiers, shall be sufficient to prevent deterioration of the wires or cables. Refer to Table 19 of CSA Standard C22.1 Part 1.

3.1.11 Inductive and Capacitive Effects

Wires and cables, including harness wire and cables, shall be located such that inductive and capacitive effects do not adversely affect system operation. The amount of twists in paired wires shall be increased over the length of wire not covered by the cable sheath.

3.2 Power Wiring

The contractor shall not employ "Marette" (TM) type connectors regardless of CSA Standard C22.1 regulations. All wiring shall terminate on an insulated or protected barrier strip or terminal board, and be provided with spade terminal lugs where required.

Where control and signal wires which are run in conduit, cable-harness, or cable-trough systems, shall be run in separate wire ways. The separation shall be a physical barrier of suitable material and shall conform to applicable building codes and wiring methods.

All high voltage and/or high current terminations shall be provided with protective guard devices by the contractor. The device shall be mounted to allow for maintenance access to the terminals.

Terminal lugs shall be used on all power wiring, both VAC and VDC.

Warning labels must be installed in accordance with the CSA guidelines to warn maintenance personnel of any hazardous voltages and currents.

3.2.1 **AC Wiring**

AC wiring methods shall conform to all local and national wiring regulations.

Outlet boxes shall be installed such that all outlets are clear of any obstructions including wiring and cabling, and shall be easily accessible.

Power distribution within a cabinet or rack shall be via a power outlet strip, as provided by the original cabinet or rack manufacturer. A third party outlet strip is not acceptable. All power strips must be mounted into the equipment cabinet with rack mounting hardware.

All power cable installations shall be completed in a neat and sturdy fashion and shall meet all requirements of the specifications detailed herein.

Power cords within equipment cabinets and racks shall be maintained as short as practicable with due consideration for maintenance needs.

Systems which use redundant equipment, such as dual microprocessors, shall power each unit from two separate breakers connected to opposite phases of the AC feed.

3.2.2 **AC Power Connections**

All AC power connections from the cabinet or rack power outlet strip to the AC junction box shall be via flexible armoured cable. AC power connectors are not permitted.

3.3 **Conduits, Enclosures, Cable Troughs and Raceways**

3.3.1 **Conduits**

Conduits installed above ground, and accessible to the inmate population, shall be rigid steel.

Metal conduits installed in secure and inmate accessible areas shall be fitted with double the normal quantity of support hangars.

In locations subject to extreme temperature changes, and/or where conduit lengths are of non-standard size, the contractor shall make provisions for the inclusion of conduit expansion joints.

Rigid PVC conduits shall be used only in buried applications.

Rigid PVC conduits shall not be threaded, but may be used with approved adapters and couplings applied in a manner consistent with industry standards.

EMT conduit may be used in administrative areas, and locations which are not normally assessable to the inmate population.

Liquid-tight flexible metal conduits may be used where a flexible connection is required, i.e. cameras, microwave dishes, etc. In such applications, the length of "flex" conduit shall not exceed one (1) metre.

PVC conduits which cross roadways shall be encased in poured concrete.

The contractor shall provide a suitable means of protecting the buried conduit against damage caused by digging or excavating. The preferred method is installing a tape marker directly above the conduit path.

In addition to these requirements, the applicable industrial standards apply, including:

- a. CSA Standard C22.2 No. 45-M1981 - Rigid Metal Conduit
- b. CSA Standard C22.2 No. 56-1977 - Flexible Metal Conduit

3.3.2 Enclosures

All electrical connections, terminations, and cross connections shall be made within lockable, covered steel enclosures, using good quality locks. At least two keys must be supplied to CSC.

Outdoor enclosures shall be environmentally sealed and gasketed to provide a moisture/dust free and secure environment.

Enclosures which contain electrical equipment such as circuit breakers, relays, switches, and transformers, or cable networks, connections and terminations, shall be weatherproof and dust-tight and meet the provisions of IP64.

All enclosures such as junction boxes, racks and consoles shall be positioned for ease of maintenance, service, and connection/disconnection of cables and cable harnesses.

The contractor shall provide a proper drain hole in all enclosures which are grouted in concrete.

All floor mounted cabinets, racks, and consoles shall be secured to prevent overturning when associated drawers, shelves and movable parts are extended, or when heavy objects are placed on pull out shelves or writing tables.

In addition to the provisions stated herein, the applicable industrial standards shall apply, including:

- a. CSA Standard C22.2 No. 29-M1983 for Industrial Products.
- b. CSA Standard C22.2 No. 94-1976 for Special Purpose Enclosures.

3.3.3 Cable Troughs and Raceways

Cable troughs and raceways shall be continuous and shall be constructed of metal.

The contractor shall provide adequate mounting devices which will permit the use of fastening devices that will not damage conductor insulation.

Cable troughs, raceways, and fittings shall be free from burrs or other sharp edges which may cause damage to the cable or insulated conductors.

Cable troughs and raceways shall be installed as a complete system before the conductors or cables are installed.

Cable troughs may be either ventilated or solid and unless otherwise specified, shall be equipped with covers and steel guards to protect against damage.

In addition to these provisions, the appropriate standards shall apply, including:

- a. CSA Standard C22.2 No. 126-M1980 - Cable Troughs and Fittings.
- b. CSA Standard C22.2 No. 79-1978 - Raceways and Fittings.
- c. CSA Standard C22.2 No. 62-1972 - Surface Raceways and Fittings.

3.3.4 Labelling

The contractor shall label equipment racks, junction boxes etc. The labelling method shall be logical and conform to industry standards. All equipment racks and junction boxes shall be identified with commercially produced or machine printed alpha numeric labels. Hand printed labels are not acceptable.

Identification of chassis equipment shall be located in a suitable location within the rack and affixed to the rack, not the chassis.

Approved materials used for labels include lamicoyd strip, etched metal, stamped labels, or indelible ink.

3.4 **Soldering**

On solder connections, the insulation on individual wires shall not be stripped back more than 1.5 mm from the solder area.

Soldering shall be executed so that positive electrical and strong mechanical connections are assured.

Leads shall not be wrapped more than once around the terminal.

Soldered connections on the back of connector plugs, i.e. cannon plugs, switches, relay sockets or any other device employing solder lugs, shall be insulated by means of a short length of insulating tubing placed over each wire in the connector.

"Cold" solder joints, and excessive solder on connections shall not be acceptable.

Each soldered connection shall be tested for mechanical and electrical strength to ensure that a strong connection is achieved.

Use of acid based solder flux is not permitted.

Where insulation material is subject to heating during soldering, the material shall be undamaged and the fastened parts shall not be loosened.

3.5 **Welding**

All welds shall be free of harmful defects such as cracks, porosity, undercuts, voids and gaps.

There shall be no burn through.

Weld fillets shall be uniform, smooth, and shall cover a sufficient area of the welded surface to ensure that a solid bond is achieved.

Surfaces to be welded shall be free of extraneous particles which may affect the mechanical elements of the welded area.

3.6 Crimping

Crimp connections shall be made in accordance with the manufacturer's instructions. Industry standards shall be observed at all times.

Solid conductors may be used with crimp connections where the use of solid conductor wiring cannot be avoided. In all other cases only stranded wiring shall be used on crimp connections.

Solid conductors which are connected to terminals by crimping shall be soldered as well. This provision only applies to terminal lugs. It does not apply where wires may be spliced by crimping except in the case of some LED's and indicator lights which employ pigtail leads which should be soldered or connected by screw terminals.

3.7 Cleaning

Upon completion of the installation, the equipment shall be cleaned of smudges, loose or excess solder, weld beads, metal chips, burrs, mold release agents, or any other foreign material which might detract from the intended operation, function, or appearance of the equipment.

All corrosive materials shall be removed.

The cleaning processes employed shall leave no harmful residues and shall not have a negative effect on the equipment or its parts.

4.0 **GROUNDING REQUIREMENTS**

4.1 **General**

Grounding source and distribution points shall be provided by the Crown unless otherwise specified at the bidder's conference, in the Statement of Technical Requirement (STR), or any applicable documents.

The grounding shall be such that the signal ground, equipment ground, and electrical power ground shall be connected at one point and shall follow the shortest possible path. Where necessary, ground isolation techniques shall be employed.

The path from the tie point to any ground shall be permanent, continuous, have sufficiently low impedance to limit the potential above ground, and facilitate the operation of the 'over current' devices in the circuits.

Ground conductors shall be made of copper, sized for a minimum of 200 circular mils for each 300 mm length of conductor.

Inactive wires installed in long cable or conduit runs shall be grounded to prevent stray or static electrical discharges, with proper consideration given to prevent ground loops or other grounding problems.

Installation must be such that ground loops are prevented.

4.2 **Signal Ground**

Signal grounds shall be used to provide a ground potential reference which is independent of the frame ground and the power equipment ground.

An insulated grounding conductor shall be connected from the equipment signal ground terminal to the main ground connection point for single units such as equipment racks.

An insulated ground plate shall be used with insulated grounding conductors for multiple units, such as common equipment room (CER) equipment, from each equipment signal ground terminal connected to the plate. The plate shall be connected to the main ground connection point by means of a single insulated grounding conductor.

4.3 **Frame Ground**

The ground connection of the receptacle may be used for the frame ground as long as that ground connection is isolated and insulated from the power equipment ground system. Such receptacles shall be clearly identified so that they will not be used to supply equipment that does not require frame grounds.

The receptacle ground connection conductor shall be insulated and isolated from the power equipment grounding system, and shall be connected from the receptacle ground connection to an isolated ground plate.

The isolated ground plate may be an insulated buss bar for low power applications.

Size of grounding conductors shall be in accordance with the requirements of CSA Standard C22.1 Section 10 and Table 17.

4.4 **Combined Signal and Frame Ground**

Connection between the signal ground terminal and the frame ground terminal shall be part of the equipment wiring. The connection to the main ground connection point shall be similar to that for a frame ground.

4.5 **Main Ground Connection Point**

Main ground connection point shall be installed in accordance with CSA Standard C22.1 Section 10, and C22.2 No. 41.

4.6 **Ground to Chassis**

Ground connections to an electrically conductive chassis or frame shall be made by:

- a. soldering to a spot-welded terminal lug.
- b. soldering to a portion of the chassis or frame that has been formed into a soldering lug.
- c. using a terminal on the ground wire and securing the terminal by a screw, nut and lockwasher.

When using a terminal on a ground wire which is secured by a screw, nut and lockwasher, the screw shall fit in a tapped hole in the chassis or frame, or it shall be held in a through hole by a nut.

When the chassis or frame is painted, the metal around the screw hole shall be scraped clean and plated (or tinned) to provide a corrosion resistant connection.

4.7 Shielding

Shielding on wire and cable shall be grounded to the chassis or frame, in the manner specified in Section 2.5.5

4.8 Lightning Protection

All equipment with external cabling including radiating cables or other forms of antennas which may be susceptible during lightning strikes or other static discharges shall be protected fully in accordance with the relevant safety rules and regulations.

The ground rod used for lightning protection shall be copper or copper-plated steel, and shall be a minimum of 2.5 metres in length. Where the ground conditions preclude installation of a single ground rod, multiple rods of a shorter length may be used in parallel to provide the lightning protection.

The copper ground conductor shall be fastened to the ground rod using a thermic welding technique. Clamps are not acceptable.

5.0 **ELECTRICAL/MECHANICAL DESIGN REQUIREMENTS**

5.1 **Design Considerations**

All equipment shall be manufactured and finished with a degree of uniformity and grade of workmanship which shall comply with applicable industry standards, and the generally accepted principles of safe practice.

Exposed and moving parts that might constitute a safety hazard shall be provided with protective guards and warning labels.

All elements of the equipment shall be designed to operate in a highly reliable fashion, consistent with available technology, with a minimum of system downtime due to scheduled and unscheduled maintenance.

Where units or subsystems are integrated into common facilities, no single failure of a component, sub-assembly, assembly, or sub-system shall result in the failure of any other sub-system or reduced capacity or performance of other sub-systems or parts thereof.

The system shall be designed such that no failure of a single component, unit, subassembly, or subsystem will result in failure of the system or the next higher hierarchical elements.

All equipment shall be designed and installed to provide useful service, with minimal maintenance for a period of no less than 10 years, unless otherwise specified.

Tabletop or wall-mount power supplies or transformers shall not be used to power equipment installed within equipment racks and cabinets. Power supplies or transformers used within racks and cabinets shall be securely fastened to the rack equipment rails or side of the cabinet. DIN rail mounted power supplies are preferred.

5.2 **Assemblies**

The contractor (or manufacturing agent) shall apply special considerations in the execution of assembling system component parts.

Rack mounted equipment chassis; whose depth from the front face panel to the rear of the chassis exceeds 25 cm shall be equipped with rack slides.

Each assembly shall have a permanently fixed label showing the model number, serial number, and power requirements.

Materials used in assemblies shall be chosen with due consideration being given to the intended use, safety, durability, retention of appearance, and ability to resist corrosion from a variety of causes including tear gas.

In addition to applicable CSC/DES specifications, the appropriate industrial standards shall apply, including:

- a. EIA-310-D Racks, Panels, and Associated Equipment.
- b. CSA C22.2 No. 94-1976 Special Purpose Enclosures.
- c. CSA C22.2 No. 29-M1983 Panel boards and Enclosures.

5.3 Printed Circuit Board (PCB)

PCBs shall be constructed of non-flammable material, preferably a glass epoxy base.

The contractor shall provide extractor devices at the front of each card assembly.
All cards shall have keyed edges to prevent accidental replacement by another type of card.

Each device shall be identified and properly labelled, showing card type, and revision number.

All PCBs shall be etched. Wire wrap connections are not acceptable.

In addition to the requirements set forth herein the appropriate industrial standards shall apply, including:

- a. CSA C22.2 No.154-M1983 Data Processing Equipment.
- b. CSA C22.2 No.0.7-M1985 Equipment Electrically Connected to a Telecommunications Network.
- c. EIA RS-406/IPC-C-405A General Document for Connectors, Electric, Printed Wiring Boards.

5.4 Components

All electrical equipment, i.e. power supplies, amplifiers, etc. attached to the equipment structure shall be fastened securely and rigidly not using nuts and lockwashers.

Electrical components used in manufacturing in-house products shall be of commercial quality and shall comply with the standards of the Canadian Electrical Code, Part II.

Electronic circuit components, such as resistors, capacitors, inductors, or semiconductor devices which have no applicable standards in the Canadian Electrical Code, Part II shall comply with the test parameters as set forth in CSA C22.2 No. 154-M1983 Part 6.

6.0 QUALITY ASSURANCE REQUIREMENTS

The contractor shall provide objective evidence that the system and any major component therein have been designed, manufactured, inspected and tested under the umbrella of a quality assurance program capable of meeting the requirements of the applicable ISO Standard 9002 Series. More stringent requirements will be identified on a case by case basis, as needed.

In addition, the contractor shall develop a site-acceptance test/inspection procedure to demonstrate that all parameters of the system are fully operational and conform to the Statement of Technical Requirements.

6.1 In-plant Inspection

The equipment shall meet all functional, electrical, and visual/mechanical test parameters and shall have been fully tested and inspected by the contractor. Results shall be documented and reported to the Design Authority. Periodic inspections may be done by the Design Authority or his designated representative to verify that the equipment meets all requirements.

Particular attention shall be given to the following:

- a. Inventory of received equipment.
- b. Physical condition of equipment i.e.: scratches, dents, paint chips, etc . . .
- c. Construction techniques, board and components accessibility.
- d. Neatness, clamping and tying of wiring, cabling and harnesses.
- e. Strain relief of cables and wire connections.
- f. Legibility of nameplates, identification plates, and markings.
- g. Safety and protective covers, warning labels and grounding.
- h. Tightness of connectors, screw type fasteners, etc.
- i. Soldered and weld joints.
- j. Completeness.
- k. Operation of drawers, adjustable and sliding parts, controls etc.

-
- l. Shielding.
 - m. Cable and wire connections, ground clamps and terminal strips.
 - n. Type and quality of paint finish.
 - o. Quality of printed circuitry, etching, the electronic components and other associated parts.
 - p. Quality of locks, cabinets and other materials.

It must be noted that the in-plant tests are performed as a requirement of the financial arrangements and serve to guarantee that the design parameters of the FDR are followed and will meet the requirements of the applicable system specification. Sign-off of in-plant tests will not denote any form of final acceptance of the equipment and design.

6.2 Test Equipment

All test equipment shall be supplied by the contractor.
All instruments and test equipment shall be checked periodically by the QA Inspector in order to ensure accuracy of measurement. Records showing when the test equipment was last calibrated are to be provided as proof of accuracy.

6.3 Calibration

All test equipment used by the contractor shall bear a calibration seal showing the date calibrated and the due date for the next calibration.

The contractor shall ensure that the test equipment's calibration due date does not occur during the test period.

All equipment performance measurements shall be made with instruments whose accuracy and calibration guarantee that the results comply with the terms of the contract.

CSC reserves the right to furnish and/or require the use of any applicable instruments and standards in order to ascertain the accuracy of any measurements.

Test equipment suspected of being damaged or out of calibration shall be rejected by the Design Authority.

6.4 **Safety Design Aspects**

Particular attention is to be given to the safety design aspects of CSC installations, so as to minimize any hazards while in gaining access to, operating and servicing equipment. Such design aspects shall include the proper grounding of equipment, the installation of protective covers and warning labels over high voltage areas, the installation of warning labels on x-ray equipment, etc.

Radio and TV camera towers must receive careful attention in regards to make them accessible for servicing, especially during inclement weather.

7.0 ON-SITE INSTALLATION

7.1 Inspections

Inspections will be performed by the Design Authority or their designated representative. A thorough visual and mechanical inspection of the installation shall be performed to ensure that all applicable requirements and safety precautions have been met.

7.2 Damage to Government Property

Damage to Government property, including buildings, equipment, etc. during the course of the installation shall be made good by the contractor.

The contractor shall replace all equipment which has suffered major damage, i.e. damage which renders the equipment BER, unserviceable, or subject to deterioration.

If stocks of the applicable equipment are at such a level that replacement of the damaged items cannot be made, and the contractor cannot readily obtain new equipment in order to allow the installation to proceed without delay, the contractor shall:

- a. repair the damage immediately with available materials.
- b. return to the site and replace the equipment as soon as new equipment is procured. Minor damage shall be repaired in a manner which leaves the government property in a condition equivalent to its original state and performing the original function, with no deterioration in appearance, performance, and/or reliability.

Any equipment where the paint finish becomes scratched or marred during the installation shall be completely refinished and repainted consistent with the appearance of new equipment.

Equipment shall neither be exposed to rain, nor be left out-of-doors during inclement weather. This stipulation does not apply to construction materials.

7.3 Protection of Surfaces

The contractor shall obtain approval from the appropriate Institution authority before moving heavy loads or equipment on floors, roofs and other surfaces.

The contractor shall adequately protect floors, finished surfaces and roofs from damage during the installation and shall implement special measures when moving heavy loads or equipment on them.

The contractor shall keep the floors free of oils, grease, or other materials likely to damage or discolour them.

The contractor shall provide dust protection for the equipment during the installation period, as related construction activities may occur simultaneously.

7.4 Cutting, Patching and Digging

The contractor shall perform all cutting, patching or digging necessary for the installation of the system.

The contractor shall be responsible for changes or damage to any existing work, cables or equipment by cutting, welding, drilling, or digging without prior consent from the Design Authority.

The contractor shall promptly repair any damage for which he is responsible in order to restore the facilities to their original condition.

7.5 Visual-Mechanical Inspection

Inspection shall be performed by the Design Authority or his designated representative.

Prior to the commencement of performance and operational testing, the installation shall be inspected to ensure that all applicable requirements and standards have been met.

Particular attention shall be given to the following:

- a. Physical condition and positioning of equipment.
- b. Neatness, clamping and tying of wire and cable harnesses.
- c. Cable and wire connections, ground clamps, and terminal strips.
- d. Soldered and welded joints.
- e. Strain relief of cables, wire connections, and cable harnesses.
- f. Cleanliness of equipment boxes under computer flooring.
- g. Nameplates, identification methodology and markings.
- h. Operation of drawers, adjustable and sliding parts and controls.

-
- i. Equipment fit, fastening devices and accessibility of parts.
 - j. Construction and finishes.
 - k. Legibility of labels and tags.
 - l. Safety aspects, including secure provisions for climbing and working on towers.
 - m. Shielding.
 - n. Grounding.
 - o. Equipment Cooling Provisions.
 - p. Washers and lock-washers.
 - q. Tightness of screw type fasteners & connectors.
 - r. Screws, nuts and bolts shall show no evidence of cross-threading or mutilation.
 - s. Bottom of equipment racks etc. shall be free of debris and loose parts.

7.6 **Final System Acceptance**

The system shall be accepted when all of the following items have been completed to the satisfaction of the Design Authority and with the written certification of the project manager:

- a. performance and operational tests.
- b. all documentation.
- c. all training.
- d. all other terms and conditions.

The system warranty shall be deemed to begin at the completion of the Final System Acceptance or when the system is taken into service with accepted deficiencies, whichever comes first.

7.7 On-Site Maintenance

Building and site maintenance shall be interpreted to include all the areas in which the contractor is carrying out installation activities.

All sites and buildings shall be maintained by the contractor in a clean and tidy condition.

Upon completion of each day's work, all areas such as hallways, stairways, elevators and storage rooms used by the contractor in delivering or storing equipment shall be left in a clean and tidy condition.

The contractor shall store all electronic components not yet installed in a lockable storage room/trailer at the end of each workday. This procedure will reduce the probability of damaged and/or stolen equipment prior to system acceptance. Prior to the commencement of performance and operational testing, the installation shall be inspected to ensure that all applicable requirements and standards have been met.

8.0 **DELIVERY**

8.1 **Packaging**

All equipment shall be packaged to ensure that the equipment will not be damaged during shipment and/or delivery to the institution, as well as any associated handling on site.

Fragile components must be clearly identified and labelled.

All circuit cards, equipment modules, etc. shall be protected by the original packaging material until the equipment is placed into service.

8.2 **Addressing**

Address labelling shall be clearly marked in a minimum of two (2) locations on each package. The following format shall be observed:

- a. Complete name of the institutional site.
- b. Complete shipping address.
- c. Clear description of contents.
- d. Complete name of the Institutional representative.

All of the above addressing items will be provided at the Bidder's Conference.

- END OF TEXT -

Correctional Service Canada
Technical Services Branch
Electronics Systems

ES/SOW-0110
Revision 1
24 June, 2008

ELECTRONICS ENGINEERING
STATEMENT OF WORK

STRUCTURED CABLE SYSTEMS
FOR
ELECTRONIC SECURITY INSTALLATIONS

AUTHORITY

This Statement of Work is approved by Correctional Service Canada for the procurement and installation of all telecommunications and electronic security systems, subsystems, and equipment in Canadian penal institutions.

Recommended corrections, additions or deletions should be addressed to the Design Authority at the following address: Director, Engineering Services, Correctional Service Canada, 340 Laurier Avenue West, Ottawa, Ontario, K1A 0P9

Prepared by:



Manager,
Electronics Systems Research

Approved by:



Director,
Engineering Services

23 July 08

RECORD OF REVISIONS

Revision	Paragraph	Comment
0	Original	Original
1	4.3.1 - Cable	Cable upgraded to meet OM3 standards
	Multiple	Copper cable upgraded to CAT 6

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ABBREVIATIONS

The following abbreviations are used in this specification:

BICSI	Building Industry Consultant Service International
CER	Common Equipment Room
CET	Certified Electronic Technologist
COTS	Commercial -of-the-Shelf
CSC	Correctional Service Canada
CSA	Canadian Standards Association
CSV	Certified System Vendor
DVO	Data/Voice Outlet
EIA	Electronic Industries Association
EMT	Electrical Metallic Tubing
LOF	Laser Optimized Fiber
IDF	Intermediate Distribution Frame
OTDR	Optical Time Domain Reflectometer
RCDD	Registered Communications Distribution Designer
TC	Telecomm Closet
TIA	Telecommunications Industry Association
UTP	Unshielded Twisted Pair

DEFINITIONS

The following definitions are used in this specification:

Design Authority	Director, Engineering Services (DES), Correctional Service Canada (CSC) is responsible for all technical aspects of the system design and implementation.
Contract Authority	Public Works and Government Service Canada (PW&GSC) and/or the Materiel Management Division of CSC is responsible for all contractual matters associated with the system design and implementation.
Project Manager	A CSC employee or a contracted person designated by DES to be responsible for the test and evaluation or feasibility study project.
Project Officer	A CSC employee or a contracted person designated by DES to provide technical and/or engineering services in support of the project.
Contractor	The company is responsible for assuring that all system/equipment performance and test & evaluation requirements are met.
Off-the-shelf	Equipment which is commercially, complete with field reliability data, manuals, engineering drawings and parts price list.
Custom Equipment	Equipment designed and/or manufactured specifically for a specific contract.

APPLICABLE DOCUMENTS

The following documents of the issue in effect on the date of the Request For Proposal (RFP) shall form a part of the specification to the extent specified herein.

- a. EIA/TIA Standard EIA/TIA-568 Commercial Building Telecommunications Wiring Standard
- b. EIA/TIA Technical Systems Bulletin TSB-36 Additional Cable Specifications for Unshielded Twisted Pair Cables
- c. EIA/TIA Technical Systems Bulletin TSB-40 Additional Transmission Specifications for Unshielded Twisted Pair Connecting Hardware.
- d. International standard ISO/IEC 11801-2nd Edition: Information technology — Generic cabling for customer premises.

Any other applicable industrial safety and control standards governing specific aspects for equipment and/or installations.

1.0 INTRODUCTION

1.1 General

This document defines the quality control requirements for the design, installation, testing and acceptance of structured cable systems for use in security systems installed in all Correctional Service Canada (CSC) facilities.

1.2 Scope

This specification has been developed to ensure high standards for the installation of electronic systems. It defines workmanship standards which may not be fully covered in subsidiary specifications. All contractor's documentation and installation procedures shall meet this specification for equipment reliability, maintainability, longevity, appearance and operational use.

1.3 Off-The-Shelf Equipment

The contractor shall provide commercial off-the-shelf (COTS) equipment wherever possible. COTS equipment shall meet or exceed the manufacturing standards as listed in this specification.

1.4 Manufactured Equipment

Where COTS equipment is unavailable or unsuitable for a specific application, the contractor may manufacture or arrange for the manufacturing of a particular item to suit the requirements. Manufactured equipment shall meet or exceed the best commercial equipment manufacturing standards.

1.5 Commonality of Equipment

The contractor shall provide commonality of hardware components within the design parameters ie. switch locks, racks, panels etc. All equipment, if appropriate shall be interchangeable.

2.0 MATERIAL AND EQUIPMENT REQUIREMENTS

2.1 Environmental Conditions

All materials and equipment which is used in CSC installations shall be equal to, or better than the standards established in the original equipment and shall be chosen with due consideration being given to the intended use, safety, retention of appearance, maintainability and durability under rugged operating conditions. These materials shall be suitable to perform over the following environmental ranges:

a. **Indoor Equipment**

Temperature: 0° C to 40° C; and

Humidity: 20% to 95% non-condensing.

b. **Outdoor Equipment**

Temperature: -40° C to +50° C; and

Humidity: 0 to 100%, condensing.

Outdoor equipment shall operate reliably and not be damaged by combinations of direct exposure to the sun, wind, rain, lightning, hail, snow and ice as may be expected to occur at each institution location.

Complete assemblies of indoor equipment shall be resistant to liquid spills, airborne contaminants, shock and vibration.

3.0 TELECOMMUNICATIONS OVERVIEW

3.1 Structured Cabling System

The design objective is a flexible network that is easy to re-configure, easy to manage and capable of incremental growth. The network is based on a structured cabling system conforming to Electric Industry Association/Telecommunications Industry Association Specification 568 (EIA/TIA-568) and Canadian Standards Association 529 (CSA 529) and using a star wired topology for the horizontal distribution with Category 6 Unshielded Twisted Pair (UTP) and 50/125 Micron Laser Optimized Fibre. The design will support Ethernet, Fast Ethernet, and network management.

4.0 DESCRIPTION OF WORK

4.1 General System Requirements

4.1.1. Outline

This section defines the minimum requirements for a structured cabling system to be provided on an engineered, furnished, installed, tested, and commissioned basis. Products and installation practices shall conform with the EIA/TIA documents identified in the **APPLICABLE DOCUMENTS** section of this Statement of Work.

The structured cabling system includes the following basic elements arranged into backbone feeders and horizontal distribution subsystems that are cross connected or patched together in Telecom Closets or Common Equipment Rooms on Intermediate Distribution Frames (IDFs).

- a. Unshielded Twisted Pair (Horizontal)
- b. 8-pin modular Telecom outlets
- c. Insulation displacement connector type terminal blocks
- d. LOF optic cable (Backbone)
- e. Fibre optic (duplex) interconnect patch panels
- f. Patch cords for patch panels
- g. Line cords for workstation data equipment (Office Cables)

Notes:

- 1) 3 metre length is standard for Office Cables
- 2) All cables provided for a project shall have a **GREEN** jacket.

4.2 Horizontal Data Cable

4.2.1 Cable

Each cable shall consist of 8 each of 24 AWG thermoplastic insulated solid copper conductors formed into four individually twisted pairs and enclosed by a jacket with the appropriate protection rating determined by Provincial codes.

The cable shall fully conform with EIA/TIA-568 design requirements for 100 ohm UTP cable and fully conform with EIA/TIA-568 TSB-36 transmission requirements for Category 6 cable. Cables shall bear evidence of verified Level 6 or Category 6 and also bear evidence of certification by a recognized standard or testing body. (eg: Bearing NORDX Brand name and have length clearly marked on cable sheath)

The cable bundles will be fed to locations in either a supplied cable tray or conduit system. Outlet cables will then be fed to the user locations via either pac poles or fished down hard wall offices. A pull string will remain in the conduit/cable tray for future installations.

The cable run length from the IDC to the workstation location shall NOT exceed 90 metres. The combined length for patch cords for data network horizontal distribution connections shall not exceed 10 metres for an overall length from data network hub equipment to workstation equipment not exceeding 100 metres.

4.2.2 User Termination

Termination at the user end will be made onto a certified Category 6 RJ45 module for data. These modules will then be housed in a certified faceplate. The faceplate to house the modules will have the capability to equip up to six each 8 pin modular jacks. Other configurations to be used will vary with locations: A duplex flush mount faceplate for drywall applications, a duplex surface mount kit for PAC pole applications and duplex single gang outlets mounted into custom furniture with adapter plates. Surface mount kits will not exceed a 6.5 cm. protrusion from the wall. For custom furniture it is assumed that the cable runs will be fed to the outlet via raceways in the legs of furniture. For security reasons, jacks are NOT be installed in exterior walls or walls not totally part of CSC space. All cables must either terminate on a patch panel or on a faceplate, loose or unterminated cables are not acceptable.

The 8 pin modular jack connectors shall comply for termination of 4 wire pairs with 24 AAWG solid copper conductors: minimum contact force of 100g and conductors separated by jack comb.

Each modular outlet will be wired per EIA/TIA-568 polarization sequence, designation T568A (reference CAN/CSA T529 Clause 11.2 Figure 11-1 and Table 10-1).

This illustration is a front view of the connector

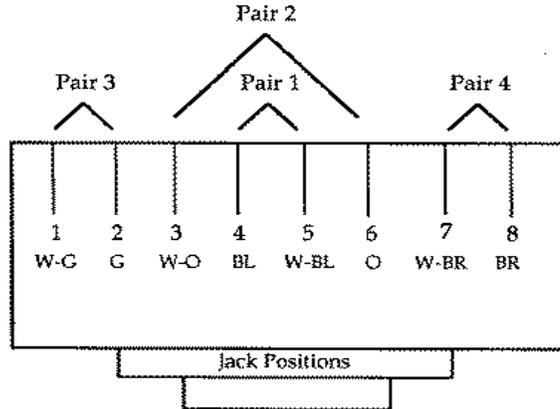


Figure 11-1
Eight-Position Jack Pin/Pair Assignments
(T568A Type)

Figure 11-1 and Table 10-1 outlines the sequencing required to construct line, office, and patch cables.

Each modular outlet will conform with EIA/TIA TSB 40 transmission requirements for Category 6 and will also be compatible with existing standard electrical outlet boxes.

Table 10-2 outlines the correct punch down positioning when using Northern Telecom T568A BIX DVOs', T568A ISDN QCBIX36DI and T568A ISDN QCBIX46DI Modular Jack Connectors, and T568A QPBIX Modular Patch Panels.

Table 10-1

Colour Codes for patch, line, and office cables		
<u>Colour</u>	<u>Colour Code</u>	<u>Abbreviation</u>
<u>Identification</u>		
Pair 1	White-Blue	(W-BL)
	Blue	(BL)
Pair 2	White-Orange	(W-O)
	Orange	(O)
Pair 3	White-Green	(W-G)
	Green	(G)
Pair 4	White-Brown	(W-BR)
	Brown	(BR)

Table 10-2

Colour Codes for punch down and modular outlets

<u>Position</u>	<u>Colour Code</u>	<u>Abbreviation</u>
1	White-Blue	(W-BL)
2	Blue	(BL)
3	White-Orange	(W-O)
4	Orange	(O)
5	White-Green	(W-G)
6	Green	(G)
7	White-Brown	(W-BR)
8	Brown	(BR)

4.2.3 Closet Termination

Supply and installation of RJ45 Category 6 hardware for system connection in communications closet using 24 NT certified patch panels rack mounted with cable organizer panels installed for each patch panel.

Active components will be connected to equipment by 8 conductor patch cords manufactured to CAT 6 compliance. Patch cords shall be stranded conductor and have a “no-snag” boot over the RJ45 connector.

Multi-Level building installations will require individual patch panels be installed for each level of the building. Patch panel(s) for each level of a multi-level building must have at least 15% unused ports. The same holds true for single story, multi ICC buildings.

4.2.4 Cable Protection

All ceiling distribution cabling shall be enclosed and protected by 3/4” and 1” rigid conduit from communications closet(s) room(s) and cabinets to all user outlets located in inmate accessible areas. In areas that CSC designated as non inmate accessible, EMT zone conduit will be allowed. Conduits must have end bushings installed to protect the cable from sharp edges.

Conduit containing Copper backbone cable must be designated “CAUTION SECURITY SYSTEM CABLE”

Conduit containing Fibre Optic backbone cable must be designated “CAUTION FIBRE OPTIC SECURITY SYSTEM CABLE”

4.2.5 Line Cords

The cabling company will supply RJ45, 8 pin modular line cords to connect owner provided data equipment to the horizontal distribution outlets at the workstation. They must be consistent with CAT 6 specification and provide end-to-end CAT 6 connectivity. Line cords shall be stranded conductor and have a “no-snag” boot over the RJ45 connector.

4.2.6 Testing

All cables/pairs will be scanned with a MicroTest Penta cable scanner or equivalent at 100 Mbps to determine DC loop resistance, near end cross talk and attenuation to meet or exceed the performance stated in EIA/TIA TSB-36 and TSB-40, noise, pair mapping and ranking. These tests must be conducted as originating from both the punch down location and modular outlet location of each cable segment.

4.2.7 Labeling

All jacks must be identified by means of labels with unique numbers. These markings will be made with printed labels. The Correctional Service of Canada expects that all drops at the user end will be sequential and not out of order.

The closet terminations must be identified with these same numbers marked on BIX labels adhered to BIX 20A designation strips and patch panels. The CAN/CSA 568 colour code will apply.

Labels will also be placed on the horizontal wire, 6-9" from termination points. This would include closets, main cabinet, and jacks.

4.2.8 Documentation

Customer to supply CAD or Visio Version 5 floor plans when available. If CAD documents are not available, contractor will be responsible to scan hard copy of plans.

Contractor to supply site plans, individual runs, risers, wire #'s, jack #'s, patch panel #'s in both hard and soft copy.

All test results shall be machine printed, hand written test result sheets are NOT acceptable.

4.3 Fibre Optic Backbone Cable

4.3.1 Cable

The cable to be supplied and installed for backbone purposes shall consist of 12 strands (6 pairs) of Laser Optimized Fibre with nominal 50/125 um core/cladding diameter formed into a single cable.

Optical cable shall physically conform with ANSI/ICEA S-83-596 mechanical and environmental specifications for outdoor fibre optic cable.

Fibre optic cable shall conform with the requirements of OM3 as per the ISO 11801-2nd Edition standards

4.3.2 Terminations

Fibre optic cables shall be terminated to SC Physical contact Connectors shall be able to sustain a minimum of 200 mating cycles per EIA/TIA-455-21 without violating specifications. These connectors will terminate within interconnect sleeves to facilitate patching in patch panels. The maximum optical attenuation per pair of mated connectors shall not exceed 0.75 db.

All fibre strands, whether used in the project or not, shall be terminated with SC type connectors and installed into a fibre patch panel: generally one duplex patch per cable (i.e. 12 connectors per panel for 12 strand fibre cable). Please note that these cables shall be SC to ST unless otherwise noted.

The patch panel proposed shall provide strain relief for each fibre as an integral part of the panel design. This standard type and size of panel should be uniformly used throughout the project.

Installed fibre panels shall be completed with all guides, brackets and other accessories to facilitate cable cross connect to active components for administration and management, including provisions for labeling that are consistent with EIA/TIA-568.

4.3.3. Testing

All terminated fibre media and related connecting hardware shall be tested with a power meter and certified at the conclusion of the initial installation with an OTDR, in both directions. Testing will include end-to-end attenuation testing that shall measure each fibre in one direction and compare with the calculated loss based on the manufacturers specifications and known length of cable using 850 nanometres and 1300 nanometres wavelengths. The difference in value between any two mated fibre shall not exceed 0.5 db.

The power levels of the terminated fibres shall be documented to allow the equipment vendor to select the correct strapping options for their equipment. This will prevent the receivers from being overloaded.

If the attenuation measurements are not within the required specifications, an Optical Time Domain Reflectometer shall be used to find the cause and location of the power loss. Any failure will be rectified.

All test results to be machine printed, and documented in duplicate and delivered complete with As-Built drawings to Corrections Canada Regional Office.

The fibre optic cable testing will also include a basic light test:

- on each of the fibres before installation to ensure that no damage had occurred during shipping;
- on each of the fibres before termination to ensure that no damage had occurred during installation.

4.3.4 **Labeling**

All fibre optic cables will be identified by means of Warning Labels located on all related conduit, pullboxes and backboards.

Both ends of all fibre cables will be labeled indicating destination and number of strands.

All ports on each Fibre optic patch panel will be labeled to identify the backbone destinations. Both ends will be labeled with this same numbering scheme.

4.4 **Cross Connect**

4.4.1 **Data Cross-connect**

Cross connection of the UTP horizontal cables to the tie field will be completed after testing of installed cables has taken place.

Jumper wire shall be provided, if requested, and will conform with EIA/TIA TSB-40 transmission requirements for Category 6.