



**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 0B2 / Noyau 0B2  
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**

There is a security requirement associated with this procurement

**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  
7B3, Place du Portage, Phase III  
Gatineau, Québec K1A 0S5

<b>Title - Sujet</b> Audio Visual Systems/Carling Campus	
<b>Solicitation No. - N° de l'invitation</b> W8474-17CA17/A	<b>Date</b> 2018-05-04
<b>Client Reference No. - N° de référence du client</b> W8474-17CA17	
<b>GETS Reference No. - N° de référence de SEAG</b> PW-\$\$HN-331-74824	
<b>File No. - N° de dossier</b> hn331.W8474-17CA17	<b>CCC No./N° CCC - FMS No./N° VME</b>
<b>Solicitation Closes - L'invitation prend fin</b> <b>at - à 02:00 PM</b> <b>on - le 2018-06-15</b>	<b>Time Zone</b> <b>Fuseau horaire</b> Eastern Daylight Saving Time EDT
<b>F.O.B. - F.A.B.</b> <b>Plant-Usine:</b> <input type="checkbox"/> <b>Destination:</b> <input checked="" type="checkbox"/> <b>Other-Autre:</b> <input type="checkbox"/>	
<b>Address Enquiries to: - Adresser toutes questions à:</b> Turner, Louie	<b>Buyer Id - Id de l'acheteur</b> hn331
<b>Telephone No. - N° de téléphone</b> (873) 469-3342 ( )	<b>FAX No. - N° de FAX</b> ( ) -
<b>Destination - of Goods, Services, and Construction:</b> <b>Destination - des biens, services et construction:</b>  Specified Herein Précisé dans les présentes	

**Instructions: See Herein**

**Instructions: Voir aux présentes**

<b>Delivery Required - Livraison exigée</b> 2018-11-30	<b>Delivery Offered - Livraison proposée</b>
<b>Vendor/Firm Name and Address</b> <b>Raison sociale et adresse du fournisseur/de l'entrepreneur</b>	
<b>Telephone No. - N° de téléphone</b> <b>Facsimile No. - N° de télécopieur</b>	
<b>Name and title of person authorized to sign on behalf of Vendor/Firm</b> <b>(type or print)</b> <b>Nom et titre de la personne autorisée à signer au nom du fournisseur/</b> <b>de l'entrepreneur (taper ou écrire en caractères d'imprimerie)</b>	
<b>Signature</b>	<b>Date</b>



Destination Code - Code destinataire	Destination Address - Adresse de la destination	Invoice Code - Code bur.-comptable	Invoice Address - Adresse de facturation
D - I	National Defence Carling Campus Headquarters Transformation Project Campus LAB 5 , 60 Moodie Drive Ottawa ON K2H 0K2	I - I	National Defence, Carling Campus Headquarters Transformation Project Campus LAB 2, 3500 Carling Ave, 2-G1 Ottawa ON K1A 0K2 Attention: Daniel Ray, DES Proc 3



Item Article	Description	Dest. Code Dest.	Inv. Code Fact.	Qty Qté	U. of I. U. de D.	Unit Price/Prix unitaire FOB/FAM Destination Plant/Usine	Delivery Req. Livraison Req.	Del. Offered Liv. offerte
1	Audio Visual Systems/Carling Campu s Audiovisual and videoconferencing systems for the Strategic Situation Centre within Building 5 of the Carling Campus. Supply and install fully functional Audiovisual and videoconferencing systems as per Annex A SOW, Appendix A Audio Visual Capabilities, Appendix B Drawings, Appendix C General information and Performance Requirements, Appendix D Drawing Standards, Appendix E Equipment list , Appendix F Evaluation Criteria (includes mandatory requirements) and Appendix G Zones diagram. • Pricing to be inserted at Appendix H	D - 1	I - 1	1	LOT	\$ XXXXXXXXXXXX	2018-11-30	

## TABLE OF CONTENTS

<b>PART 1 - GENERAL INFORMATION .....</b>	<b>3</b>
1.1 SECURITY REQUIREMENTS .....	3
1.2 STATEMENT OF WORK/REQUIREMENT .....	3
1.3 DEBRIEFINGS .....	3
1.4 TRADE AGREEMENTS .....	3
1.5 PHASED BID COMPLIANCE PROCESS.....	3
1.6 ADDRESS INFORMATION .....	3
<b>PART 2 - BIDDER INSTRUCTIONS .....</b>	<b>4</b>
2.1 STANDARD INSTRUCTIONS, CLAUSES AND CONDITIONS.....	4
2.2 SUBMISSION OF BIDS.....	6
2.3 ENQUIRIES - BID SOLICITATION.....	6
2.4 APPLICABLE LAWS.....	6
2.5 MANDATORY SITE VISIT .....	7
<b>PART 3 - BID PREPARATION INSTRUCTIONS.....</b>	<b>8</b>
3.1 BID PREPARATION INSTRUCTIONS .....	8
<b>PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION .....</b>	<b>11</b>
4.1 EVALUATION PROCEDURES.....	11
4.2 BASIS OF SELECTION.....	15
<b>PART 5 – CERTIFICATIONS AND ADDITIONAL INFORMATION .....</b>	<b>16</b>
5.1 CERTIFICATIONS REQUIRED WITH THE BID.....	16
5.2 CERTIFICATIONS PRECEDENT TO CONTRACT AWARD AND ADDITIONAL INFORMATION .....	16
<b>PART 6 - RESULTING CONTRACT CLAUSES .....</b>	<b>18</b>
6.1 SECURITY REQUIREMENTS .....	18
6.2 STATEMENT OF WORK/REQUIREMENT .....	18
6.3 STANDARD CLAUSES AND CONDITIONS.....	19
6.4 TERM OF CONTRACT .....	19
6.5 AUTHORITIES .....	20
6.6 PAYMENT .....	21
6.7 INVOICING INSTRUCTIONS .....	22
6.8 CERTIFICATIONS AND ADDITIONAL INFORMATION.....	22
6.9 APPLICABLE LAWS.....	23
6.10 PRIORITY OF DOCUMENTS .....	23
6.11 DEFENCE CONTRACT .....	23
6.12 NATO COMMERCIAL AND GOVERNMENT ENTITY CODE (NCAGE) TRACEABILITY .....	23
6.13 SACC MANUAL CLAUSES (DELIVERY) .....	23
6.13.1 SHIPPING INSTRUCTIONS - DELIVERY AT DESTINATION .....	24
6.13.2 SHIPPING – SCHEDULING (DND) .....	24

Solicitation No. - N° de l'invitation  
W8474-17CA17/A  
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Buyer ID - Id de l'acheteur  
hn331  
CCC No./N° CCC - FMS No./N° VME

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Attachments:

Annex A – Statement of Work  
Annex B – Basis of Payment - Milestones  
Annex C – Security Requirements Checklist

Appendix A to Annex A – Audio Visual Capabilities  
Appendix B to Annex A – Drawing Package  
Appendix C to Annex A – General Information and Performance Requirements  
Appendix D to Annex A – D STRAT CS/AVC2 Drawing Standards  
Appendix E to Annex A – Equipment List  
Appendix F to Annex A – Evaluation Criteria  
Appendix G to Annex A - zones diagram  
Appendix H – Pricing

Map of Carling Campus

## **PART 1 - GENERAL INFORMATION**

### **1.1 Security Requirements**

1. At the date of bid closing, the following conditions must be met:
  - (a) the Bidder must hold a valid organization security clearance as indicated in Part 6 - Resulting Contract Clauses;
  - (b) the Bidder's proposed individuals requiring access to classified or protected information, assets or sensitive work sites must meet the security requirements as indicated in Part 6 - Resulting Contract Clauses;
  - (c) the Bidder must provide the name of all individuals who will require access to classified or protected information, assets or sensitive work sites;
  - (d) the Bidder's proposed location of work performance and document safeguarding must meet the security requirements as indicated in Part 6 - Resulting Contract Clauses;
  - (e) the Bidder must provide the addresses of proposed sites or premises of work performance and document safeguarding as indicated in Part 3 - Section IV Additional Information.
2. For additional information on security requirements, Bidders should refer to the [Contract Security Program of Public Works and Government Services Canada](http://www.tpsgc-pwgsc.gc.ca/esc-src/introduction-eng.html) (<http://www.tpsgc-pwgsc.gc.ca/esc-src/introduction-eng.html>) website.

### **1.2 Statement of Work/Requirement**

The contractor must provide the goods and services in accordance with the technical requirements stated herein.

#### **1.2.1 Delivery Requirement**

Delivery is requested to be completed by November 30, 2018.

### **1.3 Debriefings**

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 from receipt of the results of the bid solicitation process. The debriefing may be in writing, by telephone or in person.

### **1.4 Trade Agreements**

The requirement is subject to the provisions of the Canadian Free Trade Agreement (CFTA).

### **1.5 Phased Bid Compliance Process**

The Phased Bid Compliance Process applies to this requirement.

### **1.6 Address Information**

The 3500 Carling Ave address has been recently changed to 60 Moodie Drive.

## PART 2 - BIDDER INSTRUCTIONS

### 2.1 Standard Instructions, Clauses and Conditions

All instructions, clauses and conditions identified in the bid solicitation by number, date and title are set out in the [Standard Acquisition Clauses and Conditions Manual](https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual) (<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual>) issued by Public Works and Government Services Canada.

Bidders who submit a bid agree to be bound by the instructions, clauses and conditions of the bid solicitation and accept the clauses and conditions of the resulting contract.

The [2003](#) (2017-04-27) Standard Instructions - Goods or Services - Competitive Requirements, are incorporated by reference into and form part of the bid solicitation.

Subsection 5.4 of [2003](#), Standard Instructions - Goods or Services - Competitive Requirements, is amended as follows:

Delete: 60 days  
Insert: 90 days

The 2003 standard instructions is amended as follows:

- Section 5, entitled Submission of bids, is amended as follows:
  - Subsection 1 is deleted entirely and replaced with the following: "Canada requires that each bid, at solicitation closing date and time or upon request from the Contracting Authority, for example in the case of epost Connect service, be signed by the Bidder or by an authorized representative of the Bidder. If a bid is submitted by a joint venture, it must be in accordance with the section entitled Joint venture."
  - subsection 2.d is deleted entirely and replaced with the following: "send its bid only to the specified Bid Receiving Unit of Public Works and Government Services Canada (PWGSC) identified in the bid solicitation, or to the address specified in the bid solicitation, as applicable;"
  - subsection 2.e is deleted entirely and replaced with the following: "ensure that the Bidder's name, return address and procurement business number, bid solicitation number, and solicitation closing date and time are clearly visible on the bid; and,"
- Section 6, entitled Late bids, is deleted entirely and replaced with the following: "PWGSC will return bids delivered after the stipulated solicitation closing date and time, unless they qualify as a delayed bid as described in the section entitled Delayed bids. For bids submitted using means other than the Canada Post Corporation's epost Connect service, the bid will be returned. For bids submitted using Canada Post Corporation's epost Connect service, conversations initiated by the Bid Receiving Unit via the epost Connect service that contain access, records and information pertaining to a late bid will be deleted."
- Section 07, entitled Delayed bids, is amended as follows:
  - Subsection 1 is amended to add the following piece of evidence: "d. a CPC epost Connect service date and time record indicated in the epost Connect conversation activity."
- Section 8, entitled Transmission by facsimile, is deleted and replaced by the following:

"Transmission by facsimile or by epost Connect

  1. Facsimile
    - a. Unless specified otherwise in the bid solicitation, bids may be submitted by facsimile. The only acceptable facsimile number for responses to bid solicitations issued by PWGSC headquarters is 819-997-9776 or, if applicable, the facsimile number identified in the bid solicitation. The facsimile number for responses to bid solicitations issued by PWGSC regional offices is identified in the bid solicitation.

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- b. For bids transmitted by facsimile, Canada will not be responsible for any failure attributable to the transmission or receipt of the faxed bid including, but not limited to, the following:
- receipt of garbled or incomplete bid;
  - availability or condition of the receiving facsimile equipment;
  - incompatibility between the sending and receiving equipment;
  - delay in transmission or receipt of the bid;
  - failure of the Bidder to properly identify the bid;
  - illegibility of the bid; or
  - security of bid data.
- c. A bid transmitted by facsimile constitutes the formal bid of the Bidder and must be submitted in accordance with the section entitled Submission of bids.
2. ePost Connect
- a. Unless specified otherwise in the bid solicitation, bids may be submitted by using the [epost Connect service provided by Canada Post Corporation](https://www.canadapost.ca/web/en/products/details.page?article=epost_connect_send_a) ([https://www.canadapost.ca/web/en/products/details.page?article=epost\\_connect\\_send\\_a](https://www.canadapost.ca/web/en/products/details.page?article=epost_connect_send_a)).
- b. To submit a bid using epost Connect service, the Bidder must either:
- send directly its bid only to the specified PWGSC Bid Receiving Unit, using its own licensing agreement for epost Connect provided by Canada Post Corporation; or
  - send as early as possible, and in any case, at least six business days prior to the solicitation closing date and time, an email that includes the bid solicitation number to the specified PWGSC Bid Receiving Unit requesting to open an epost Connect conversation. Requests to open an epost Connect conversation received after that time may not be answered.
- c. If the Bidder is sending an email to the Bid Receiving Unit, the Bid Receiving Unit will then initiate an epost Connect conversation which will allow the Bidder to transmit its bid afterward at any time prior to the solicitation closing date and time. The epost Connect conversation will create an email notification from Canada Post Corporation prompting the Bidder to access the message within the conversation, and the Bidder can reply to the email notification by transmitting its bid.
- d. If the Bidder is using its own licensing agreement to send its bid, the Bidder must keep the epost Connect conversation open until at least 30 business days after solicitation closing date and time.
- e. The email address of PWGSC Bid Receiving Unit in Headquarters is: [TPSGC.DGAreceptiondessoumissions-ABBidReceiving.PWGSC@tpsgc-pwgsc.gc.ca](mailto:TPSGC.DGAreceptiondessoumissions-ABBidReceiving.PWGSC@tpsgc-pwgsc.gc.ca). The solicitation number must be identified in the epost Connect message field of all electronic transfers.
- f. It should be noted that the use of epost Connect service requires a Canadian mailing address. Should a bidder not have a Canadian address, they may use the Bid Receiving Unit address specified on page 1 of the solicitation in order to register for the epost Connect service.
- g. For bids transmitted by epost Connect service, Canada will not be responsible for any failure attributable to the transmission or receipt of the bid including, but not limited to, the following:
- receipt of a garbled or incomplete bid;
  - availability or condition of the epost Connect service;
  - incompatibility between the sending and receiving equipment;
  - delay in transmission or receipt of the bid;
  - failure of the Bidder to properly identify the bid;
  - illegibility of the bid;
  - security of bid data; or
  - inability to create an electronic conversation through the epost Connect service.



- h. A bid transmitted by epost Connect service constitutes the formal bid of the Bidder and must be submitted in accordance with the section entitled Submission of bids."

### 2.1.1 SACC Manual Clauses

SACC Reference	Section	Date
<u>A9033T</u>	Financial Capability	2012-07-16
<u>B1000T</u>	Condition of Material	2014-06-26

## 2.2 Submission of Bids

Bids must be submitted ONLY TO THE BID RECEIVING UNIT by the date, time and place indicated on page 1 of the bid solicitation. Do not send proposal directly to the Contracting Officer.

PWGSC Bids Receiving Unit  
11 Laurier Street, Place du Portage, Phase 3, Core 0B2,  
Gatineau, Québec, K1A 0S5  
Tel.: 819-420-7201 Fax: 819-997-9776

## 2.3 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 question(s) or may request that the Bidder do so, so that the proprietary nature of the question(s) is eliminated, and the enquiry can be answered to all Bidders. Enquiries not submitted in a form that can be distributed to all Bidders may not be answered by Canada.

## 2.4 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.

## 2.5 Mandatory Site Visit

It is mandatory that the Bidder or a representative of the Bidder visit the work site. Arrangements have been made for the following:

May 17, 2018 at 9:00 am

Location: 60 Moodie Drive, Building 10, Main Entrance

Bidders will be required to sign an attendance form at the required site visit. Bidders should confirm in their bids that they have attended the site visit. Bidders who do not attend or send a representative to the site visit will not be given an alternative appointment and their bids will be rejected as non-compliant.

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.

To apply for the site visit, contact the Contracting Authority: [louie.turner@pwgsc-tpsgc.gc.ca](mailto:louie.turner@pwgsc-tpsgc.gc.ca).

**The site visit request must be submitted no later than May 15, 2018, 9:00 am**

Bidders **must** clearly identify the name of the participant(s), Date of Birth, the name of the company they represent, telephone number, e-mail address and provide applicable Security Clearance Information (security clearance level, security clearance file number, security clearance expiry/renewal dates).

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

This site is still considered a construction zone, all bidders participating in the site visit May 17, 2018 at 0900 will need to bring and wear the following PPE:

6" min height CSA Approved Steel Toed, Steel Shank Safety Boots,  
Approved Construction hard hat,  
Safety Glasses,  
Reflective Vest.  
Long Pants (No shorts or cut offs), and  
Shirts with sleeves (no dress shirts).

If the participants do not have the required PPE they will not be allowed on site.

All electronic devices (cell phones, cameras, laptops, MP3 players, smart watches etc....) are prohibited on the construction site.

## PART 3 - BID PREPARATION INSTRUCTIONS

### 3.1 Bid Preparation Instructions

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

- Section I: Technical Bid (1 hard copy and 3 soft copies on a medium such as CD, DVD or USB key)
- Section II: Financial Bid (1 hard copy)
- Section III: Certifications (1 hard copy)

If there is a discrepancy between the wording of the soft copy and the hard copy, the wording of the hard copy will have priority over the wording of the soft 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 hard copy 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.

In April 2006, Canada issued a policy directing federal departments and agencies to take the necessary steps to incorporate environmental considerations into the procurement process [Policy on Green Procurement](http://www.tpsgc-pwgsc.gc.ca/ecologisation-greening/achats-procurement/politique-policy-eng.html) (<http://www.tpsgc-pwgsc.gc.ca/ecologisation-greening/achats-procurement/politique-policy-eng.html>). To assist Canada in reaching its objectives, bidders should:

- 1) use 8.5 x 11 inch (216 mm x 279 mm) paper containing fiber certified as originating from a sustainably-managed forest and containing minimum 30% recycled content; and
- 2) use an environmentally-preferable format including black and white printing instead of colour printing, printing double sided/duplex, using staples or clips instead of cerlox, duotangs or binders.

#### Section I: Technical Bid

In their technical bid, Bidders should explain and demonstrate how they propose to meet the requirements and how they will carry out the Work.

##### 3.1.1 Equivalent Product

1. Products that are equivalent in form, fit, function and quality to the item(s) specified in the bid solicitation will be considered where the Bidder designates the brand name and model and/or part number of the substitute product;
2. Products offered as equivalent in form, fit, function and quality will not be considered if:
  - (a) the bid fails to provide all the information requested to allow the Contracting Authority to fully evaluate the equivalency of each substitute product; or
  - (b) the substitute product fails to meet or exceed the mandatory performance criteria specified in the bid solicitation for that item.

3. In conducting its evaluation of the bids, Canada may, but will have no obligation to, request bidders offering a substitute product to provide technical information demonstrating the equivalency (e.g. Drawing, specifications, engineering reports and/or test reports), or to demonstrate that the substitute product is equivalent to the item specified in the bid solicitation, at the sole cost of bidders, within three (3) business days of the request. If the bidder fails to provide the requested information within the specified timeframe, Canada may declare the bid non-responsive.

### **3.1.2 Equivalent Products - Samples (DND)**

If the Bidder offers an equivalent product, Canada reserves the right to request a sample from the Bidder in order to determine its equivalency in form, fit, function, quality and performance to the item specified in the bid solicitation.

The Bidder must, upon request from the Contracting Authority, provide a sample to the Technical Authority, transportation charges prepaid, and without charge to Canada, within fifteen (15) calendar days from the date of request. The sample submitted by the Bidder will remain the property of Canada and will not be considered as part of the deliverables in any resulting contract. If the sample does not meet the requirements of the bid solicitation or the Bidder fails to comply with the request of the Contracting Authority, the bid will be declared non-responsive.

## **Section II: Financial Bid**

Bidders must submit their financial bid in accordance with the Basis of Payment.

Bid pricing must be submitted in Appendix H only, all costs associated with the Supply and Install of the fully functional Audiovisual and videoconferencing systems must be included in the in the installation Zone 1 to Zone 5 line items (107 – 111) in Appendix H.

### **3.2.1 Electronic Payment of Invoices – Bid**

If you are willing to accept payment of invoices by Electronic Payment Instruments, identify which ones are accepted.

- ☐ ( ) VISA Acquisition Card;
- ☐ ( ) MasterCard Acquisition Card;
- ☐ ( ) Direct Deposit (Domestic and International);
- ☐ ( ) Electronic Data Interchange (EDI);
- ☐ ( ) Wire Transfer (International Only);
- ☐ ( ) Large Value Transfer System (LVTS) (Over \$25M)

If none are chosen, it will be considered as if Electronic Payment Instruments are not being accepted for payment of invoices.

Acceptance of Electronic Payment Instruments will not be considered as an evaluation criterion.

### **3.2.2 Exchange Rate Fluctuation**

The requirement does not offer exchange rate fluctuation risk mitigation. Requests for exchange rate fluctuation risk mitigation will not be considered. All bids including such provision will render the bid non-responsive.

## **Section III: Certifications**

Bidders must submit the certifications and additional information required under Part 5.

Solicitation No. - N° de l'invitation  
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W8474-17CA17

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Buyer ID - Id de l'acheteur  
hn331  
CCC No./N° CCC - FMS No./N° VME

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### 3.3.1 Delivery Offered

While delivery is requested as indicated above, the best delivery that could be offered is\_\_\_\_\_.

### 3.3.2 Contractor's Representative

Name and telephone number of the person responsible for: (will be inserted at contract)

#### General enquiries

Name: \_\_\_\_\_  
Telephone: \_\_\_\_\_  
Facsimile: \_\_\_\_\_  
E-mail: \_\_\_\_\_

#### Delivery follow-up

Name: \_\_\_\_\_  
Telephone: \_\_\_\_\_  
Facsimile: \_\_\_\_\_  
Facsimile: \_\_\_\_\_

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## PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION

**You are reminded that this solicitation requires the compliance and/or completion of requirements attached as an Annex and forming part of this document.**

### 4.1 Evaluation Procedures

- (a) Bids will be assessed in accordance with the entire requirement of the bid solicitation including the technical and financial evaluation criteria.
- (b) An evaluation team composed of representatives of Canada will evaluate the bids.

#### 4.1.1 Phased Bid Compliance Process

##### 4.1.1.1 (2017-11-03) General

- (a) Canada is conducting the PBCP described below for this requirement.
- (b) Notwithstanding any review by Canada at Phase I or II of the PBCP, Bidders are and will remain solely responsible for the accuracy, consistency and completeness of their Bids and Canada does not undertake, by reason of this review, any obligations or responsibility for identifying any or all errors or omissions in Bids or in responses by a Bidder to any communication from Canada.

THE BIDDER ACKNOWLEDGES THAT THE REVIEWS IN PHASE I AND II OF THIS PBCP ARE PRELIMINARY AND DO NOT PRECLUDE A FINDING IN PHASE III THAT THE BID IS NON-RESPONSIVE, EVEN FOR MANDATORY REQUIREMENTS WHICH WERE SUBJECT TO REVIEW IN PHASE I OR II AND NOTWITHSTANDING THAT THE BID HAD BEEN FOUND RESPONSIVE IN SUCH EARLIER PHASE. CANADA MAY DEEM A BID TO BE NON-RESPONSIVE TO A MANDATORY REQUIREMENT AT ANY PHASE.

THE BIDDER ALSO ACKNOWLEDGES THAT ITS RESPONSE TO A NOTICE OR A COMPLIANCE ASSESSMENT REPORT (CAR) (EACH DEFINED BELOW) IN PHASE I OR II MAY NOT BE SUCCESSFUL IN RENDERING ITS BID RESPONSIVE TO THE MANDATORY REQUIREMENTS THAT ARE THE SUBJECT OF THE NOTICE OR CAR, AND MAY RENDER ITS BID NON-RESPONSIVE TO OTHER MANDATORY REQUIREMENTS.

- (c) Canada may, in its discretion, request and accept at any time from a Bidder and consider as part of the Bid, any information to correct errors or deficiencies in the Bid that are clerical or administrative, such as, without limitation, failure to sign the Bid or any part or to checkmark a box in a form, or other failure of format or form or failure to acknowledge; failure to provide a procurement business number or contact information such as names, addresses and telephone numbers; inadvertent errors in numbers or calculations that do not change the amount the Bidder has specified as the price or of any component thereof that is subject to evaluation. This shall not limit Canada's right to request or accept any information after the bid solicitation closing in circumstances where the bid solicitation expressly provides for this right. The Bidder will have the time period specified in writing by Canada to provide the necessary documentation. Failure to meet this deadline will result in the Bid being declared non-responsive.

- (d) The PBCP does not limit Canada's rights under Standard Acquisition Clauses and Conditions (SACC) 2003 (2017-04-27) Standard Instructions – Goods or Services – Competitive Requirements nor Canada's right to request or accept any information during the solicitation period or after bid solicitation closing in circumstances where the bid solicitation expressly provides for this right, or in the circumstances described in subsection (c).
- (e) Canada will send any Notice or CAR by any method Canada chooses, in its absolute discretion. The Bidder must submit its response by the method stipulated in the Notice or CAR. Responses are deemed to be received by Canada at the date and time they are delivered to Canada by the method and at the address specified in the Notice or CAR. An email response permitted by the Notice or CAR is deemed received by Canada on the date and time it is received in Canada's email inbox at Canada's email address specified in the Notice or CAR. A Notice or CAR sent by Canada to the Bidder at any address provided by the Bidder in or pursuant to the Bid is deemed received by the Bidder on the date it is sent by Canada. Canada is not responsible for late receipt by Canada of a response, however caused.

#### **4.1.1.2 (2018-03-13) Phase I: Financial Bid**

- (a) After the closing date and time of this bid solicitation, Canada will examine the Bid to determine whether it includes a Financial Bid and whether any Financial Bid includes all information required by the solicitation. Canada's review in Phase I will be limited to identifying whether any information that is required under the bid solicitation to be included in the Financial Bid is missing from the Financial Bid. This review will not assess whether the Financial Bid meets any standard or is responsive to all solicitation requirements.
- (b) Canada's review in Phase I will be performed by officials of the Department of Public Works and Government Services.
- (c) If Canada determines, in its absolute discretion that there is no Financial Bid or that the Financial Bid is missing all of the information required by the bid solicitation to be included in the Financial Bid, then the Bid will be considered non-responsive and will be given no further consideration.
- (d) For Bids other than those described in c), Canada will send a written notice to the Bidder ("Notice") identifying where the Financial Bid is missing information. A Bidder, whose Financial Bid has been found responsive to the requirements that are reviewed at Phase I, will not receive a Notice. Such Bidders shall not be entitled to submit any additional information in respect of their Financial Bid.
- (e) The Bidders who have been sent a Notice shall have the time period specified in the Notice (the "Remedy Period") to remedy the matters identified in the Notice by providing to Canada, in writing, additional information or clarification in response to the Notice. Responses received after the end of the Remedy Period will not be considered by Canada, except in circumstances and on terms expressly provided for in the Notice.

- (f) In its response to the Notice, the Bidder will be entitled to remedy only that part of its Financial Bid which is identified in the Notice. For instance, where the Notice states that a required line item has been left blank, only the missing information may be added to the Financial Bid, except that, in those instances where the addition of such information will necessarily result in a change to other calculations previously submitted in its Financial Bid, (for example, the calculation to determine a total price), such necessary adjustments shall be identified by the Bidder and only these adjustments shall be made. All submitted information must comply with the requirements of this solicitation.
- (g) Any other changes to the Financial Bid submitted by the Bidder will be considered to be new information and will be disregarded. There will be no change permitted to any other Section of the Bidder's Bid. Information submitted in accordance with the requirements of this solicitation in response to the Notice will replace, in full, **only** that part of the original Financial Bid as is permitted above, and will be used for the remainder of the bid evaluation process.
- (h) Canada will determine whether the Financial Bid is responsive to the requirements reviewed at Phase I, considering such additional information or clarification as may have been provided by the Bidder in accordance with this Section. If the Financial Bid is not found responsive for the requirements reviewed at Phase I to the satisfaction of Canada, then the Bid shall be considered non-responsive and will receive no further consideration.
- (i) Only Bids found responsive to the requirements reviewed in Phase I to the satisfaction of Canada, will receive a Phase II review.

#### **4.1.1.3 (2018-03-13) Phase II: Technical Bid**

- (a) Canada's review at Phase II will be limited to a review of the Technical Bid to identify any instances where the Bidder has failed to meet any Eligible Mandatory Criterion. This review will not assess whether the Technical Bid meets any standard or is responsive to all solicitation requirements. Eligible Mandatory Criteria are all mandatory technical criteria that are identified in this solicitation as being subject to the PBCP. Mandatory technical criteria that are not identified in the solicitation as being subject to the PBCP, will not be evaluated until Phase III.
- (b) Canada will send a written notice to the Bidder (Compliance Assessment Report or "CAR") identifying any Eligible Mandatory Criteria that the Bid has failed to meet. A Bidder whose Bid has been found responsive to the requirements that are reviewed at Phase II will receive a CAR that states that its Bid has been found responsive to the requirements reviewed at Phase II. Such Bidder shall not be entitled to submit any response to the CAR.
- (c) A Bidder shall have the period specified in the CAR (the "Remedy Period") to remedy the failure to meet any Eligible Mandatory Criterion identified in the CAR by providing to Canada in writing additional or different information or clarification in response to the CAR. Responses received after the end of the Remedy Period will not be considered by Canada, except in circumstances and on terms expressly provided for in the CAR.
- (d) The Bidder's response must address only the Eligible Mandatory Criteria listed in the CAR as not having been achieved, and must include only such information as is necessary to achieve such compliance. Any additional information provided by the Bidder which is not necessary to achieve such compliance will not be considered by Canada, except that, in those instances where such a response to the Eligible Mandatory Criteria specified in the CAR will necessarily result in a consequential change to other parts of the Bid, the Bidder shall identify such additional changes, provided that its response must not include any change to the Financial Bid.



- (e) The Bidder's response to the CAR should identify in each case the Eligible Mandatory Criterion in the CAR to which it is responding, including identifying in the corresponding section of the original Bid, the wording of the proposed change to that section, and the wording and location in the Bid of any other consequential changes that necessarily result from such change. In respect of any such consequential change, the Bidder must include a rationale explaining why such consequential change is a necessary result of the change proposed to meet the Eligible Mandatory Criterion. It is not up to Canada to revise the Bidder's Bid, and failure of the Bidder to do so in accordance with this subparagraph is at the Bidder's own risk. All submitted information must comply with the requirements of this solicitation.
- (f) Any changes to the Bid submitted by the Bidder other than as permitted in this solicitation, will be considered to be new information and will be disregarded. Information submitted in accordance with the requirements of this solicitation in response to the CAR will replace, in full, **only** that part of the original Bid as is permitted in this Section.
- (g) Additional or different information submitted during Phase II permitted by this section will be considered as included in the Bid, but will be considered by Canada in the evaluation of the Bid at Phase II only for the purpose of determining whether the Bid meets the Eligible Mandatory Criteria. It will not be used at any Phase of the evaluation to increase or decrease any score that the original Bid would achieve without the benefit of such additional or different information. For instance, an Eligible Mandatory Criterion that requires a mandatory minimum number of points to achieve compliance will be assessed at Phase II to determine whether such mandatory minimum score would be achieved with such additional or different information submitted by the Bidder in response to the CAR. If so, the Bid will be considered responsive in respect of such Eligible Mandatory Criterion, and the additional or different information submitted by the Bidder shall bind the Bidder as part of its Bid, but the Bidder's original score, which was less than the mandatory minimum for such Eligible Mandatory Criterion, will not change, and it will be that original score that is used to calculate any score for the Bid
- (h) Canada will determine whether the Bid is responsive for the requirements reviewed at Phase II, considering such additional or different information or clarification as may have been provided by the Bidder in accordance with this Section. If the Bid is not found responsive for the requirements reviewed at Phase II to the satisfaction of Canada, then the Bid shall be considered non-responsive and will receive no further consideration.
- (i) Only Bids found responsive to the requirements reviewed in Phase II to the satisfaction of Canada, will receive a Phase III evaluation.

#### **4.1.1.4 (2018-03-13) Phase III: Final Evaluation of the Bid**

- (a) In Phase III, Canada will complete the evaluation of all Bids found responsive to the requirements reviewed at Phase II. Bids will be assessed in accordance with the entire requirement of the bid solicitation including the technical and financial evaluation criteria.
- (b) A Bid is non-responsive and will receive no further consideration if it does not meet all mandatory evaluation criteria of the solicitation.

#### **4.1.2 Technical Evaluation**

All bids must be completed in full and provide all of the information requested in the bid solicitation to enable full and complete evaluation.

##### **4.1.2.1 Mandatory Technical Criteria**

The following Mandatory requirements must be submitted with the bid for evaluation:

- Technical compliance herein;
- Mandatory Technical Criteria as per Appendix F to Annex A, Section 1, and 1a to 1i

**The Phased Bid Compliance Process will apply to all mandatory technical criteria.**

##### **4.1.2.2 Point Rated Technical Criteria**

Point Rated Technical Criteria as per Appendix F to Annex A, Evaluation Criteria, Section 2a - Key Personnel on Project and 2b - Project Schedule

Bids failing to pass the minimum score in the point rated section will be considered non-compliant and will be given no further consideration. Refer to Appendix F - Evaluation Procedures and Basis of Selection for determining passing scores.

#### **4.1.3 Financial Evaluation**

The following Mandatory factors will be taken into consideration in the evaluation of each offer:  
Compliance with Pricing Basis;

Bids will be evaluated by the total price of the bid. The total price of the bid will be determined by the sum of all 112 line items in Appendix H (which includes the option item).

##### **4.1.3.1 Pricing Basis**

The bidder must quote firm unit prices in Canadian dollars DDP Delivered Duty Paid (Moodie Drive), Applicable Taxes extra, as applicable. Freight charges to destination and all applicable Custom duties and Excise taxes must be included.

#### **4.2 Basis of Selection**

A bid must comply with the requirements of the bid solicitation and meet all mandatory technical evaluation criteria to be declared responsive. The responsive bid with the "lowest evaluated price on an aggregate basis" will be recommended for award of a contract.

## PART 5 – CERTIFICATIONS AND ADDITIONAL INFORMATION

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

The certifications provided by Bidders to Canada are subject to verification by Canada at all times. Unless specified otherwise, Canada will declare a bid non-responsive, or will declare a contractor in default if any certification made by the Bidder is found to be untrue whether made knowingly or unknowingly, 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 and to cooperate with any request or requirement imposed by the Contracting Authority will render the bid non-responsive or constitute a default under the Contract.

### 5.1 Certifications Required with the Bid

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

#### 5.1.1 Integrity Provisions - Declaration of Convicted Offences

In accordance with the Integrity Provisions of the Standard Instructions, all bidders must provide with their bid, **if applicable**, the declaration form available on the [Forms for the Integrity Regime](http://www.tpsgc-pwgsc.gc.ca/ci-if/declaration-eng.html) website (<http://www.tpsgc-pwgsc.gc.ca/ci-if/declaration-eng.html>), to be given further consideration in the procurement process.

### 5.2 Certifications Precedent to Contract Award and Additional Information

The certifications and additional information listed below should be submitted with the bid, but may be submitted afterwards. If any of these required certifications or additional information is not completed and submitted as requested, the Contracting Authority will inform the Bidder of a time frame within which to provide the information. Failure to provide the certifications or the additional information listed below within the time frame provided will render the bid non-responsive.

#### 5.2.1 Integrity Provisions – Required Documentation

In accordance with the section titled Information to be provided when bidding, contracting or entering into a real procurement agreement of the [Ineligibility and Suspension Policy](http://www.tpsgc-pwgsc.gc.ca/ci-if/politique-policy-eng.html) (<http://www.tpsgc-pwgsc.gc.ca/ci-if/politique-policy-eng.html>), the Bidder must provide the required documentation, as applicable, to be given further consideration in the procurement process.

#### 5.2.2 General Environmental Criteria Certification

The Bidder must select and complete one of the following two certification statements.

- A) The Bidder certifies that the Bidder is registered or meets ISO 14001.

\_\_\_\_\_  
Bidders' Authorized Representative Signature

\_\_\_\_\_  
Date

OR

- B) The Bidder certifies that the Bidder meets and will continue to meet throughout the duration of the contract, a minimum of four (4) out of six (6) criteria identified in the table below.

The Bidder must indicate which four (4) criteria, as a minimum, are met.

<b>Green Practices within the Bidders' organization</b>	<b>Insert a checkmark for each criterion that is met</b>
Promotes a paperless environment through directives, procedures and/or programs	
All documents are printed double sided and in black and white for day to day business activity unless otherwise specified by your client	
Paper used for day to day business activity has a minimum of 30% recycled content and has a sustainable forestry management certification	
Utilizes environmentally preferable inks and purchase remanufactured ink cartridges or ink cartridges that can be returned to the manufacturer for reuse and recycling for day to day business activity.	
Recycling bins for paper, newsprint, plastic and aluminum containers available and emptied regularly in accordance with local recycling program.	
A minimum of 50% of office equipment has an energy efficient certification.	

\_\_\_\_\_  
Bidders' Authorized Representative Signature

\_\_\_\_\_  
Date

### 5.2.3 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 (FCP) for employment equity "FCP Limited Eligibility to Bid" list available at the bottom of the page of the [Employment and Social Development Canada \(ESDC\) - Labour's](https://www.canada.ca/en/employment-social-development/programs/employment-equity/federal-contractor-program.html#) website (<https://www.canada.ca/en/employment-social-development/programs/employment-equity/federal-contractor-program.html#>).

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" list at the time of contract award.

Canada will also have the right to terminate the Contract for default if a Contractor, or any member of the Contractor if the Contractor is a Joint Venture, appears on the "[FCP Limited Eligibility to Bid](#)" list during the period of the Contract.

The Bidder must provide the Contracting Authority with a completed annex titled Federal Contractors Program for Employment Equity - Certification, before contract award. If the Bidder is a Joint Venture, the Bidder must provide the Contracting Authority with a completed annex Federal Contractors Program for Employment Equity - Certification, for each member of the Joint Venture.

## PART 6 - RESULTING CONTRACT CLAUSES

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

### 6.1 Security Requirements

**6.1.1** The following security requirements (SRCL and related clauses provided by the Contract Security Program) apply and form part of the Contract.

1. The Contractor/Offeror must, at all times during the performance of the Contract/Standing Offer/Supply Arrangement, hold a valid Facility Security Clearance at the level of **SECRET**, issued by the Canadian Industrial Security Directorate (CISD), Public Works and Government Services Canada (PWGSC).
2. The Contractor/Offeror personnel requiring access to PROTECTED/CLASSIFIED information, assets or sensitive work site(s) must EACH hold a valid personnel security screening at the level of **SECRET** as required, granted or approved by CISD/PWGSC.
3. The Contractor/Offeror MUST NOT remove any PROTECTED/CLASSIFIED information from the identified work site(s), and the Contractor/Offeror must ensure that its personnel are made aware of and comply with this restriction.
4. Subcontracts which contain security requirements are NOT to be awarded without the prior written permission of CISD/PWGSC.
5. The Contractor/Offeror must comply with the provisions of the:
  - a. Security Requirements Check List and security guide (if applicable), attached at Annex C;
  - b. *Industrial Security Manual* (Latest Edition).

### 6.2 Statement of Work/Requirement

The contractor must provide the goods and services in accordance with the technical requirements stated herein.

#### 6.2.2 Optional Services

The Contractor grants to Canada the irrevocable option to acquire the services described at Annex A, note 21. b. (and reference Part 6, 6.3.1.2 Option warranty period) of the Contract under the same conditions and at the prices and/or rates stated in the Contract. The option may only be exercised by the Contracting Authority and will be evidenced, for administrative purposes only, in whole or in part, through a contract amendment.

The Contracting Authority may exercise the option at any time up to one year from contract award date (insert date) by sending a written notice to the Contractor.

#### 6.2.3 SACC Manual Clauses

SACC Reference	Section	Date
<u>B1501C</u>	Electrical Equipment	2006-06-16
<u>B7500C</u>	Excess Goods	2006-06-16

### 6.3 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 Manual](https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual) (https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual) issued by Public Works and Government Services Canada.

#### 6.3.1 General Conditions

[2010A](#) (2016-04-04), General Conditions - Goods (Medium Complexity), apply to and form part of the Contract.

and

[2010C](#) (2016-04-04), [General Conditions - Services \(Medium Complexity\)](#) sections 2010C 16 and 2010C 17 [apply to and form part of the Contract](#).

##### 6.3.1.1 SACC Manual Clauses

SACC Reference	Section	Date
<a href="#">C2800C</a>	Priority Rating	2013-01-28
<a href="#">C2801C</a>	Priority Rating - Canadian Contractors	2014-11-27

##### 6.3.1.2 Option Warranty Period

If exercised, Section 09 of general conditions 2010A (2014-09-25) Warranty, will be amended by replacing the period of twelve (12) months by forty eight (48) months. (12 month standard warranty plus option period of an additional 36 months)

All other provisions of the warranty section remain in effect.

### 6.4 Term of Contract

#### 6.4.1 Delivery Date

All the deliverables must be received on or before \_\_\_\_\_ (Delivery as offered and as accepted will be inserted at contract award).

#### 6.4.2 Option to Exercise the Extended Warranty

The Contractor grants to Canada the irrevocable option to purchase the optional extended warranty for up to one year after contract award under the same conditions.

Canada may exercise this option at any time by sending a written notice to the Contractor at least 10 calendar days before the expiry date of the Contract. The option may only be exercised by the Contracting Authority, and will be evidenced for administrative purposes only, through a contract amendment.

## 6.5 Authorities

### 6.5.1 Contracting Authority

The Contracting Authority for the Contract is:

**Louie Turner, Supply Specialist**

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: (873) 469-3342

E-mail address: [louie.turner@pwgsc-tpsgc.gc.ca](mailto:louie.turner@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.

### 6.5.2 Project Authority

The Project Authority for the Contract is: (will be inserted at contract)

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Telephone: \_\_\_\_\_

Facsimile: \_\_\_\_\_

E-mail: \_\_\_\_\_

The Project 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 Project Authority; however the Project 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.

### 6.5.3 Technical Authority

The Technical Authority for the Contract is: (will be inserted at contract)

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Telephone: (xxx) xxx-xxxx Facsimile: (xxx) xxx-xxxx

E-mail: \_\_\_\_\_

The Technical Authority named above 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.

#### 6.5.4 Procurement authority

The Procurement Authority for the Contract is: (will be inserted at contract)

Name:

Title:

Telephone: (xxx) xxx-xxxx Facsimile: (xxx) xxx-xxxx

E-mail:

The Procurement Authority is the representative of the department or agency for whom the Work is being carried out under the Contract. The Procurement Authority is responsible for the implementation of tools and processes required for the administration of the Contract. The Contractor may discuss administrative matters identified in the Contract with the Procurement Authority however the Procurement Authority has no authority to authorize changes to the scope of the Work. Changes to the scope of Work can only be made through a contract amendment issued by the Contracting Authority.

#### 6.5.5 Contractor's Representative

Name and telephone number of the person responsible for: (will be inserted at contract)

##### General enquiries

Name: \_\_\_\_\_

Telephone: \_\_\_\_\_

Facsimile: \_\_\_\_\_

E-mail: \_\_\_\_\_

##### Delivery follow-up

Name: \_\_\_\_\_

Telephone: \_\_\_\_\_

Facsimile: \_\_\_\_\_

Facsimile: \_\_\_\_\_

#### 6.6 Payment

##### 6.6.1 Basis of Payment

In consideration of the Contractor satisfactorily completing all of its obligations under the Contract, the Contractor will be paid firm unit and lot prices, as specified in the contract, in Appendix H for a cost of \$ \_\_\_\_\_ (insert the amount at contract award). Customs duties are included and Applicable Taxes are extra.

##### 6.6.2 Limitation of Price

SACC Manual clause C6000C (2017-08-17) Limitation of Price

##### 6.6.3 Milestone Payments - Subject to holdback

1. Canada will make milestone payments in accordance with the Schedule of Milestones detailed in the Contract at Annex B and the payment provisions of the Contract, up to 100 percent of the amount claimed and approved by Canada if:
  - a. an accurate and complete invoice for payment 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 100 percent of the total amount to be paid under the Contract;
  - c. all work associated with the milestone and as applicable any deliverable required have been completed and accepted by Canada.



#### **6.6.4 Insurance**

SACC Manual clause [G1005C](#) (2016-01-28) Insurance

#### **6.6.5 Electronic Payment of Invoices – Contract**

If you are willing to accept payment of invoices by Electronic Payment Instruments, identify which ones are accepted.

- ☐ VISA Acquisition Card;
- ☐ MasterCard Acquisition Card;
- ☐ Direct Deposit (Domestic and International);
- ☐ Electronic Data Interchange (EDI);
- ☐ Wire Transfer (International Only);
- ☐ Large Value Transfer System (LVTS) (Over \$25M)

If none are chosen, it will be considered as if Electronic Payment Instruments are not being accepted for payment of invoices.

Acceptance of Electronic Payment Instruments will not be considered as an evaluation criterion.

#### **6.7 Invoicing Instructions**

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 invoice is completed.
2. Invoices must be distributed as follows:
  - (a) The original and one (1) copy must be forwarded to the address shown on page 1 of the Contract for certification and payment.
  - (b) One (1) copy must be forwarded to the Contracting Authority identified under the Section 5. Authorities

#### **6.8 Certifications and Additional Information**

##### **6.8.1 Compliance**

Unless specified otherwise, the continuous compliance with the certifications provided by the Contractor in its bid or precedent to contract award, and the ongoing cooperation in providing additional information are conditions of the Contract and failure to comply will constitute the Contractor in default. Certifications are subject to verification by Canada during the entire period of the Contract.

##### **6.8.2 Federal Contractors Program for Employment Equity - Default by the Contractor**

The Contractor understands and agrees that, when an Agreement to Implement Employment Equity (AIEE) exists between the Contractor and Employment and Social Development Canada (ESDC)-Labour, the AIEE must remain valid during the entire period of the Contract. If the AIEE becomes invalid, the name of the Contractor will be added to the "[FCP Limited Eligibility to Bid](#)" list. The imposition of such a sanction by ESDC will constitute the Contractor in default as per the terms of the Contract.

## 6.9 Applicable Laws

The Contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in \_\_\_\_\_ (*insert the name of the province or territory as specified by the Bidder in its bid, if applicable*).

## 6.10 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) the general conditions **2010A** (2016-04-04), **General Conditions - Goods (Medium Complexity)**, and **2010C** (2016-04-04), **General Conditions - Services (Medium Complexity)** sections 2010C 16 and 2010C 17;
- (c) Annex A - Statement of Work;
- (d) Annex C, Security Requirements Check List;
- (e) the Contractor's bid dated \_\_\_\_\_ as clarified on \_\_\_\_\_ " **or** ", as amended on \_\_\_\_\_ "

## 6.11 Defence Contract

SACC Manual clause **A9006C** (2012-07-16) Defence Contract

## 6.12 NATO Commercial and Government Entity Code (NCAGE) Traceability

Material supplied for the items specified in this contract is subject to investigation by Canada. Material which can neither be demonstrated by the contractor as having originated directly from the NCAGE specified for the item in this contract, nor as supplied with the specific written permission of this specified NCAGE, are subject to the following action by Canada.

Canada may either:

- a) terminate the contract for default with respect to that item, return the item to the Contractor at the Contractor's risk and expense, and demand and receive from the Contractor (who shall forthwith so pay) all procurement and other costs incurred by Canada, including any increased costs required for the purpose of expediting production; or
- b) retain the item, and demand and receive from the Contractor (who shall forthwith so pay) the difference between the Contractor's costs relating to the item, as determined by Canada, and the costs which, in Canada's opinion, the Contractor would have incurred had it obtained and supplied an item which did not differ in any way from that specifically required under the contract.

## 6.13 SACC Manual Clauses (Delivery)

SACC Reference	Section	Date
<b>D9002C</b>	Incomplete Assemblies	2007-11-30

#### **6.13.1 Shipping Instructions - Delivery at Destination**

Goods must be consigned to the destination specified in the Contract and delivered:

- (a) Delivered Duty Paid (DDP) Moodie Drive Incoterms 2000 for shipments from a commercial contractor.

#### **6.13.2 Shipping – Scheduling (DND)**

The Contractor must deliver the goods to 60 Moodie Drive and all aspects of the project must be co-ordinated with (to be completed at contract award)

**ANNEX A – STATEMENT OF WORK**

**SOLICITATION W8474-17-CA17**

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**INTRODUCTION**

1. Background. The Department National Defence (The Client) is moving into a newly renovated facility located at 60 Moodie Drive (The Campus), Ottawa, Ontario. As part of this move, there is a requirement to replicate the Strategic Situation Centre which is currently located at 101 Colonel By Drive, Ottawa, Ontario.
2. Scope. The work includes: providing equipment, furniture, engineering, project management, fabrication, assembly, software programming, installation, documentation, training, and the warranty of audiovisual systems.
3. Requirement. The Department of National Defence (DND) has a requirement to outfit numerous facilities with AV technology including a command centre, control booth, meeting rooms, offices and shared work areas with audiovisual and videoconferencing systems in the Strategic Situation Centre within Building 5 of The Campus.

**PROJECT AUTHORITY**

4. The DND Project Authority is NDHQ/DPDMIS/SJS Project Manager.

**UNDERSTANDING AND INSTRUCTIONS**

5. The Contractor shall provide and integrate audiovisual systems in the following areas:
  - a. Control Booth;
  - b. Conference Room;
  - c. Meeting Room 1;
  - d. Meeting Room 2;
  - e. Special Purpose Space;
  - f. Zone 1;
  - g. Zone 2;
  - h. Zone 3;
  - i. Zone 4;
  - j. EQT\_5-1;
  - k. EQT\_5-2;
  - l. EQT\_5-6;
  - m. EQT\_5-7; and
  - n. External Feeds;
6. The Contractor shall provide and assemble all hardware, equipment and AV furniture, as required, to produce a completely functioning AV system as outlined in all appendices of this document and especially in Appendix A to Annex A – Statement of Work (Audio Visual Capabilities) and Appendix B to Annex A – Statement of Work (Drawing Package).
7. The Contractor shall and configure install all equipment, cables, wiring, connectors, plates and other material at The Campus to provide a fully functioning AV system.
8. The Contractor shall follow the installation practices as outlined in Appendix C to Annex A – Statement of Work (General Information and Performance Requirements).

9. The Contractor shall provide all necessary project management and supervisory personnel required to assure the accurate and professional implementation of the project.
10. The Contractor shall update and deliver a Progress Report to the DND Project Authority. The report shall include the following milestones and shall be due every Tuesday by noon for the duration of the contract via email.

Milestones:

- Project documentation reviewed
  - Contractor site review completed
  - Critical dimensions identified
  - Detailed AV project schedule provided
  - Detailed Acceptance Test provided
  - Preliminary touch panel screen shots delivered
  - Schedule pressures identified
  - Installation completed
  - Acceptance testing completed
  - Documentation delivered
  - Training delivered
  - Final deliverables received
  - Project signed-off
11. The Contractor personnel shall have all required provincial certifications required to work on a construction site in Ontario including, but not limited to, Working at Heights and WHMIS.
  12. The Contractor shall ensure supplied equipment can be transported from the loading area to the installation area.
  13. The Contractor shall protect the existing structures and furniture during equipment movement and installation within The Campus contracted work area.
  14. The security of any equipment and/or tools provided by the Contractor for the purpose of installing the systems remains the responsibility of the Contractor.
  15. The Contractor shall coordinate secure on-site storage for all equipment with the DND Project Authority. Keeping in mind that on-site storage is limited.
  16. The Contractor shall remove, sort and discard all packing material (e.g., boxes, pallets, foam) pursuant to local rules.
  17. Fifteen (15) days prior to the commencement of on-site work, the Contractor shall have completed the following items:
    - a. a review of all relevant project documentation, including HVAC requirements, electrical power and grounding/earth connection;
    - b. a visit to the project site to verify the physical conditions of the project site that may affect work conditions;
    - c. a finalized detailed AV project schedule to the DND Project Authority; and

- d. preliminary screen shots of all touch panel layouts depicting the “Look and Feel” for DND Project Authority concept acceptance.

18. As part of the project deliverables, the Contractor shall deliver to the DND Project Authority, the following items:

- a. Acceptance Test Plan, within 15 days prior to room testing and system acceptance, including the procedures of the tests that shall be used by the Contractor to demonstrate the complete integration and proper operation of the hardware and system software. It shall describe the general procedures terms and conditions governing the planning, preparation and completion of acceptance tests covering the system submitted for acceptance.

It shall include step-by-step procedures on how each test will be performed. The tests procedures shall be in a table format. The table shall contain columns for the following information:

- i. System/sub-system name scope of the test;
- ii. Control parameters;
- iii. Test equipment provided by Contractor to perform the test(s);
- iv. Results: Pass/Fail; and
- v. Spaces/columns at each test for Contractor and DND Project Authority signatures.

Test Parameters – The Contractor shall perform end-to-end testing of all signal flows to verify proper functionality. The testing shall adhere to the suggested manufacturer testing protocol.

Cable Testing – All Contractor-fabricated cables shall be tested and results submitted to the DND Project Authority:

- i. Continuity tests;
- ii. Short tests; and
- iii. Wiremap tests.

The audiovisual system shall be tested in accordance to the InfoComm International Standard for Audiovisual Systems performance verification (ANSI/INFOCOMM 10:2013). As part of ANSI/INFOCOMM 10:2013, the functional categories to be tested shall include the following:

- i. Audio System Performance;
- ii. Video System Performance;
- iii. Audio/Video System Performance;
- iv. Cable Management, Termination and Labeling;
- v. Control System Performance;
- vi. System and record Documentation;
- vii. Electrical;
- viii. Information Technology;
- ix. Operations and Support;
- x. Physical Environment;
- xi. Physical Installation; and
- xii. Serviceability.



- b. Acceptance Test Results, within three days following Project Authority sign off. Before any Acceptance Tests are scheduled, the Contractor shall perform its own system checkout. When this checkout is completed and adjustments are made, the Contractor shall notify the DND Project Authority that the systems are in compliance with the specifications and are ready for acceptance tests. The Contractor shall furnish all required test equipment and shall perform all work necessary to determine and/or modify performance of the system to meet the requirements of the statement of work.
- c. Manufacturers Operating/User Manuals of each piece of installed equipment within three days of room testing and system acceptance. The manuals may be provided in hardcopy and/or electronic format.
- d. Programming Source and DSP Codes within three days of room testing and system acceptance.

The Contractor shall create all control systems software programming required to provide a complete operational system in accordance with these specifications, including all control logic and graphical user interface programming. The Contractor shall revisit the site, up to 90 days from the acceptance date, if minor “tweaks” are required to the touch panel layouts and operation.

- e. Bilingual System Operating Handbook describing the basic operation of the AV system for end users and technical support staff. The purpose of the System Operating Handbook is to show the users how to set-up, use and operate the audiovisual and videoconferencing systems as well as basic troubleshooting procedures.

The Contractor shall submit to the Project Authority for his review and approval a manual titled System Operating Handbook. Use of block diagrams, laminated “cheat sheets” and cross-references to the Manufacturer Operating Manuals shall be included in the technical section of the handbook. One copy of each room “cheat sheet” (final version) shall remain in each respective room.

This document shall be graphical and written in non-technical terminology for ease of use. It shall include the main operation for each component of the system. A draft of the handbook (unilingual) shall be due within 10 days prior to room testing and acceptance. The final version of the handbook (unilingual) shall be due within 30 days following room testing and acceptance. The translated version of the final handbook shall be due within 60 days following room testing and acceptance. The handbook shall be provided in hardcopy format (quantity 10 in French and 10 in English) and electronic format (Microsoft Word 2013 and Adobe PDF).

As a minimum, the handbook shall include the following information:

- i. Overview of the local presentation, audioconference and videoconference components;
- ii. How to set-up, adjust and use all the features of all the components procured or installed; and
- iii. Pictorial representation of the steps needed to start, connect and present using the different equipment installed within each room. Written verbiage to accompany each step in the process.

The technical section of the handbook shall contain:

- i. a complete list of all the settings for the equipment used, including a snap shot or screen capture of each configuration page;
  - ii. a troubleshooting guide section that contains sufficient information to allow a technician to pinpoint which equipment has failed in case of problems, and to ensure that the problem is not due to a bad set up or connection;
  - iii. directions on how to bypass the video and audio switching equipment in case of failure to allow the conference or local presentation to be conducted by manually switching the audio and video sources;
  - iv. a description of each module used in the presentation system;
  - v. the as-built/installed drawings; and
  - vi. if necessary, the handbook shall make reference to sections of the documentation contained in the Manufacturers Operating/User Manuals.
- f. Complete system design documentation including electronic schematics, hardware drawings, and a list of installed components. Draft drawings and inventory due five days prior to room testing and acceptance. As-Built drawings and final inventory due 30 days following room testing and acceptance.

#### As-built Drawings

The as-built drawings shall include schematics comprising of video, audio and control interconnectivity, rack layout and floor plan of each room. The as-built drawings shall indicate the location of all major components of each system and how these components are interconnected. The Contractor shall supply as-built drawings in accordance the D Strat CS / AVC2 drawing standards in Appendix D to Annex A – Statement of Work (Drawing Standards). Three copies of all as-built drawings shall be delivered to the Project Authority. In addition, the electronic version of all as-built drawings shall be provided to the Project Authority on a USB drive in AutoCAD 2015 format.

#### Inventory

The Contractor shall provide a spreadsheet itemizing the make, model number, serial number, firmware version, MAC address, location, and warranty information of all installed equipment. The spreadsheet shall be provided to the Project Authority on a USB drive in a Microsoft Excel 2013 compatible format.

- g. On-site Training to end users and technical staff instructing them on the AV systems capabilities, maintenance and troubleshooting. Specific structure and scheduling of training shall be established in cooperation with the DND Project Authority prior to the completion of the installation. The Contractor shall provide a total of eight hours of end user training and four hours of technical training. The DND Project Authority shall create the training schedule and allocate the number of training hours based on the room complexity.

As the rooms can accommodate a large number of end users and technical staff, the number of participants attending the training session will not be limited.

The training syllabus shall be centered on content of the System Operating Handbook and shall cover system set-up, functions, and operations.

The training shall teach end users with no previous experience how to:

- i. set-up and display a local presentation;
- ii. set-up, adjust and use all of the system features;
- iii. establish a video conferencing call (where applicable); and
- iv. establish an audio conferencing call (where applicable).

In addition to the end user syllabus, the technical staff training shall cover:

- i. the identification of faulty or failed equipment and the problem cause;
- ii. the steps to bypass the video and audio switching equipment; and
- iii. a review of the as-built drawings including schematics, rack layouts and floor plans.

Training shall be conducted in English and French.

19. The Contractor shall provide warranty coverage and support services as per Public Services and Procurement Canada standard clauses and shall include the following:

- a. response time (call back) for warranty service no longer than four hours from time of request for servicing;
- b. a warranty period that is automatically extended by the duration of any period or periods where the systems are unavailable for use or cannot be used because of a defect or non-conformance during the original warranty period. This warranty applies to any part of the systems replaced, repaired or corrected, for the greater of:
  - i. The warranty period remaining, including the extension; or
  - ii. 90 days or such other period as may be specified for that purpose by agreement between the Contractor and the DND Project Authority.

20. During the Warranty Period, the Contractor shall deliver Maintenance Warranty Reports providing a record of all customer service calls and the actions taken to resolve each service call. These reports shall be provided on a monthly basis to the DND Project Authority. Updates to on-going maintenance issues shall be documented and tracked in future monthly reports. If no service calls were reported in a given month and there are no on-going issues, a NIL report shall be submitted. The Maintenance Warranty Reports shall include the following information:

- a. Room number;
- b. Reason for call;
- c. Device type and serial number;
- d. Call date and time;
- e. Dispatch date and time;
- f. Arrival date and time;
- g. Departure date and time;
- h. Down time;
- i. Action taken/service performed;
- j. Remarks; and
- k. Summary information for:
  - i. Number of preventive maintenance calls;
  - ii. Number of corrective maintenance calls;
  - iii. Number of return merchandise authorizations;
  - iv. Average call time per type of call; and

- v. Average response time.
21. The Contractor shall provide pricing in the Financial Proposal for a functional system as outlined in Appendix A to Annex A – Statement of Work (Audio Visual Capabilities) including;
- a. equipment listed in Appendix E to Annex A – Statement of Work (Equipment List); and
  - b. option of extending the manufacturer's warranty for an additional three years.

## Annex C - Basis Of Payment

<b><u>Milestone</u></b>	<b><u>Percents</u></b>	<b><u>Cost</u></b>	<b><u>Total</u></b>
1: Kickoff meeting, contract award	5%		
2: Contractor prepares the acceptance test plan, electronic schematics, hardware drawings, systems diagrams, schedules and lists in accordance with SOW.	5%		
3:all Equipment delivered	40%		
4: installation completion of the first zone	5%		
5: installation completion of the second zone	5%		
6: installation completion of the third zone.	5%		
7: installation completion of the fourth zone	5%		
8: installation completion of the fith zone	5%		
9: entire installations, test results, training, manuals, handbooks, drawings, programming, and acceptance completed	25%		
<b><u>Total</u></b>	<b>100%</b>		

## ANNEX C



Government of Canada  
Gouvernement du Canada

Contract Number / Numéro du contrat

W8474-17-CA17

Security Classification / Classification de sécurité

Unclassified

SECURITY REQUIREMENTS CHECK LIST (SRCL)  
LISTE DE VÉRIFICATION DES EXIGENCES RELATIVES À LA SÉCURITÉ (LVERS)

PART A - CONTRACT INFORMATION / PARTIE A - INFORMATION CONTRACTUELLE	
1. Originating Government Department or Organization Ministère ou organisme gouvernemental d'origine Department of National Defence	2. Branch or Directorate / Direction générale ou Direction IM Gp/DGIMPD
3. a) Subcontract Number / Numéro du contrat de sous-traitance N/A	3. b) Name and Address of Subcontractor / Nom et adresse du sous-traitant N/A
4. Brief Description of Work - Brève description du travail Providing and Installing Audio Visual Systems in the SJS Rooms at Carling Campus	
5. a) Will the supplier require access to Controlled Goods? Le fournisseur aura-t-il accès à des marchandises contrôlées? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes Non <input type="checkbox"/> Oui	
5. b) Will the supplier require access to unclassified military technical data subject to the provisions of the Technical Data Control Regulations? Le fournisseur aura-t-il accès à des données techniques militaires non classifiées qui sont assujetties aux dispositions du Règlement sur le contrôle des données techniques? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes Non <input type="checkbox"/> Oui	
6. Indicate the type of access required - Indiquer le type d'accès requis	
6. a) Will the supplier and its employees require access to PROTECTED and/or CLASSIFIED information or assets? Le fournisseur ainsi que les employés auront-ils accès à des renseignements ou à des biens PROTÉGÉS et/ou CLASSIFIÉS? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes (Specify the level of access using the chart in Question 7. c) (Préciser le niveau d'accès en utilisant le tableau qui se trouve à la question 7. c) <input type="checkbox"/> Non <input checked="" type="checkbox"/> Oui	
6. b) Will the supplier and its employees (e.g. cleaners, maintenance personnel) require access to restricted access areas? No access to PROTECTED and/or CLASSIFIED information or assets is permitted. Le fournisseur et ses employés (p.ex. nettoyeurs, personnel d'entretien) auront-ils accès à des zones d'accès restreintes? L'accès à des renseignements ou à des biens PROTÉGÉS et/ou CLASSIFIÉS n'est pas autorisé. <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes Non <input type="checkbox"/> Oui	
6. c) Is this a commercial courier or delivery requirement with no overnight storage? S'agit-il d'un contrat de messagerie ou de livraison commerciales sans entreposage de nuit? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes Non <input type="checkbox"/> Oui	
7. a) Indicate the type of information that the supplier will be required to access / Indiquer le type d'information auquel le fournisseur devra avoir accès	
Canada <input checked="" type="checkbox"/>	NATO / OTAN <input type="checkbox"/>
Foreign / Étranger <input type="checkbox"/>	
7. b) Release restrictions / Restrictions relatives à la diffusion	
No release restrictions Aucune restriction relative à la diffusion <input checked="" type="checkbox"/>	All NATO countries Tous les pays de l'OTAN <input type="checkbox"/>
Not releasable À ne pas diffuser <input type="checkbox"/>	Restricted to: / Limité à: <input type="checkbox"/>
Restricted to: / Limité à: <input type="checkbox"/>	Specify country(ies): / Préciser le(s) pays: <input type="checkbox"/>
Specify country(ies): / Préciser le(s) pays: <input type="checkbox"/>	Specify country(ies): / Préciser le(s) pays: <input type="checkbox"/>
7. c) Level of information / Niveau d'information	
PROTECTED A PROTÉGÉ A <input checked="" type="checkbox"/>	NATO UNCLASSIFIED NATO NON CLASSIFIÉ <input type="checkbox"/>
PROTECTED B PROTÉGÉ B <input checked="" type="checkbox"/>	NATO RESTRICTED NATO DIFFUSION RESTREINTE <input type="checkbox"/>
PROTECTED C PROTÉGÉ C <input type="checkbox"/>	NATO CONFIDENTIAL NATO CONFIDENTIEL <input type="checkbox"/>
CONFIDENTIAL CONFIDENTIEL <input type="checkbox"/>	NATO SECRET NATO SECRET <input type="checkbox"/>
SECRET SECRET <input checked="" type="checkbox"/>	COSMIC TOP SECRET COSMIC TRÈS SECRET <input type="checkbox"/>
TOP SECRET TRÈS SECRET <input type="checkbox"/>	
TOP SECRET (SIGINT) TRÈS SECRET (SIGINT) <input type="checkbox"/>	
	PROTECTED A PROTÉGÉ A <input type="checkbox"/>
	PROTECTED B PROTÉGÉ B <input type="checkbox"/>
	PROTECTED C PROTÉGÉ C <input type="checkbox"/>
	CONFIDENTIAL CONFIDENTIEL <input type="checkbox"/>
	SECRET SECRET <input type="checkbox"/>
	TOP SECRET TRÈS SECRET <input type="checkbox"/>
	TOP SECRET (SIGINT) TRÈS SECRET (SIGINT) <input type="checkbox"/>

Security Classification / Classification de sécurité

Unclassified





Government of Canada  
Gouvernement du Canada

Contract Number / Numéro du contrat  
W8474-17-CA17

Security Classification / Classification de sécurité  
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**PART A (continued) / PARTIE A (suite)**

8. Will the supplier require access to PROTECTED and/or CLASSIFIED COMSEC information or assets?  
Le fournisseur aura-t-il accès à des renseignements ou à des biens COMSEC désignés PROTÉGÉS et/ou CLASSIFIÉS?  
If Yes, indicate the level of sensitivity:  
Dans l'affirmative, indiquer le niveau de sensibilité :

☒ No ☐ Yes  
Non Oui

9. Will the supplier require access to extremely sensitive INFOSEC information or assets?  
Le fournisseur aura-t-il accès à des renseignements ou à des biens INFOSEC de nature extrêmement délicate?

☒ No ☐ Yes  
Non Oui

Short Title(s) of material / Titre(s) abrégé(s) du matériel :

Document Number / Numéro du document :

**PART B - PERSONNEL (SUPPLIER) / PARTIE B - PERSONNEL (FOURNISSEUR)**

10. a) Personnel security screening level required / Niveau de contrôle de la sécurité du personnel requis

☐ RELIABILITY STATUS  
COTE DE FIABILITE

☐ CONFIDENTIAL  
CONFIDENTIEL

☒ SECRET  
SECRET

☐ TOP SECRET  
TRÈS SECRET

☐ TOP SECRET - SIGINT  
TRÈS SECRET - SIGINT

☐ NATO CONFIDENTIAL  
NATO CONFIDENTIEL

☐ NATO SECRET  
NATO SECRET

☐ COSMIC TOP SECRET  
COSMIC TRÈS SECRET

☐ SITE ACCESS  
ACCÈS AUX EMPLACEMENTS

Special comments:  
Commentaires spéciaux :

NOTE: If multiple levels of screening are identified, a Security Classification Guide must be provided.  
REMARQUE : Si plusieurs niveaux de contrôle de sécurité sont requis, un guide de classification de la sécurité doit être fourni.

10. b) May unscreened personnel be used for portions of the work?  
Du personnel sans autorisation sécuritaire peut-il se voir confier des parties du travail?

☒ No ☐ Yes  
Non Oui

If Yes, will unscreened personnel be escorted?  
Dans l'affirmative, le personnel en question sera-t-il escorté?

☒ No ☐ Yes  
Non Oui

**PART C - SAFEGUARDS (SUPPLIER) / PARTIE C - MESURES DE PROTECTION (FOURNISSEUR)**

**INFORMATION / ASSETS / RENSEIGNEMENTS / BIENS**

11. a) Will the supplier be required to receive and store PROTECTED and/or CLASSIFIED information or assets on its site or premises?  
Le fournisseur sera-t-il tenu de recevoir et d'entreposer sur place des renseignements ou des biens PROTÉGÉS et/ou CLASSIFIÉS?

☐ No ☒ Yes  
Non Oui

11. b) Will the supplier be required to safeguard COMSEC information or assets?  
Le fournisseur sera-t-il tenu de protéger des renseignements ou des biens COMSEC?

☒ No ☐ Yes  
Non Oui

**PRODUCTION**

11. c) Will the production (manufacture, and/or repair and/or modification) of PROTECTED and/or CLASSIFIED material or equipment occur at the supplier's site or premises?  
Les installations du fournisseur serviront-elles à la production (fabrication et/ou réparation et/ou modification) de matériel PROTÉGÉ et/ou CLASSIFIÉ?

☒ No ☐ Yes  
Non Oui

**INFORMATION TECHNOLOGY (IT) MEDIA / SUPPORT RELATIF À LA TECHNOLOGIE DE L'INFORMATION (TI)**

11. d) Will the supplier be required to use its IT systems to electronically process, produce or store PROTECTED and/or CLASSIFIED information or data?  
Le fournisseur sera-t-il tenu d'utiliser ses propres systèmes informatiques pour traiter, produire ou stocker électroniquement des renseignements ou des données PROTÉGÉS et/ou CLASSIFIÉS?

☐ No ☒ Yes  
Non Oui

11. e) Will there be an electronic link between the supplier's IT systems and the government department or agency?  
Disposera-t-on d'un lien électronique entre le système informatique du fournisseur et celui du ministère ou de l'agence gouvernementale?

☒ No ☐ Yes  
Non Oui

Security Classification / Classification de sécurité  
Unclassified

**PART C (continued) / PARTIE C (suite)**

For users completing the form manually use the summary chart below to indicate the category(ies) and level(s) of safeguarding required at the supplier's site(s) or premises.  
Les utilisateurs qui remplissent le formulaire manuellement doivent utiliser le tableau récapitulatif ci-dessous pour indiquer, pour chaque catégorie, les niveaux de sauvegarde requis aux installations du fournisseur.

For users completing the form online (via the Internet), the summary chart is automatically populated by your responses to previous questions.  
Dans le cas des utilisateurs qui remplissent le formulaire en ligne (par Internet), les réponses aux questions précédentes sont automatiquement saisies dans le tableau récapitulatif.

**SUMMARY CHART / TABLEAU RÉCAPITULATIF**

Category Catégorie	PROTECTED PROTÉGÉ			CLASSIFIED CLASSIFIÉE			NATO				COMSEC						
	A	B	C	Confidential Confidentiel	Secret	Top Secret Très Secret	NATO Restricted NATO Diffusion Restreinte	NATO Confidential	NATO Secret	COSMIC Top Secret COSMIC Très Secret	Protected Protégé			Confidential Confidentiel	Secret	Top Secret Très Secret	
											A	B	C				
Information / Assets Renseignements / Biens	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Production	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
IT Media Support TI	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
IT Link Lien électronique	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

12. a) Is the description of the work contained within this SRCL PROTECTED and/or CLASSIFIED?  
La description du travail visé par la présente LVERS est-elle de nature PROTÉGÉE et/ou CLASSIFIÉE? ☒ No / Non ☐ Yes / Oui

If Yes, classify this form by annotating the top and bottom in the area entitled "Security Classification".  
Dans l'affirmative, classifiez le présent formulaire en indiquant le niveau de sécurité dans la case intitulée.

12. b) Will the document attached to this SRCL be PROTECTED and/or CLASSIFIED?  
La documentation associée à la présente LVERS sera-t-elle PROTÉGÉE et/ou CLASSIFIÉE? ☒ No / Non ☐ Yes / Oui

If Yes, classify this form by annotating the top and bottom in the area entitled "Security Classification" and indicate with attachments (e.g. SECRET with Attachments).  
Dans l'affirmative, classifiez le présent formulaire en indiquant le niveau de sécurité dans la case intitulée « Classification de sécurité » au haut et au bas du formulaire et indiquer qu'il y a des pièces jointes (p. ex. SECRET avec des pièces jointes).



# ANNEX C

Government of Canada / Gouvernement du Canada

Contract Number / Numéro du contrat W8474-17-CA17
Security Classification / Classification de sécurité Unclassified

PART D - AUTHORIZATION / PARTIE D - AUTORISATION			
13. Organization Project Authority / Chargé de projet de l'organisme			
Name (print) - Nom (en lettres moulées) Pierre Caron		Title - Titre SJS Project PM	Signature 
Telephone no. - N° de téléphone (613) 763-0838	Facsimile - Télécopieur	E-mail address - Adresse courriel pierrecaron3@forces.gc.ca	Date 2017-12-08
14. Organization Security Authority / Responsable de la sécurité de l'organisme			
Name (print) - Nom (en lettres moulées) Sasa Medjovic - DDSO Industrial Security Senior Security Analyst		Title - Titre	Signature 
Telephone no. - N° de téléphone Tel: 613-996-0286	Facsimile - Télécopieur	E-mail address - Adresse courriel E-mail: sasa.medjovic@forces.gc.ca	Date 218-Apr-30 SM
15. Are there additional instructions (e.g. Security Guide, Security Classification Guide) attached? Des instructions supplémentaires (p. ex. Guide de sécurité, Guide de classification de la sécurité) sont-elles jointes?			<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes
16. Procurement Officer / Agent d'approvisionnement			
Name (print) - Nom (en lettres moulées)		Title - Titre	Signature
Telephone no. - N° de téléphone	Facsimile - Télécopieur	E-mail address - Adresse courriel	Date
17. Contracting Security Authority / Autorisé contractante en matière de sécurité			
Name (print) - Nom (en lettres moulées)		Title - Titre	Signature
Telephone no. - N° de téléphone	Facsimile - Télécopieur	E-mail address - Adresse courriel	Date

Security Classification / Classification de sécurité Unclassified
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**APPENDIX A TO ANNEX A – STATEMENT OF WORK**

**SOLICITATION W8474-17-CA17**

**AUDIO VISUAL CAPABILITIES**

**March 11, 2018**

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## Table of Contents

1. STRATEGIC JOINT STAFF .....	1
2. COMMON CONSIDERATIONS .....	4
3. EQT_5-6 .....	6
4. Control Booth.....	9
5. Conference Room .....	17
6. Meeting Room 1 .....	24
7. Special Purpose Space (SPS).....	29
8. Zone 1 .....	34
9. Zone 2 .....	39
10. Zone 3 .....	43
11. EQT_5-7 .....	46
12. Zone 4 .....	48
13. Meeting Room 2 .....	53
14. External Feeds.....	59

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## 1. STRATEGIC JOINT STAFF

### a) Requirement

This Appendix identifies the work to be performed by the Contractor. It includes delivery, installation and commissioning of audio visual equipment to the Department of National Defence (DND) under the Strategic Joint Staff Campus Project.

The Strategic Joint Staff (SJS) Campus Project will see the acquisition of all necessary audio visual (AV) equipment for the duplication of the existing SJS facility at DND's new Campus located at 60 Moodie Drive.

At a high level, the SJS facility consists of areas that gather and process information over various networks. The following provides a brief description of each area:

- i) EQT\_5-6 is an AV Equipment Room
- ii) Control Booth is an area, which:
  - (1) processes information;
  - (2) receives information from the Special Purpose Space and External Feeds (via EQT\_5-6);
  - (3) sends information to the Conference Room, Meeting Room 1, and Zones 1 – 3 (via EQT\_5-6); and
  - (4) sends information to Zone 4 and Meeting Room 2 (via EQT\_5-6 and EQT\_5-7).
- iii) Conference Room is a large video teleconferencing (VTC) room, which:
  - (1) processes information;
  - (2) receives information from the Control Booth (via EQT\_5-6);
  - (3) sends information to Meeting Room 1 and Zones 1 – 3 (via EQT\_5-6); and
  - (4) sends information to Zone 4 and Meeting Room 2 via (via EQT\_5-6 and EQT\_5-7).
- iv) Meeting Room 1 is a VTC room, which:
  - (1) processes information;
  - (2) receives information from the Control Booth and Zones 1 – 3 (via EQT\_5-6); and
  - (3) receives information from Zone 4 and Meeting Room 2 (via EQT\_5-7 and EQT\_5-6).
- v) Meeting Room 2 is a VTC room within Zone 4 which:
  - (1) processes information;
  - (2) receives information from Zone 4 (via EQT\_5-7);
  - (3) receives information from the Control Booth and the Conference Room (via EQT\_5-7 and EQT\_5-6); and
  - (4) sends information to Meeting Room 1 (via EQT\_5-7 and EQT\_5-6).
- vi) Special Purpose Space is a work area comprised of work desks, a video wall and an office, which:
  - (1) processes information; and
  - (2) sends information to the Conference Room and Meeting Room 1 (via EQT\_5-6 and the Control Booth).
- vii) Zone 1 is a work area comprised of cubicles, collaboration areas and offices, which:
  - (1) processes information;
  - (2) receives information from the Control Booth and the Conference Room (via EQT\_5-6); and

- (3) sends information to Meeting Room 1 (via EQT\_5-6).
- viii) Zone 2 is a work area comprised of cubicles, collaboration areas and offices, which:
  - (1) processes information;
  - (2) receives information from the Control Booth and the Conference Room (via EQT\_5-6); and
  - (3) sends information to Meeting Room 1 (via EQT\_5-6).
- ix) Zone 3 is a work area comprised of cubicles and collaboration areas, which:
  - (1) processes information;
  - (2) receives information from the Control Booth and the Conference Room (via EQT\_5-6); and
  - (3) sends information to Meeting Room 1 (via EQT\_5-6).
- x) EQT\_5-7 is an AV Equipment Room
- xi) Zone 4 is a work area comprised of cubicles, collaboration areas and offices, which:
  - (1) processes information;
  - (2) sends information to Meeting Room 2 (via EQT\_5-7);
  - (3) sends information to Meeting Room 1 (via EQT\_5-7 and EQT\_5-6).
  - (4) receives information from the Control Booth and the Conference Room (via EQT\_5-6 and EQT\_5-7);
- xii) External Feeds are signals received in EQT\_5-6 from outside the SJS facility
- xiii) Corridor outside the vestibule

Figure 1 illustrates the flow of information from area to area.

The new SJS facility will adhere to the Government of Canada Workplace 2.0 Standard. For the purpose of this Request for Proposal, the Bidder shall propose a solution based on the configuration presented in Appendix B to Annex A - Drawing Package.

During the installation and commissioning of the facility, the DND building may not yet have telephone or Internet access. Furthermore, cellular devices are strictly prohibited within the DND building thus rendering external communications a challenge. In order to ensure the installation is performed according to manufacturer specifications as well as completing the project within the given timeframe, the Bidder is encouraged to include on-site manufacturer field engineers as part of its solution.





## 2. COMMON CONSIDERATIONS

- a) IT equipment within the SJS facility will operate over six different networks:
  - i) NET 2;
  - ii) NET 3;
  - iii) NET 4;
  - iv) NET 11;
  - v) NET 61 ; and
  - vi) NET 67.
- b) Videoconferencing equipment within the SJS facility will operate over four different networks:
  - i) NET 3;
  - ii) NET 4;
  - iii) NET 11; and
  - iv) NET 67.
- c) The design shall allow sources of varying resolutions, horizontal and vertical frequencies, and aspect ratios to be scaled to a common high definition (HD) resolution seamlessly.
- d) All displays shall not scale the video signals internally.
- e) All sources shall be displayed full screen onto the HD and ultra HD displays.
- f) The Contractor shall be responsible to install the 98-inch freestanding ultra HD displays and the 55-inch ceiling-mounted HD displays in the Conference room.
- g) The Contractor shall be responsible to install the 70-inch freestanding HD displays in Meeting Room 1 and the Special Purpose Space.
- h) The Contractor shall be responsible to install the 55-inch freestanding HD displays in Meeting Room 2.
- i) The 55-inch HD displays in the Conference Room shall be ceiling-mounted. The Contractor shall be responsible to install and secure the mounts to the concrete slab or steel infrastructure.
- j) The 42-inch and 49-inch HD displays in Zones 1 and 4 shall be wall-mounted. Canada will be responsible to reinforce the walls to support these displays.
- k) The 42-inch and 49-inch HD displays in Zones 2 and 3 shall be ceiling-mounted. The Contractor shall be responsible to install and secure the mounts to the concrete slab or steel infrastructure.
- l) "Audio breakaway" allows users to listen to sources independently of whether the video is sent to the displays.
- m) Powered-speakers on desks shall be used to adjust the "incoming" audio.
- n) Copper and fibre optic cabling will be supplied and installed by DND between EQT\_5-6 and the following areas thus forming the backbone of the SJS facility:
  - i) Control Booth;
  - ii) Conference Room;
  - iii) Meeting Room 1;
  - iv) Special Purpose Space;
  - v) Zone 1;
  - vi) Zone 2;
  - vii) Zone 3;
  - viii) EQT\_5-7; and the

- ix) Corridor outside the vestibule.
- o) Copper and fibre optic cabling will be supplied and installed by DND between EQT\_5-7 and the following areas thus forming the backbone of the SJS facility:
  - i) Meeting Room 2;
  - ii) Zone 4; and
  - iii) EQT\_5-6.
- p) DND will be responsible to terminate and test all copper and fibre optic patch panels in EQT\_5-6 and EQT\_5-7 as well as data video outlets (DVOs) composing the core backbone cabling infrastructure throughout the facility.
- q) The Contractor shall be responsible to provide and connect patch cords from the equipment to the DND installed patch panels and DVOs

### 3. EQT\_5-6

#### a) Specifications

EQT\_5-6 will house AV equipment required to operate the system, including:

- i) AV Switches
- ii) CODECs
- iii) Controller Expansion Modules
- iv) Fibre Optic Multiplexer
- v) Fibre Optic Serial Data Modems
- vi) Integrated Controllers
- vii) Logo Generator
- viii) Media Converters
- ix) Optical Electrical Switches
- x) Power Amplifiers
- xi) Power Controllers
- xii) Power Supplies
- xiii) Rackmount Console
- xiv) System Processor
- xv) System Processor with Voice over Internet protocol (VoIP) telephone interface
- xvi) Video Distribution System, comprised of:
  - (1) Fibre Matrix Switch
  - (2) Fibre Transmitters
  - (3) Fibre Receivers
- xvii) 3G-SDI to HDMI Converters

The above equipment will be housed in six (6) equipment racks which will be supplied, installed, secured to the floor and grounded by DND. DND-supplied patch panels, which make up the core backbone cabling infrastructure, will be installed in equipment racks and terminated by DND and Shared Services Canada.

Each AV rack will be fitted with both 115v and 208v capability.

The matrix routers in EQT\_5-6 shall have the ability to route sources to the following zones:

- i) Control Booth:
  - (1) 24-inch HD display;
  - (2) AV recorders (qty 3); and
  - (3) Powered speaker.
- ii) Conference Room:
  - (1) 98-inch ultra LCD displays (qty 2);
  - (2) Future ceiling-mounted projectors for redundancy (qty 2);
    - (a) Projectors and fibre receivers are planned for but are **not** to be provided as part of solution at this time
  - (3) 55-inch HD ceiling-mounted displays (qty 8); and
  - (4) Ceiling-mounted speakers (qty 8).

- iii) Meeting Room 1:
  - (1) 70-inch HD displays (qty 2);
  - (2) Surface mount speakers (qty 1 pair); and
  - (3) Operator's Desk (qty 1).
  
- iv) Special Purpose Space (Work Desks):
  - (1) Work Desks (qty 8)
  
- v) Special Purpose Space (Video Wall):
  - (1) 70-inch HD displays (qty 4); and
  - (2) Ceiling-mounted speakers (qty 4).
  
- vi) Special Purpose Space (Office):
  - (1) 42-inch HD display (qty 1); and
  - (2) Office desk (qty 1).
  
- vii) Zone 1 (Cubicles):
  - (1) Cubicle A (qty 1)
  
- viii) Zone 1 (Collaboration Areas):
  - (1) 49-inch HD displays (qty 2)
  
- ix) Zone 1 (Offices):
  - (1) Office 1 desk (qty 1);
  - (2) Office 1 42-inch HD display (qty 1);
  - (3) Office 2 42-inch HD display (qty 1);
  - (4) Office 3 42-inch HD display (qty 1); and
  - (5) Office 4 42-inch HD display (qty 1).
  
- x) Zone 2 (Cubicles):
  - (1) Cubicle A (qty 1)
  
- xi) Zone 2 (Collaboration Areas):
  - (1) 49-inch HD displays (qty 2)
  
- xii) Zone 2 (Offices):
  - (1) Office 1 desk (qty 1);

- (2) Office 1 42-inch HD display (qty 1); and
- (3) Office 2 42-inch HD display (qty 1).

xiii) Zone 3 (Cubicles):

- (1) Cubicle A (qty 1)

xiv) Zone 3 (Collaboration Areas):

- (1) 49-inch HD displays (qty 2)

xv) Zone 4 (Cubicles) via EQT\_5-7:

- (1) Cubicle A (qty 1)

xvi) Zone 4 (Offices) via EQT\_5-7:

- (1) Office 1 desk (qty 1);
- (2) Office 1 42-inch HD display (qty 1); and
- (3) Office 2 42-inch HD display (qty 1).

xvii) Meeting Room 2 via EQT\_5-7:

- (1) 55-inch HD displays (qty 3);
- (2) Surface mount speakers (qty 1 pair); and
- (3) Operator's Desk (qty 1).

Note: The proposed matrix router shall be configured with all 20 input/output cards for expansion as well as flexibility to the provisioning of the sources and destinations.

**b) Information**

i) General:

- (1) Refer to Appendix B to Annex A - Drawing Package for interconnecting details

## 4. Control Booth

The Control Booth is an area designated for the operation of technical equipment (video and audio). It is an enclosed space with a large window with a good view to the Conference Room table. It is designed to allow Control Booth Operators to see the Conference Room proceedings and monitor audio conversations, without being in the Conference Room itself. The booth is sealed from the Conference Room allowing for noisier equipment to be used, in particular computers and AV equipment.

### a) General Requirements

- i) Ability to initiate and participate in videoconferences over various networks
- ii) Ability to display PC sources originating from the Control Booth
- iii) Ability to display laptops originating from the Conference Room table
- iv) Ability to display IPTV content
- v) Ability to display PC sources pushed from the Special Purpose Space
- vi) Ability to display PC sources originating from External Feeds
- vii) Ability to “push” PC sources to other zones
- viii) Ability to record Conference Room proceedings (audio and video)
- ix) Ability to monitor presentations and videoconferences and react to requests from Conference Room participants
- x) Ability to monitor meeting participants awaiting outside the vestibule
- xi) Provide Operator’s Desk (custom-made)

### b) Specifications

#### i) Sources:

##### (1) Local

- (a) NET 2 PCs (qty 2)
- (b) NET 3 PCs (qty 2)
- (c) NET 11 PCs (qty 2)
- (d) Push-to-talk microphone

##### (2) Remote

- (a) Videoconferencing systems operating over the NET 3 Video Conferencing Network
- (b) Videoconferencing systems operating over the NET 11 Video Conferencing Network
- (c) Cameras (qty 3)
- (d) Microphones – Table (qty 13)
- (e) Microphones – Ceiling (qty 2)
- (f) Microphone – Lectern (qty 1)
- (g) PC input for far end participants (qty 1)
- (h) NET 2 laptop located at the Conference Room table
- (i) NET 4 laptop located at the Conference Room table
- (j) NET 11 laptop located at the Conference Room table
- (k) PC sources pushed from the Special Purpose Space (qty 2)
- (l) PC sources pushed from the External Feeds (qty 2)
- (m) IPTV set-top boxes dedicated to specific channels (qty 12)
- (n) Digital signal processor with VoIP telephone interface
- (o) IP security camera outside the vestibule

ii) Destinations:

(1) Local

- (a) 24-inch HD display on the Operator's Desk
- (b) Powered speaker on the Operator's Desk
- (c) AV recorders (qty 3)

(2) Remote

- (a) 98-inch ultra HD displays along the Conference Room host wall (qty 2)
- (b) Future ceiling-mounted projectors in the Conference Room (qty 2)
- (c) 55-inch HD ceiling-mounted displays along the left and right sides of Conference Room (qty 8)
- (d) Ceiling-mounted speakers (qty 8)
- (e) Digital Signal Processor with VoIP telephone interface
- (f) 70-inch HD displays in Meeting Room 1 (qty 2)
- (g) Zone 1 Operator and Office (qty 2)
- (h) Zone 2 Operator and Office (qty 2)
- (i) Zone 3 Operator (qty 1)
- (j) 55-inch HD displays in Meeting Room 2 (qty 3)
- (k) Zone 4 Operator and Office (qty 2)

c) Detailed Functional Requirements

i) Video:

- (a) Table 1 lists the PC and video sources displayable on the preview monitor and the Operator's Desk displays:

Destination	Available Sources
Control Booth (Preview Monitor)	NET 2, NET 3 and NET 11 PC sources PC sources pushed from the Special Purpose Space (qty 2 ) PC sources pushed from the External Feeds (qty 2) IP security camera IPTV Rx#1 – Rx #12
Control Booth (Operator's Desks)	NET 2, NET 3 and NET 11 PC sources PC sources pushed from the Special Purpose Space (qty 2 ) PC sources pushed from the External Feeds (qty 2) IP security camera IPTV Rx#1 – Rx #12

**Table 1: Sources available in the Control Booth**

- (1) The Control Booth Operators shall have video previewing capability via a 24-inch HD reference monitor located on the Operator's Desk
- (2) The 24-inch HD display shall have a 16:9 screen format and be capable of supporting resolutions up to 1,920 x 1,080p
- (3) Only one video source shall be previewed at any one time on the 24-inch HD display

(a) Presentation Mode I

- (i) High resolution computer-video content from select PC/laptop sources in the Control Booth and Conference Room table shall be displayable on the 24-inch HD display
- (ii) Event Monitoring: High resolution computer-video content from PC sources pushed from the following locations shall be displayable on the 24-inch HD display:
  1. Special Purpose Space (qty 2); and
  2. External Feeds (qty 2).
- (iii) HD video content from the IPTV set-top boxes shall be displayable on the 24-inch HD display

(b) Presentation Mode II

- (i) High resolution computer-video content from the PC sources in the Control Booth and laptop sources at the Conference Room table shall be displayable on the 24-inch HD display
- (ii) Event Monitoring: High resolution computer-video content from PC sources pushed from the following locations shall be displayable on the 24-inch HD display:
  1. Special Purpose Space (qty 2); and
  2. External Feeds (qty 2).
- (iii) HD video content from the IPTV set-top boxes shall be displayable on the 24-inch HD display
- (iv) High resolution video content from the Conference Room cameras shall be automatically recorded onto three audio video recorders in the Control Booth during exercises
- (v) High resolution video content from the Conference Room cameras shall be recorded onto three audio video recorders in the Control Booth (manual intervention)

(c) VTC Mode I

- (i) High resolution computer-video content from the NET 3 CODEC (far end or near end) shall be displayable on the 24-inch HD display during NET 3 videoconferences
- (ii) High resolution computer-video content from select PC/laptop sources in the Control Booth and Conference Room table shall be embedded into the NET 3 CODEC and displayable on the 24-inch HD display during NET 3 videoconferences



(d) VTC Mode II

- (i) High resolution computer-video content from the NET 11 CODEC (far end or near end) shall be displayable on the 24-inch HD display during NET 11 videoconferences
- (ii) High resolution computer-video content from PC sources in the Control Booth and the laptop sources at the Conference Room table shall be embedded into the NET 11 CODEC and displayable on the 24-inch HD display during NET 11 videoconferences

ii) Audio:

- (1) Audio shall be distributed to the Control Booth based on "audio breakaway"
- (2) The Control Booth Operators shall have audio previewing capability via a powered-speaker at the Operator's desk
- (3) Only one audio source shall be previewed at any one time on the powered-speaker
- (4) The Control Booth Operators shall have the ability to speak to Conference Room participants (and far end participants during videoconferences) via a push-to-talk microphone

(a) Presentation Mode I

- (i) High fidelity audio from select PC/laptop sources in the Control Booth and Conference Room table shall be amplified onto the Control Booth powered speaker
- (ii) High fidelity audio from PC sources pushed from the following locations shall be amplified onto the Control Booth powered speaker:
  - 1. Special Purpose Space (qty 2); and
  - 2. External Feeds (qty 2).
- (iii) High fidelity audio from the IPTV set-top boxes shall be amplified onto the Control Booth powered speaker
- (iv) High fidelity audio from the VoIP telephone interface shall be amplified onto the Control Booth powered speaker

(b) Presentation Mode II

- (i) High fidelity audio from the PC sources in the Control Booth and the laptop sources at the Conference Room table shall be amplified onto the Control Booth powered speaker
- (ii) High fidelity audio from the PC sources pushed from the following locations shall be amplified onto the Control Booth speakers:
  - 1. Special Purpose Space (qty 2); and
  - 2. External Feeds (qty 2).
- (iii) High fidelity audio from the IPTV set-top boxes shall be amplified onto the Control Booth powered speaker
- (iv) High fidelity audio from the Conference Room microphones shall be automatically recorded onto three audio video recorders in the Control Booth during exercises
- (v) High fidelity audio from the Conference Room microphones shall be recorded onto three audio video recorders in the Control Booth (manual intervention)

(c) VTC Mode I

- (i) High fidelity audio from the NET 3 CODEC (far end and near end participants) shall be amplified onto the Control Booth powered speaker during NET 3 videoconferences
- (ii) High fidelity audio from select PC/laptop sources in Control Booth and Conference Room table shall be embedded into the NET 3 CODEC during NET 3 videoconferences
- (iii) High fidelity audio from the VoIP telephone interface shall be amplified onto the Control Booth speakers during NET 3 videoconferences

(d) VTC Mode II

- (i) High fidelity audio from the NET 11 CODEC (far end and near end participants) shall be amplified onto the Control Booth speakers during NET 11 videoconferences
- (ii) High fidelity audio from the PC sources in Control Booth and the laptop sources at the Conference Room table shall be embedded into the NET 11 CODEC during NET 11 videoconferences

iii) Control:

- (1) Control of the AV system including PC and IPTV set-top box selection as well as control of the Conference Room audio shall be achieved via a 21.5 inch touch screen on the Operator's Desk
- (2) The Control Booth Operators shall have video previewing capability via a 24-inch HD display (preview monitor) located on the Operator's Desk
- (3) During normal operations, the Control Booth Operators shall select a pre-defined layout and then populate each and every destination with a source

(a) Presentation Mode I

- (i) The 21.5 inch touch screen shall allow the Control Booth Operators to select the following sources to be displayed on the 24-inch HD display, 98-inch ultra HD displays, 55-inch HD displays and routed to the AV recorders:
  - 1. PC sources in Control Booth (qty 4);
  - 2. Laptop source located at the Conference Room table (qty 1);
  - 3. PC sources pushed from the Special Purposes Space (qty 2);
  - 4. PC sources pushed from the External Feeds (qty 2); and
  - 5. IPTV set-top boxes (qty 12).
- (ii) The 21.5 inch touch screen shall allow the Control Booth Operators to select the above sources (except the IPTV set-top boxes) to be pushed to the NET 3 CODEC, Meeting Room 1, Meeting Room 2, and Zones 1 – 4
- (iii) The 21.5 inch touch screen shall allow Control Booth Operators to select the audio source, control the volume and mute the system
- (iv) The 21.5 inch touch screen shall allow Control Booth Operators to initiate Mode I audioconference calls
- (v) The 21.5 inch touch screen shall allow Control Booth Operators to override/sanitize the system
- (vi) The 21.5 inch touch screen shall allow the Control Booth Operators to playback the content of the audio video recorders for training purposes

(b) Presentation Mode II

- (i) The 21.5 inch touch screen shall allow Control Booth Operators to select the following sources to be displayed on the 24-inch HD display, 98-inch ultra HD displays, 55-inch HD displays and routed to the AV recorders:
  - 1. PC sources in Control Booth (qty 6);
  - 2. Laptop sources located at the Conference Room table (qty 3);
  - 3. PC sources pushed from the Special Purpose Space (qty 2);
  - 4. PC sources pushed from the External Feeds (qty 2); and
  - 5. IPTV set-top boxes (qty 12).
- (ii) The 21.5 inch touch screen shall allow the Control Booth Operators to select the above sources (except the IPTV set-top boxes) to be pushed to the NET 11 CODEC, Meeting Room 1, Meeting Room 2 and Zones 1 – 4
- (iii) The 21.5 inch touch screen shall allow the Control Booth Operators to select the audio source, control the volume and mute the system
- (iv) The 21.5 inch touch screen shall allow the Control Booth Operators to override/sanitize the system
- (v) The 21.5 inch touch screen shall allow the Control Booth Operators to playback the content of the audio video recorders for training purposes

(c) VTC Mode I

- (i) The 21.5 inch touch screen shall allow the Control Booth Operators to conduct NET 3 videoconferences
- (ii) The 21.5 inch touch screen shall provide all functionality included with the CODEC manufacturer's interface (i.e., IR remote or touch device)
- (iii) The 21.5 inch touch screen shall allow the Control Booth Operators to select the following sources to be displayed on the 24-inch HD display, 98-inch ultra HD displays, 55-inch HD displays, routed to the AV recorders, and embedded into the NET 3 CODEC during NET 3 videoconferences:
  - 1. PC sources in the Control Booth (qty 4);
  - 2. Laptop source located at the Conference Room table (qty 1);
  - 3. PC sources pushed from the Special Purpose Space (qty 2); and
  - 4. PC sources pushed from the External Feeds (qty 2).
- (iv) The 21.5 inch touch screen shall allow the Control Booth Operators to select the above sources to be pushed to Meeting Room 1, Meeting Room 2 and Zones 1 – 4
- (v) The 21.5 inch touch screen shall allow the Control Booth Operators the ability to select the audio source, control the volume and mute the system
- (vi) The 21.5 inch touch screen shall allow the Control Booth Operators to initiate Mode I audioconference calls
- (vii) The Control Booth Operators shall have the ability to mute the NET 3 CODEC output in order to minimize disruptions from the far end
- (viii) The 21.5 inch touch screen shall allow the Control Booth Operators to override/sanitize the system

(d) VTC Mode II

- (i) The 21.5 inch touch screen shall allow the Control Booth Operators to conduct NET 11 videoconferences
- (ii) The 21.5 inch touch screen shall provide all functionality included with the CODEC manufacturer's interface (i.e., IR remote or touch device)

- (iii) The 21.5 inch touch screen shall allow the Control Booth Operators to select the following sources to be displayed on the 24-inch HD display, 98-inch ultra HD displays, 55-inch HD displays, routed to the AV recorders, and embedded into the NET 11 CODEC during NET 11 videoconferences:
    - 1. PC sources in the Control Booth (qty 6);
    - 2. Laptop sources located at the Conference Room table (qty 3);
    - 3. PC sources pushed from the Special Purpose Space (qty 2); and
    - 4. PC sources pushed from the External Feeds (qty 2).
  - (iv) The 21.5 inch touch screen shall allow the Control Booth Operators to select the above sources to be pushed to Meeting Room 1, Meeting Room 2 and Zones 1 – 4
  - (v) The 21.5 inch touch screen shall allow the Control Booth Operators the ability to select the audio source, control the volume and mute the system
  - (vi) Control Booth Operators shall have the ability to mute the NET 11 CODEC output in order to minimize disruptions from the far end
  - (vii) The 21.5 inch touch screen shall allow the Control Booth to override/sanitize the system
- (e) Pushing of Sources
- (i) The Special Purpose Space Operator (the originator) shall be able to “push” up to two PC sources to the Control Booth Operators (the recipients)
  - (ii) The recipients shall “accept” the source(s) to ensure it is safe to display it at that time
  - (iii) When the recipients no longer wish to view the “pushed” source(s), the recipients shall select another source(s) (e.g., IPTV) thereby overriding the pushed source(s) or request the originator to “cancel” pushing the source(s)
  - (iv) The External Feeds Operator (the originator) shall be able to “push” up to two PC sources to the Control Booth Operators (the recipients)
  - (v) The recipients shall “accept” the source(s) to ensure it is safe to display it at that time
  - (vi) When the recipients no longer wish to view the “pushed” source(s), the recipients shall select another source(s) (e.g., IPTV) thereby overriding the pushed source(s) or request the originator to “cancel” pushing the source(s)
  - (vii) The Control Booth Operators shall not have control (keyboard or mouse capability) of the sources being pushed – for viewing purposes only
- (f) Override
- (i) The Control Booth Operators shall have the ability to blank the Conference Room displays of all content and muting the program audio thus sanitizing the system in the event someone unauthorized enters the Conference Room
  - (ii) A Conference Room logo shall appear on all displays while in this state
  - (iii) The system shall revert to its last state when the override is removed by the Control Booth Operators

**d) Information**

i) General:

- (1) Refer to Appendix B to Annex A - Drawing Package for interconnecting details
- (2) Refer to Appendix B to Annex A - Drawing Package for details of the Operator's Desk to be provided by the AV integrator

## 5. Conference Room

### a) General Requirements

- i) Ability to initiate and participate in videoconferences over various networks
- ii) Ability to display PC sources originating from the Control Booth
- iii) Ability to view laptops originating from the Conference Room table
- iv) Ability to view IPTV content
- v) Provide a custom table for 20 participants
- vi) Provide a custom lectern
- vii) Provide a digital wall clock

### b) Specifications

#### i) Sources:

##### (1) Local

- (a) NET 2 laptop located at the Conference Room table
- (b) NET 4 laptop located at the Conference Room table
- (c) NET 11 laptop located at the Conference Room table
- (d) Cameras (qty 3)
- (e) Microphones – Table (qty 13)
- (f) Microphones – Ceiling (qty 2)
- (g) Microphone – Lectern (qty 1)

##### (2) Remote

- (a) Videoconferencing systems operating over the NET 3 Video Conferencing Network with PC input for far end participant
- (b) Videoconferencing systems operating over the NET 11 Video Conferencing Network with PC input for far end participants
- (c) NET 2 PC originating from the Control Booth (qty 2)
- (d) NET 3 PC originating from the Control Booth (qty 2)
- (e) NET 11 PC originating from the Control Booth (qty 2)
- (f) PC sources pushed from the Special Purpose Space (qty 2)
- (g) PC sources pushed from the External Feeds (qty 2)
- (h) IPTV set-top boxes dedicated to specific channels (qty 12)
- (i) VoIP telephone interface

#### ii) Destinations:

- (1) 98-inch ultra HD displays along the host wall (qty 2)
- (2) Future 10,000 lumens, lamp free, ceiling-mounted projectors for redundancy (qty 2)
  - (a) Projectors and fibre receivers are planned for but are **not** to be provided as part of solution at this time
- (3) 55-inch HD ceiling-mounted displays along the left side of the Conference Room (qty 4)
- (4) 55-inch HD ceiling-mounted displays along the right side of the Conference Room (qty 4)
- (5) Ceiling-mounted speakers (qty 8)

**c) Detailed Functional Requirements**

i) Presentation Mode

(1) Video:

- (a) Table 2 lists the PC and video sources displayable on the host wall displays and the side displays:

Destination	Available Sources
98-inch Ultra HD Displays	NET 2, NET 4 and NET 11 laptops NET 2 PC sources originating from the Control Booth (qty 2) NET 3 PC sources originating from the Control Booth (qty 2) NET 11 PC sources originating from the Control Booth (qty 2) PC sources pushed from the Special Purpose Space (qty 2 ) PC sources pushed from the External Feeds (qty 2) IPTV Rx#1 – Rx #12
55-inch HD Displays	NET 2, NET 4 and NET 11 laptops NET 2 PC sources originating from the Control Booth (qty 2) NET 3 PC sources originating from the Control Booth (qty 2) NET 11 PC sources originating from the Control Booth (qty 2) PC sources pushed from the Special Purpose Space (qty 2 ) PC sources pushed from the External Feeds (qty 2) IPTV Rx#1 – Rx #12

**Table 2: Sources available in the Conference Room**

- (b) High resolution computer-video content from the laptop sources at the Conference Room table shall be displayable on any of the 98-inch ultra HD and 55-inch HD displays
- (c) High resolution computer-video content from the PC sources in the Control Booth shall be displayable on any of the 98-inch ultra HD and 55-inch HD displays
- (d) Event Monitoring: High resolution computer-video content from the PC sources pushed from the Special Purpose Space shall be displayable on any of the 98-inch ultra HD and 55-inch HD displays
- (e) Event Monitoring: High resolution computer-video content from the PC sources pushed from the External Feeds shall be displayable on any of the 98-inch ultra HD and 55-inch HD displays
- (f) HD video content from the IPTV set-top boxes shall be displayable on any of the 98-inch ultra HD and 55-inch HD displays

(2) Audio:

- (a) Audio shall be based on “audio breakaway”
- (b) Audio in the Conference Room shall originate from ceiling-mounted speakers (qty 8), configured in four (4) zones
- (c) Hi fidelity audio from the following sources shall be available for distribution to the ceiling-mounted speakers:

- (i) Laptop sources located at the Conference Room Conference Room table (qty 3);
  - (ii) PC sources in Control Booth (qty 6);
  - (iii) PC sources pushed from the Special Purpose Space (qty 2)
  - (iv) PC sources pushed from the External Feeds (qty 2)
  - (v) IPTV set-top boxes (qty 12); and
  - (vi) VoIP telephone interface.
- (d) The Conference Room table shall be fitted with 13 gooseneck microphones, which shall be used for sound reinforcement
  - (e) The Control Booth Operator shall be able to mute the table microphones individually
  - (f) Conference Room shall be fitted with ceiling microphone arrays, which shall be targeted towards the “peanut” gallery” and used for sound reinforcement
  - (g) The Control Booth Operator shall be able to mute the microphone arrays
  - (h) Conference Room shall be fitted with a lectern microphone, which shall be used for sound reinforcement
  - (i) The Control Booth Operators shall be able to speak to Conference Room participants via a push-to-talk microphone in the Control Booth thus eliminating the need to walk into the Conference Room
  - (j) The Control Booth Operators shall be able to monitor the Conference Room audio via a powered speaker in the Control Booth
  - (k) Only one audio source shall be amplified in Conference Room at any one time
- (3) Control:
- (a) Control of the Conference Room AV system including PC and IPTV set-top box selection, room volume control, and the ability to mute the room audio shall be achieved via the 21.5 inch touch screen at the Operator’s Desk
  - (b) A 10-inch touch screen, with limited functionality, shall be positioned at the Conference Room table, when required
  - (c) A 10-inch touch screen, with limited functionality, shall be positioned at the lectern, when required
  - (d) In the event where multiple touch screens are connected to the AV system, all touch screens shall mirror the actions of one another (within their limited functionality)
  - (e) The touch screens shall allow the Control Booth Operators and Conference Room Meeting Moderator to initiate audioconferences, as well as have the ability to select the audio source, control the volume, mute the system and override the AV system
  - (f) During normal operations, the Control Booth Operators shall select a pre-defined layout on the 21.5 inch touch screen and then populate each and every destination with a source
  - (g) Under certain circumstances, the Conference Room Meeting Moderator shall select a pre-defined layout on the 10-inch touch screen and then populate each and every destination with a source
  - (h) The touch screens shall allow the Conference Room Meeting Moderator to “accept” the sources being “pushed” from the Special Purpose Space and External Feeds
  - (i) The touch screens shall allow the Conference Room Meeting Moderator to select which sources are pushed to Meeting Room 1, Meeting Room 2 and Zones 1 – 4
  - (j) The touch screen GUI shall allow the Conference Room Meeting Moderator to:
    - (i) Select Language (French or English)
    - (ii) Select Presentation or Videoconferencing
    - (iii) Select Mode I or Mode II
    - (iv) Initiate and accept audioconference calls
    - (v) Select Source(s)
    - (vi) Select Destination(s) in the Conference Room
    - (vii) Adjust Volume
    - (viii) Mute Microphones (individually)



- (ix) Record Proceedings
- (x) Accept pushed sources from the Special Purpose Space and the External Feeds
- (xi) Push sources to Meeting Room 1, Meeting Room 2 and Zones 1 – 4
- (xii) Administrative Mode

ii) VTC System (NET 3):

(1) Video:

- (a) High resolution computer-video content from the following sources shall be displayable on the 98-inch ultra HD and 55-inch HD displays during NET 3 videoconferences:
  - (i) Laptop source located at the Conference Room table (qty 1);
  - (ii) PC sources in Control Booth (qty 4);
  - (iii) PC sources pushed from the Special Purpose Space (qty 2);
  - (iv) PC sources pushed from the External Feeds (qty 2); and
  - (v) IPTV Rx #1 – Rx#12.
- (b) Only a single PC source shall be transmitted over the NET 3 videoconferences at any one time
- (c) HD video content from the IPTV set-top boxes shall be displayable on any of the 98-inch ultra HD and 55-inch HD displays but shall not be embedded into the NET 3 videoconference stream for far end participants

(2) Audio:

- (a) Hi fidelity audio from the following sources shall be available for distribution to ceiling-mounted speakers:
  - (i) Laptop source located at the Conference Room table (qty 1);
  - (ii) PC sources in the Control Booth (qty 4);
  - (iii) PC sources pushed from the Special Purpose Space (qty 2);
  - (iv) PC sources pushed from the External Feeds (qty 2);
  - (v) Set-top boxes (qty 12); and
  - (vi) VoIP telephone interface.
- (b) The audio from the NET 3 videoconferencing system (far end) shall originate from ceiling-mounted speakers (qty 8), configured in four (4) zones
- (c) The audio from the above PC sources may be incorporated into the NET 3 videoconference audio stream allowing participants to provide a narrative over the audio that is being sent to the far end
- (d) The Conference Room table shall be fitted with 13 gooseneck microphones, which shall be used for NET 3 videoconferences and sound reinforcement
- (e) The Conference Room lectern shall be fitted with a gooseneck microphone, which shall be used for NET 3 videoconferences and sound reinforcement
- (f) The Conference Room shall be fitted with ceiling microphone arrays, which shall be targeted towards the “peanut” gallery” and used for NET 3 videoconferences and sound reinforcement
- (g) The microphones shall also allow the Conference Room meeting participants to communicate with the Control Booth Operators

(3) Control:

- (a) The touch screens shall allow Conference Room Meeting Moderator to initiate or accept NET 3 videoconference calls

- (b) The touch screens shall allow the Conference Room Meeting Moderator to initiate or accept an audioconference calls
- (c) The touch screens shall allow the Conference Room Meeting Moderator to initiate and accept audio and video calls, select the audio source, control the volume, mute the system, send PC content to the far end and override the AV system
- (d) The touch screen shall allow the Conference Room Meeting Moderator to mute the microphones
- (e) The touch screens shall provide all functionality included with the CODEC manufacturer's interface (i.e., IR remote or touch device)
- (f) All sources shall be displayed onto the HD displays in a layout supported by the CODEC manufacturer
- (g) The touch screen GUI shall allow the Conference Room Meeting Moderator to:
  - (i) Select Language (French or English)
  - (ii) Select Presentation or Videoconferencing
  - (iii) Select Mode I or Mode II
  - (iv) Initiate and accept audioconference calls
  - (v) Initiate videoconference calls manually
  - (vi) Initiate videoconference calls thru phonebook
  - (vii) Enter DTMF codes
  - (viii) Accept videoconference calls manually
  - (ix) Control cameras
  - (x) Select Source(s)
  - (xi) Select Destination(s) in the Conference Room
  - (xii) Adjust Volume
  - (xiii) Mute Table Microphones
  - (xiv) Mute Lectern Microphone
  - (xv) Mute Ceiling Microphones
  - (xvi) Record Proceedings
  - (xvii) Accept pushed sources from the Special Purpose Space and the External Feeds
  - (xviii) Push sources to Meeting Room 1, Meeting Room 2 and Zones 1 – 4
  - (xix) Administrative Mode

iii) VTC System (NET 11):

(1) Video:

- (a) High resolution computer-video content from the following sources shall be shall be displayable on the 98-inch ultra HD and 55-inch HD displays during NET 11 videoconferences:
  - (i) Laptop sources located at the Conference Room table (qty 2);
  - (ii) PC sources in Control Booth (qty 6);
  - (iii) PC sources pushed from the Special Purpose Space (qty 2);
  - (iv) PC sources pushed from the External Feeds (qty 2); and
  - (v) IPTV set-top boxes (qty 12).
- (b) Only a single PC source shall be transmitted over the NET 11 videoconferences at any one time
- (c) HD video content from the IPTV set-top boxes shall be displayable on any of the 98-inch ultra HD and 55-inch HD displays but shall not be embedded into the NET 11 videoconference stream for far end participant

(2) Audio:

- (a) Hi fidelity audio from the following sources shall be available for distribution to ceiling-mounted speakers:

- (i) Laptop sources located at the Conference Room table (qty 2);
    - (ii) PC sources in Control Booth (qty 6);
    - (iii) PC sources pushed from the Special Purpose Space (qty 2);
    - (iv) PC sources pushed from the External Feeds (qty 2); and
    - (v) IPTV Rx #1 – Rx#12.
  - (b) The audio from the far end shall originate from ceiling-mounted speakers (qty 8), configured in four (4) zones
  - (c) The audio from the above PC sources may be incorporated into the NET 11 videoconference audio stream allowing participants to provide a narrative over the audio that is being sent to the far end
  - (d) The Conference Room Conference Room table shall be fitted with 13 gooseneck microphones, which shall be used for NET 11 videoconferences and sound reinforcement
  - (e) The Conference Room Conference Room lectern shall be fitted with a gooseneck microphone, which shall be used for NET 11 videoconferences and sound reinforcement
  - (f) Conference Room shall be fitted with ceiling microphone arrays, which shall be targeted towards the “peanut” gallery” and used for NET 11 videoconferences and sound reinforcement
  - (g) The microphones shall also allow the Conference Room meeting participants to communicate with the Control Booth Operators
- (3) Control:
- (a) The touch screens shall allow the Conference Room Meeting Moderator to initiate or accept NET 11 videoconference calls
  - (b) Audioconference calls shall not be permitted during NET 11 videoconferences
  - (c) The touch screens shall allow the Conference Room Meeting Moderator to initiate or accept video calls, select the audio source, control the volume, mute the system, send PC content to the far end and override the AV system
  - (d) The touch screens shall allow the Conference Room Meeting Moderator to mute the microphones
  - (e) The touch screens shall provide all functionality included with the CODEC manufacturer’s interface (i.e., IR remote or touch device)
  - (f) All sources shall be displayed onto the HD displays in a layout supported by the CODEC manufacturer
  - (g) The touch screen GUI shall allow the Conference Room Meeting Moderator to:
    - (i) Select Language (French or English)
    - (ii) Select Presentation or Videoconferencing
    - (iii) Select Mode I or Mode II
    - (iv) Initiate videoconference calls manually
    - (v) Initiate videoconference calls thru phonebook
    - (vi) Enter DTMF codes
    - (vii) Accept videoconference calls manually
    - (viii) Control cameras
    - (ix) Select Source(s)
    - (x) Select Destination(s) in the Conference Room
    - (xi) Adjust Volume
    - (xii) Mute Table Microphones
    - (xiii) Mute Table Microphones
    - (xiv) Mute Lectern Microphone
    - (xv) Mute Ceiling Microphones
    - (xvi) Record Proceedings
    - (xvii) Accept pushed sources from the Special Purpose Space and the External Feeds

- (xviii) Push sources to Meeting Room 1, Meeting Room 2 and Zones 1 – 4
- (xix) Administrative Mode

(4) Pushing of Sources

- (a) The Special Purpose Space Operator (the originator) shall be able to “push” up to two PC sources to the Conference Room Meeting Moderator (the recipient)
- (b) The recipient shall “accept” the source to ensure it is safe to display it at that time
- (c) When the recipient no longer wish to view the “pushed” source, the recipient shall select another source (e.g., IPTV) thereby overriding the pushed source or request the originator to “cancel” pushing the source
- (d) The External Feeds Operator (the originator) shall be able to “push” up to two PC sources to the Conference Room Meeting Moderator (the recipient)
- (e) The recipient shall “accept” the source to ensure it is safe to display it at that time
- (f) When the recipient no longer wish to view the “pushed” source, the recipient shall select another source (e.g., IPTV) thereby overriding the pushed source or request the originator to “cancel” pushing the source
- (g) The Conference Room Meeting Moderator shall not have control (keyboard or mouse capability) of the sources being pushed – for viewing purposes only

(5) Override

- (a) The Conference Room Meeting Moderator shall have the ability to blank the Conference Room displays and future projectors of all content and muting the program audio thus sanitizing the system in the event someone unauthorized enters Conference Room
- (b) A Conference Room logo shall appear on all displays while in this state
- (c) The system shall revert to its last state when the override is removed by the Conference Room Meeting Moderator

**d) Information**

i) General:

- (1) Refer to Appendix B to Annex A - Drawing Package for interconnecting details
- (2) Refer to Appendix B to Annex A - Drawing Package for details of the Conference Room table and Lectern to be provided by the Contractor
- (3) The 98-inch ultra HD displays shall be mounted on a freestanding frame thereby eliminating the need to reinforce the wall
- (4) The 55-inch HD displays shall be ceiling-mounted
- (5) Contractor to provide, install, and configure digital world clocks on host wall

ii) Environment:

- (1) Conference Room covers an area of approximately 95 sq. metres
- (2) Conference Room must have a minimum ceiling height of 3,000 mm, finished floor to suspended ceiling
- (3) Conference Room has a raised floor

## 6. Meeting Room 1

### a) General Requirements

- i) Ability to conduct videoconferences over various networks
- ii) Ability to display PC sources originating from Meeting Room 1
- iii) Ability to display PC sources pushed from various zones
- iv) Ability to display IPTV content
- v) Provide a videoconference table which can accommodate up to nine participants

### b) Specifications

#### i) Sources:

##### (1) Local

- (a) Camera
- (b) Microphone
- (c) NET 11 PC
- (d) NET 53 PC

##### (2) Remote

- (a) NET 67 PC originating from EQT\_5-6 (qty 1)
- (b) PC sources pushed from the Control Booth and the Conference Room (qty 2)
- (c) PC sources pushed from the Special Purpose Space (qty 2)
- (d) PC source pushed from Zones 1 – 3 (qty 1 each)
- (e) PC source pushed from Meeting Room 2 (qty 1)
- (f) Videoconferencing system over the NET 11 Video Conferencing Network
- (g) Videoconferencing system over the NET 67 Video Conferencing Network
- (h) IPTV set-top boxes dedicated to specific channels (qty 12)

#### ii) Destinations:

- (1) 70-inch HD displays along the host wall (qty 2)
- (2) Surface mount speakers (qty 1 pair)
- (3) Videoconferencing system over the NET 11 Video Conferencing Network
- (4) Videoconferencing system over the NET 67 Video Conferencing Network
- (5) LCD widescreen monitors at the Operator's Desk (qty 2)

### c) Detailed Functional Requirements

#### i) Presentation Mode

##### (1) Video:

- (a) Table 3 lists the PC and video sources displayable on the host wall displays and the Operator's Desk displays:

Destination	Available Sources
Meeting Room 1 (70-inch HD Displays)	NET 11 and NET 53 PC sources PC sources pushed from the Control Booth (qty 2) PC sources pushed from the Conference Room (qty 2) PC source pushed from Zones 1 – 3 (qty 1 each) PC source pushed from Meeting Room 2 (qty 1) IPTV Rx#1 – Rx #12
Meeting Room 1 (Operator's Desk)	NET 11 and NET 53 PC sources PC sources pushed from the Control Booth (qty 2) PC sources pushed from the Conference Room (qty 2) PC source pushed from Zones 1 – 3 (qty 1 each) PC source pushed from Meeting Room 2 (qty 1) IPTV Rx#1 – Rx #12

**Table 3: Sources available in Meeting Room 1**

- (b) Event Monitoring: High resolution computer-video content from PC sources pushed from other zones shall be displayable on either of the 70-inch HD displays and the LCD widescreen monitors on the Operator's Desk
  - (c) HD video content from the IPTV set-top boxes shall be displayable on either of the 70-inch HD displays and the LCD widescreen monitors on the Operator's Desk
- (2) Audio:
- (a) Audio shall be based on "audio breakaway"
  - (b) Audio in Meeting Room 1 shall originate from surface mount speakers
  - (c) Hi fidelity audio from the following sources shall be available for distribution to the surface mount speakers when in Presentation Mode:
    - (i) PC sources in Meeting Room 1 (qty 2);
    - (ii) PC sources pushed from the Control Booth (qty 2);
    - (iii) PC sources pushed from the Conference Room (qty 2);
    - (iv) PC source pushed from Zones 1 – 3 (qty 1 each);
    - (v) PC source pushed from Meeting Room 2 (qty 1); and
    - (vi) IPTV set-top boxes (qty 12).
  - (d) Only one audio source shall be amplified at any one time
- (3) Control:
- (a) Control of Meeting Room 1 including PC and IPTV set-top box selection, room volume control, and the ability to mute the room audio shall be achieved via the 10-inch touch screen at the Operator's Desk
  - (b) The access point at the Operator's Desk shall be a table box embedded into the desk (cut-out performed by the Contractor)
  - (c) The table box shall accommodate the touch screen, USB HID (qty 2), USB 2.0, video (qty 2) and power (qty 2)
  - (d) An additional table box accommodating a touch screen, USB HID (qty 2) and USB 2.0 shall be embedded into the meeting room table (cut-out performed by the table manufacturer)

- (e) At this point in time, Meeting Room 1 shall function with a single touch screen
- (f) In the event where multiple touch screens are connected to the AV system, all Meeting Room 1 touch screens shall mirror the actions of one another
- (g) Mouse and keyboard control of the NET 11 PC at the Operator's Desk shall be extended to the Meeting Room 1 table

(4) Pushing of Sources

- (a) The Special Purpose Space and Externals Feeds (the originators) shall be able to "push" PC sources to Meeting Room 1 (the recipient)
- (b) The recipient shall "accept" the source to ensure it is safe to display it at that time
- (c) When the recipient no longer wish to view the "pushed" source, the recipient shall select another source (e.g., IPTV) thereby overriding the pushed source or request the originators to "cancel" pushing the source
- (d) Meeting Room 1 shall not have control (keyboard or mouse capability) of the source(s) being pushed – for viewing purposes only

ii) VTC System (NET 11):

(1) Video:

- (a) Video from the far end and near end shall be displayable on any of the 70-inch HD displays during NET 11 videoconferences
- (b) High resolution computer-video content from the following sources shall be displayable on the 70-inch HD displays during NET 11 videoconferences:
  - (i) NET 11 PC originating from Meeting Room 1; and
  - (ii) PC sources pushed from other zones.
- (c) Only a single PC source shall be transmitted over the NET 11 videoconferences at any one time

(2) Audio:

- (a) The audio from the far end shall be distributed to surface mount speakers adjacent to the 70-inch HD display during NET 11 videoconferences
- (b) Hi fidelity audio from the following PC sources shall be distributed to the surface mount speakers during NET 11 videoconferences:
  - (i) NET 11 PC originating from Meeting Room 1; and
  - (ii) PC sources pushed from other zones.
- (c) The audio from the above PC sources may be incorporated into the NET 11 videoconference audio stream allowing participants to provide a narrative over the audio that is being sent to the far end
- (d) Meeting Room 1 shall be fitted with a ceiling microphone array, which shall be used during NET 11 videoconferences

(3) Control:

- (a) The touch screen shall allow users to conduct NET 11 videoconferences on the 70-inch HD displays
- (b) The touch screen shall also allow users to control the videoconference, adjust the volume, mute the system and send PC content to the far end
- (c) The touch screen shall allow users to select which source is displayed on the 70-inch HD displays during NET 11 videoconferences:
  - (i) Far end participants;
  - (ii) Near end participants (Main camera);
  - (iii) NET 11 PC originating from Meeting Room 1; and

- (iv) PC sources pushed from other zones.
- (d) All sources shall be displayed onto the 70-inch HD displays in a layout supported by the CODEC manufacturer
- (e) The touch screen GUI shall allow the Meeting Room 1 Operator to:
  - (i) Select Language (French or English)
  - (ii) Select Presentation or Videoconferencing
  - (iii) Select Mode (NET 11 or NET 67)
  - (iv) Initiate videoconference calls manually
  - (v) Initiate videoconference calls thru phonebook
  - (vi) Enter DTMF codes
  - (vii) Accept videoconference calls manually
  - (viii) Control camera
  - (ix) Select Source(s)
  - (x) Select Destination(s) in Meeting Room 1
  - (xi) Adjust Volume
  - (xii) Accept pushed sources from the Control Booth, Zones 1 – 4, and Meeting Room 2
  - (xiii) Administrative Mode
- iii) VTC System (NET 67):
  - (1) Video:
    - (a) Video from the far end and near end shall be displayable on any of the 70-inch HD displays during NET 67 videoconferences
    - (b) High resolution computer-video content from a NET 67 PC in EQT\_5-6 shall be displayable on the 70-inch HD displays during NET 67 videoconferences
    - (c) The NET 67 PC shall bypass the matrix switch and be hard-wired into the NET 67 CODEC as a PC input
  - (2) Audio:
    - (a) The audio from the far end shall be distributed to surface mount speakers adjacent to the 70-inch HD displays during NET 67 videoconferences
    - (b) Hi fidelity audio from the NET 67 PC in EQT\_5-6 shall be distributed to the surface mount speakers during NET 67 videoconferences
    - (c) The audio from the NET 67 PC may be incorporated into the NET 67 videoconference audio stream allowing participants to provide a narrative over the audio that is being sent to the far end
    - (d) Meeting Room 1 shall be fitted with a ceiling microphone array, which shall be used during NET 67 videoconferences
  - (3) Control:
    - (a) The touch screen shall allow users to conduct NET 67 videoconferences on the 70-inch HD displays
    - (b) The touch screen shall allow users to receive video calls, adjust the volume, mute the system and send PC content to the far end
    - (c) The NET 67 VTC system shall not be able to initiate calls
    - (d) The touch device shall allow users to select which source is displayed on the 70-inch HD displays during NET 67 videoconferences:
      - (i) Far end participants;
      - (ii) Near end participants (Main camera); and
      - (iii) NET 67 PC in EQT\_5-6.
    - (a) All sources shall be displayed onto the 70-inch HD displays in a layout supported by the CODEC manufacturer



**d) Information**

i) General:

- (1) Refer to Appendix B to Annex A - Drawing Package for interconnecting details
- (2) Refer to Appendix B to Annex A - Drawing Package for details of the Meeting Room 1 table to be provided by the Contractor
- (3) The 70-inch HD displays shall be mounted on a freestanding frame thereby eliminating the need to reinforce the wall
- (4) The surface mount speakers shall be mounted to the freestanding frame in order to preserve the integrity of the host wall
- (5) Meeting Room 1 camera shall be mounted under the 70-inch HD displays at approximately 48" – 50" above the finished floor

ii) Environment:

- (1) Meeting Room 1 covers an area of approximately 28.5 sq. metres
- (2) Meeting Room 1 has a ceiling height of 3,000 mm, finished floor to suspended ceiling
- (3) Meeting Room 1 has a raised floor

## **7. Special Purpose Space (SPS)**

### **a) Requirements**

- i) Ability to display PC sources originating from the Special Purpose Space (SPS)
- ii) Ability to display IPTV content
- iii) Ability to “push” PC sources to the Control Booth
- iv) Ability to “push” PC sources to the Conference Room
- v) Ability to “push” PC sources to Meeting Room 1
- vi) Ability to monitor meeting participants awaiting outside the vestibule

### **b) Specifications**

#### i) Sources:

##### (1) Local

- (a) NET 2 PCs originating from the SPS (qty 9)
- (b) NET 3 PCs originating from the SPS (qty 4)
- (c) NET 11 PCs originating from the SPS (qty 9)
- (d) NET 53 PCs originating from the SPS (qty 5)
- (e) NET 61 PCs originating from the SPS (qty 1)

##### (2) Remote

- (a) IPTV set-top boxes dedicated to specific channels (qty 12)
- (b) IP security camera outside the vestibule

#### ii) Destinations:

##### (1) SPS Cubicles (qty 8)

- (a) LCD widescreen monitors (qty 3)
- (b) Powered speaker

##### (2) SPS Video Wall

- (a) 70-inch HD displays (qty 4)
- (b) Ceiling-mounted speakers (qty 4)

##### (3) SPS Office

- (a) LCD widescreen monitors (qty 3)
- (b) Powered speaker
- (c) 42-inch HD display

### **c) Detailed Functional Requirements**

#### i) Video:

- (1) Table 4 lists the PC and video sources displayable at SPS Cubicles, onto the SPS Video Wall as well as in the SPS Office:

Destination	Available Sources
SPS – Cubicle A	NET 2, NET 11, NET 53 PC sources Any PC source pushed from the SPS Office IPTV Rx#1 – Rx #12 IP Security Camera
SPS – Cubicle B	NET 2, NET 11, NET 53 PC sources Any PC source pushed from the SPS Office IPTV Rx#1 – Rx #12 IP Security Camera
SPS – Cubicle C	NET 2, NET 3, NET 11 PC sources Any PC source pushed from the SPS Office IPTV Rx#1 – Rx #12 IP Security Camera
SPS – Cubicle D	NET 2, NET 3, NET 11 PC sources Any PC source pushed from the SPS Office IPTV Rx#1 – Rx #12 IP Security Camera
SPS – Cubicle E	NET 2, NET 3, NET 11 PC sources Any PC source pushed from the SPS Office IPTV Rx#1 – Rx #12 IP Security Camera
SPS – Cubicle F	NET 2, NET 3, NET 11 PC sources Any PC source pushed from the SPS Office IPTV Rx#1 – Rx #12 IP Security Camera
SPS – Cubicle G	NET 2, NET 11, NET 53 PC sources Any PC source pushed from the SPS Office IPTV Rx#1 – Rx #12 IP Security Camera
SPS – Cubicle H	NET 2, NET 11, NET 53 PC sources Any PC source pushed from the SPS Office IPTV Rx#1 – Rx #12 IP Security Camera

Destination	Available Sources
SPS – Video Wall	Any PC source from Cubicles A thru H Any PC source from the SPS Office IPTV Rx#1 – Rx #12
SPS – Office (Desk)	NET 2, NET 11, NET 53, NET 61 PC sources Any PC source pushed from Cubicles A thru H
SPS – Office (42-inch display)	NET 2, NET 11, NET 53, NET 61 PC sources Any PC source pushed from Cubicles A thru H IPTV Rx#1 – Rx #12

**Table 4: Sources available in the Special Purpose Space**

ii) Audio:

(1) Special Purpose Space – Cubicles

- (a) Audio shall be based on “audio breakaway”
- (b) Each SPS Cubicle shall be equipped with a powered-speaker
- (c) Since the Special Purpose Space is an open environment, SPS personnel shall adjust the volume accordingly so not to disturb their fellow co-workers
- (d) Hi fidelity audio from the following sources shall be distributed to SPS Cubicles:
  - (i) SPS Cubicle PC sources originating from their respective cubicle (A thru H);
  - (ii) Any PC source from the SPS Office; and
  - (iii) Any of the IPTV set-top boxes.

(2) Special Purpose Space – Video Wall

- (a) Audio shall be based on “audio breakaway”
- (b) Program audio in the Special Purpose Space shall originate from four (4) ceiling-mounted speakers
- (c) Ceiling-mounted speakers shall only be used for broadcast, when necessary, and shall only amplify a single source at any one time
- (d) Hi fidelity audio from the following sources shall be amplified onto the ceiling-mounted speakers:
  - (i) Any PC source from SPS Cubicles A thru H;
  - (ii) Any PC source from the SPS Office; and
  - (iii) Any of the IPTV set-top boxes.

(3) Special Purpose Space – Office

- (a) Hi fidelity audio from the following sources shall be distributed to the SPS Office desk:
  - (i) SPS Office PC sources; and
  - (ii) PC sources pushed from SPS Cubicles A thru H.
- (b) Audio to the SPS Office desk shall be based on “audio breakaway”
- (c) The SPS Office desk shall be equipped with a powered-speaker

- (d) Hi fidelity audio from the following sources shall be distributed to the SPS Office 42-inch LCD display:
  - (i) SPS Office PC sources;
  - (ii) Any PC source pushed from SPS Cubicles A thru H (qty 1); and
  - (iii) Any of the IPTV set-top boxes.
- (e) Audio to the SPS Office 42-inch LCD display shall always follow the video
- (f) The audio to the 42-inch LCD display shall be amplified thru the speakers built-in the 42-inch LCD display

iii) Control:

(1) Special Purpose Space – Video Wall

- (a) Control of the SPS Video Wall including PC and IPTV set-top box selection, room volume control, the ability to mute the room audio, and the ability to override the AV system shall be achieved via a 10-inch touch screen at SPS Cubicle A
- (b) The touch screen shall allow the SPS Operator to select which sources are displayed on the SPS Video Wall
- (c) The touch screen shall allow the SPS Operator to “push” sources to the Control Booth and Meeting Room 1

(2) Special Purpose Space – Office

- (a) Control of the SPS Office including PC and IPTV set-top box selection shall be achieved via a 7-inch touch screen on the SPS Office desk

iv) Pushing of Sources

- (1) SPS Cubicle A (the originator) shall be able to “push” up to two PC sources to the Control Booth and Conference Room (the recipients)
- (2) The recipient shall “accept” the sources to ensure it is safe to display it at that time
- (3) When the recipients no longer wish to view the “pushed” sources, the recipient shall select other sources (e.g., IPTV) thereby overriding the pushed sources or request the originator to “cancel” pushing the sources
- (4) SPS Cubicle A (the originator) shall be able to “push” a PC source to the SPS Office (the recipient)
- (5) The recipient shall “accept” the source to ensure it is safe to display it at that time
- (6) When the recipient no longer wish to view the “pushed” source, the recipient shall select another source (e.g., IPTV) thereby overriding the pushed source or request the originator to “cancel” pushing the source
- (7) SPS Office (the originator) shall be able to “push” a PC source to SPS Cubicle A (the recipient)
- (8) The recipient shall “accept” the source to ensure it is safe to display it at that time
- (9) When the recipient no longer wish to view the “pushed” source, the recipient shall select another source (e.g., IPTV) thereby overriding the pushed source or request the originator to “cancel” pushing the source
- (10) The Zones receiving the source shall not have control (keyboard or mouse capability) of the source being pushed – for viewing purposes only

v) Override

- (a) The Special Purpose Space Operator shall have the ability to blank the Special Purpose Space Video Wall of all content and mute the program audio thus sanitizing the system in the event someone unauthorized enters the Special Purpose Space
- (b) A Special Purpose Space logo shall appear on all displays while in this state
- (c) The system shall revert to its last state when the override is removed by the Special Purpose Space Operator

**d) Information**

i) General:

- (1) Refer to Appendix B to Annex A - Drawing Package for interconnecting details
- (2) The 70-inch HD displays shall be mounted on a freestanding frames thereby eliminating the need to reinforce the wall

ii) Environment:

- (1) Special Purpose Space has an area of 100.0 sq. metres
- (2) Special Purpose Space has a ceiling height of 3,000 mm, finished floor to suspended ceiling
- (3) Special Purpose Space has a raised floor

## 8. Zone 1

### a) Requirements

- i) Ability to display PC sources originating from Zone 1
- ii) Ability to display PC sources pushed from the Control Booth
- iii) Ability to display PC sources pushed from the Conference Room
- iv) Ability to push PC sources to Meeting Room 1
- v) Ability to display IPTV content

### b) Specifications

#### i) Sources:

##### (1) Local

- (a) NET 2 PCs originating from Zones 1A Cubicle A and Zone 1C Office 1 (qty 2)
- (b) NET 3 PC originating from Zones 1A Cubicle A (qty 1)
- (c) NET 11 PCs originating from Zones 1A Cubicle A and Zone 1C Office 1 (qty 2)
- (d) NET 53 PCs originating from Zones 1A Cubicle A and Zone 1C Office 1 (qty 2)
- (e) NET 61 PC originating from Zones Office 1 (qty 1)

##### (2) Remote

- (a) PC sources pushed from Control Booth (qty 2)
- (b) IPTV set-top boxes dedicated to specific channels (qty 12)

#### ii) Destinations:

##### (1) Zone 1A Cubicle A

- (a) LCD widescreen monitors (qty 3)
- (b) Powered speaker

##### (2) Zone 1B Collaboration Area

- (a) 49-inch HD displays (qty 2)

##### (3) Zone 1C Office 1

- (a) LCD widescreen monitors (qty 3)
- (b) Powered speaker
- (c) 42-inch HD display

##### (4) Zone 1C Office 2

- (a) 42-inch HD display

##### (5) Zone 1C Office 3

- (b) 42-inch HD display

(6) Zone 1C Office 4

(c) 42-inch HD display

(7) Meeting Room 1

**c) Detailed Functional Requirements**

i) Video:

(1) Table 5 lists the PC and video sources displayable in Zone 1A Cubicle A, the Zone 1B Collaboration Areas, as well as in Zone 1C Office 1, Office 2, Office 3 and Office 4:

Destination	Available Sources
Zone 1A – Cubicle A	NET 2, NET 3, NET 11, NET 53 PC sources PC sources pushed from Zone 1C Office 1 (qty 2) PC sources pushed from the Control Booth (qty 2) PC sources pushed from the Conference Room (qty 2) IPTV Rx#1 – Rx #12
Zone 1B – Collaboration Areas	NET 2, NET 3, NET 11 PC sources from Zone 1A Cubicle A PC sources pushed from the Control Booth (qty 2) PC sources pushed from the Conference Room (qty 2) IPTV Rx#1 – Rx #12
Zone 1C – Office 1 (Desk)	NET 2, NET 11, NET 53, NET 61 PC sources PC sources pushed from Zone 1A Cubicle A (qty 2) PC sources pushed from the Control Booth (qty 2) PC sources pushed from the Conference Room (qty 2)
Zone 1C – Office 1 (42-inch display)	NET 2, NET 11, NET 53, NET 61 PC sources PC sources pushed from Zone 1A Cubicle A (qty 2) PC sources pushed from the Control Booth (qty 2) PC sources pushed from the Conference Room (qty 2) IPTV Rx#1 – Rx #12
Zone 1C – Office 2 (42-inch display)	PC sources pushed from Zone 1A Cubicle A (qty 2) PC sources pushed from Zone 1C Office 1 (qty 2) PC sources pushed from the Control Booth (qty 2) PC sources pushed from the Conference Room (qty 2) IPTV Rx#1 – Rx #12



Destination	Available Sources
Zone 1C – Office 3 (42-inch display)	PC sources pushed from Zone 1A Cubicle A (qty 2) PC sources pushed from Zone 1C Office 1 (qty 2) PC sources pushed from the Control Booth (qty 2) PC sources pushed from the Conference Room (qty 2) IPTV Rx#1 – Rx #12
Zone 1C – Office 4 (42-inch display)	PC sources pushed from Zone 1A Cubicle A (qty 2) PC sources pushed from Zone 1C Office 1 (qty 2) PC sources pushed from the Control Booth (qty 2) PC sources pushed from the Conference Room (qty 2) IPTV Rx#1 – Rx #12

**Table 5: Sources available in Zone 1**

ii) Audio:

(1) Zone 1A Cubicle A

- (a) Audio shall be based on “audio breakaway”
- (b) Zone 1A Cubicle A shall be equipped with a powered-speaker
- (e) Since Zone 1 is an open environment, Cubicle A personnel shall adjust the volume accordingly so not to disturb their fellow co-workers
- (c) Hi fidelity audio from the following sources shall be distributed to Zone 1A Cubicle A:
  - (i) PC sources in Zone 1A Cubicle A (qty 4);
  - (i) PC sources pushed from Zone 1C Office 1 (qty 2);
  - (ii) PC sources pushed from the Control Booth (qty 2) ;
  - (iii) PC sources pushed from the Conference Room (qty 2); and
  - (iv) IPTV set-top boxes (qty 12).

(2) Zone 1B Collaboration Areas

- (a) Audio shall follow the video source selected
- (b) Hi fidelity audio from any of the IPTV set-top boxes shall be amplified onto the built in speakers of the 49-inch LCD displays
- (c) Each 49-inch LCD display shall only be used for broadcast, when necessary, and shall only amplify a single source at any one time

(3) Zone 1C Office 1

- (a) Hi fidelity audio from the following sources shall be distributed to the Zone 1C Office 1 desk:
  - (i) PC sources in Zone 1C Office 1 (qty 4);
  - (ii) PC sources pushed from Zone 1A Cubicle A (qty 2);
  - (iii) PC sources pushed from the Control Booth (qty 2); and
  - (iv) PC sources pushed from the Conference Room (qty 2).
- (b) Audio to the Zone 1C Office 1 desk shall be based on “audio breakaway”
- (c) The Zone 1C Office 1 desk shall be equipped with a powered-speaker

- (d) Hi fidelity audio from the following sources shall be distributed to the Zone 1C Office 1 42-inch LCD display:
  - (i) PC sources in Zone 1C Office 1 (qty 4);
  - (ii) PC sources pushed from Zone 1A Cubicle A (qty 2);
  - (iii) PC sources pushed from the Control Booth (qty 2);
  - (iv) PC sources pushed from the Conference Room (qty 2); and
  - (v) IPTV set-top boxes (qty 12).
- (e) Audio to the Zone 1C Office 1 42-inch LCD display shall always follow the video
- (f) The audio to the 42-inch LCD display shall be amplified thru the speakers built-in the 42-inch LCD display

(4) Zone 1C Office 2

- (a) Hi fidelity audio from the following sources shall be distributed to the Zone 1C Office 2 42-inch LCD display:
  - (i) PC sources pushed from Zone 1A Cubicle A (qty 2);
  - (ii) PC sources pushed from Zone 1C Office 1 (qty 2)
  - (iii) PC sources pushed from the Control Booth (qty 2);
  - (iv) PC sources pushed from the Conference Room (qty 2); and
  - (v) IPTV set-top boxes (qty 12).
- (b) Audio to the Zone 1C Office 2 42-inch LCD display shall always follow the video
- (c) The audio to the 42-inch LCD display shall be amplified thru the speakers built-in the 42-inch LCD display

(5) Zone 1C Office 3

- (a) Hi fidelity audio from the following sources shall be distributed to the Zone 1C Office 3 42-inch LCD display:
  - (i) PC sources pushed from Zone 1A Cubicle A (qty 2);
  - (ii) PC sources pushed from Zone 1C Office 1 (qty 2)
  - (iii) PC sources pushed from the Control Booth (qty 2);
  - (iv) PC sources pushed from the Conference Room (qty 2); and
  - (v) IPTV set-top boxes (qty 12).
- (b) Audio to the Zone 1C Office 3 42-inch LCD display shall always follow the video
- (c) The audio to the 42-inch LCD display shall be amplified thru the speakers built-in the 42-inch LCD display

(6) Zone 1C Office 4

- (a) Hi fidelity audio from the following sources shall be distributed to the Zone 1C Office 4 42-inch LCD display:
  - (i) PC sources pushed from Zone 1A Cubicle A (qty 2);
  - (ii) PC sources pushed from Zone 1C Office 1 (qty 2)
  - (iii) PC sources pushed from the Control Booth (qty 2);
  - (iv) PC sources pushed from the Conference Room (qty 2); and
  - (v) IPTV set-top boxes (qty 12).
- (b) Audio to the Zone 1C Office 4 42-inch LCD display shall always follow the video
- (c) The audio to the 42-inch LCD display shall be amplified thru the speakers built-in the 42-inch LCD display

iii) Control:

(1) Zone 1B Collaboration Areas

- (a) Control of Zone 1B Collaboration Area displays including IPTV set-top box selection shall be achieved via a 7-inch touch screen at Cubicle A

- (b) Volume control and the ability to mute the Zone 1B Collaboration Areas audio shall be IR remotes, attached to the 49-inch HD displays

(2) Zone 1C Offices 1 thru 4

- (a) Control of the Zone 1C Office 1 display including PC and IPTV set-top box selection, room volume control, and the ability to mute the room audio shall be achieved via a 7-inch touch screen on the Zone 1C Office 1 desk
- (b) Control of the Zone 1C Offices 2 – 4 displays including IPTV set-top box selection shall be achieved via the 7-inch touch screen at Zone 1A Cubicle A
- (c) Volume control and the ability to mute the Zone 1C Offices 2 – 4 42-inch LCD displays shall be achieved via IR remotes located at the Zone 1C Offices 2 – 4 desks

iv) Pushing of Sources

- (1) The Control Booth Operator and Conference Room Meeting Moderator (the originators) shall be able to “push” up to two PC sources to Zone 1A Cubicle A (the recipient)
- (2) The recipient shall “accept” the sources to ensure it is safe to display them at that time
- (3) When the recipient no longer wish to view the “pushed” sources, the recipient shall select another source (e.g., IPTV) thereby overriding the pushed sources or request the originators to “cancel” pushing the sources
- (4) The Control Booth Operator and Conference Room Meeting Moderator (the originators) shall be able to “push” up to two PC sources to Zone 1C Office 1 (the recipient)
- (5) The recipient shall “accept” the sources to ensure it is safe to display them at that time
- (6) When the recipient no longer wish to view the “pushed” sources, the recipient shall select another source (e.g., IPTV) thereby overriding the pushed sources or request the originators to “cancel” pushing the sources
- (7) Zone 1A Cubicle A and Zone 1C Office 1 (the originators) shall be able to “push” a PC source to Meeting Room 1 (the recipient)
- (8) The recipient shall “accept” the source to ensure it is safe to display it at that time
- (9) When the recipient no longer wish to view the “pushed” source, the recipient shall select another source (e.g., IPTV) thereby overriding the pushed source or request the originators to “cancel” pushing the source
- (10) The recipients receiving the source shall not have control (keyboard or mouse capability) of the source being pushed – for viewing purposes only

**d) Information**

i) General:

- (1) Refer to Appendix B to Annex A - Drawing Package for interconnecting details

## 9. Zone 2

### a) General Requirements

- i) Ability to display PC sources originating from Zone 2
- ii) Ability to display PC sources pushed from the Control Booth
- iii) Ability to display PC sources pushed from the Conference Room
- iv) Ability to push PC sources to Meeting Room 1
- v) Ability to display IPTV content

### b) Specifications

- i) Sources:
  - (1) Local
    - (a) NET 2 PCs originating from Zone 2A Cubicle A and Zone 2C Office 1 (qty 2)
    - (b) NET 11 PCs originating from Zone 2A Cubicle A and Zone 2C Office 1 (qty 2)
    - (c) NET 53 PCs originating from Zone 2A Cubicle A and Zone 2C Office 1 (qty 2)
  - (2) Remote
    - (a) PC sources pushed from Control Booth (qty 2)
    - (b) IPTV set-top boxes dedicated to specific channels (qty 12)
- ii) Destinations:
  - (2) Zone 2A Cubicle A
    - (a) LCD widescreen monitors (qty 3)
    - (b) Powered speakers
  - (3) Zone 2B Collaboration Areas
    - (a) 49-inch HD displays (qty 2)
  - (4) Zone 2C Office 1
    - (a) LCD widescreen monitors (qty 3)
    - (b) Powered speaker
    - (c) 42-inch HD display
  - (5) Zone 2C Office 2
    - (d) 42-inch HD display
  - (6) Meeting Room 1

**c) Detailed Functional Requirements**

i) Video:

- (1) Table 6 lists the PC and video sources displayable in Zone 2A Cubicle A, the Zone 2B Collaboration Areas as well as in Zone 2C Office 1 and Office 2:

Destination	Available Sources
Zone 2A – Cubicle A	NET 2, NET 11, NET 53 PC sources PC sources pushed from Zone 2C Office 1 (qty 2) PC sources pushed from the Control Booth (qty 2) PC sources pushed from the Conference Room (qty 2) IPTV Rx#1 – Rx #12
Zone 2B – Collaboration Areas	NET 2, NET 11 PC sources from Zone 2A Cubicle A PC sources pushed from the Control Booth (qty 2) PC sources pushed from the Conference Room (qty 2) IPTV Rx#1 – Rx #12
Zone 2C – Office 1 (Desk)	NET 2, NET 11, NET 53 PC sources PC sources pushed from Zone 2A Cubicle A (qty 2) PC sources pushed from the Control Booth (qty 2) PC sources pushed from the Conference Room (qty 2)
Zone 2C – Office 1 (42-inch display)	NET 2, NET 11, NET 53 PC sources PC sources pushed from Zone 2A Cubicle A (qty 2) PC sources pushed from the Control Booth (qty 2) PC sources pushed from the Conference Room (qty 2) IPTV Rx#1 – Rx #12
Zone 2C – Office 2 (42-inch display)	PC sources pushed from Zone 2A Cubicle A (qty 2) PC sources pushed from Zone 2C Office 1 (qty 2) PC sources pushed from the Control Booth (qty 2) PC sources pushed from the Conference Room (qty 2) IPTV Rx#1 – Rx #12

**Table 6: Sources available in Zone 2**

ii) Audio:

- (1) Zone 2A Cubicle A

- (a) Audio shall be based on “audio breakaway”
- (b) Zone 2A Cubicle A shall be equipped with a powered-speaker
- (c) Since Zone 2 is an open environment, Cubicle A shall adjust the volume accordingly so not to disturb their fellow co-workers

- (d) Hi fidelity audio from the following sources shall be distributed to Zone 2A Cubicle A:
  - (i) PC sources in Zone 2A Cubicle A (qty 3);
  - (i) PC source pushed from Zone 2C Office 1 (qty 2);
  - (ii) PC source pushed from Control Booth (qty 2);
  - (iii) PC sources pushed from the Conference Room (qty 2); and
  - (iv) IPTV set-top boxes (qty 12).

(2) Zone 2B Collaboration Areas

- (a) Audio shall follow the video source selected
- (b) Hi fidelity audio from any of the IPTV set-top boxes shall be amplified onto the built in speakers of the 49-inch LCD displays
- (c) Each 49-inch LCD display shall only be used for broadcast, when necessary, and shall only amplify a single source at any one time

(3) Zone 2C Office 1

- (a) Hi fidelity audio from the following sources shall be distributed to the Zone 2C Office 1 desk:
  - (i) PC sources in Zone 2C Office 1 (qty 3);
  - (ii) PC sources pushed from Zone 2 Cubicle A (qty 2);
  - (iii) PC sources pushed from Control Booth (qty 2); and
  - (iv) PC sources pushed from the Conference Room (qty 2).
- (b) Audio to the Zone 2C Office 1 desk shall be based on "audio breakaway"
- (c) The Zone 2C Office 1 desk shall be equipped with a powered-speaker
- (d) Hi fidelity audio from the following sources shall be distributed to the Zone 2C Office 1 42-inch LCD display:
  - (i) PC sources in Zone 2C Office 1 (qty 3);
  - (ii) PC sources pushed from Zone 2 Cubicle A (qty 2);
  - (iii) PC sources pushed from Control Booth (qty 2);
  - (iv) PC sources pushed from the Conference Room (qty 2); and
  - (v) IPTV set-top boxes (qty 12).
- (e) Audio to the Zone 2C Office 1 42-inch LCD display shall always follow the video
- (f) The audio to the 42-inch LCD display shall be amplified onto the built-in speakers of the 42-inch LCD display

(4) Zone 2C Office 2

- (a) Hi fidelity audio from the following sources shall be distributed to the Zone 2C Office 2 42-inch LCD display:
  - (i) PC sources pushed from Zone 2 Cubicles A (qty 2);
  - (ii) PC sources pushed from Zone 2 Office 1 (qty 2);
  - (iii) PC sources pushed from Control Booth (qty 2);
  - (iv) PC sources pushed from the Conference Room (qty 2); and
  - (v) IPTV set-top boxes (qty 12).
- (b) Audio to the Zone 2C Office 2 42-inch LCD display shall always follow the video
- (c) The audio to the 42-inch LCD display shall be amplified onto the built-in speakers of the 42-inch LCD display

iii) Control:

(1) Zone 2B Collaboration Areas

- (a) Control of Zone 2B Collaborative Area displays including IPTV set-top box selection shall be achieved via a 7-inch touch screen at Cubicle A

- (b) Volume control and the ability to mute the Zone 2B Collaboration Areas audio shall be via IR remotes, attached to the 49-inch HD displays

(2) Zone 2C Offices 1 thru 2

- (a) Control of the Zone 2C Office 1 display including PC and IPTV set-top box selection, room volume control, and the ability to mute the room audio shall be achieved via a 7-inch touch screen on the Zone 2C Office 1 desk
- (b) Control of the Zone 2C Office 2 display including IPTV set-top box selection shall be achieved via the 7-inch touch screen at Zone 2A Cubicle A
- (c) Volume control and the ability to mute the Zone 2C Office 2 42-inch LCD display shall be achieved via a IR remote located at the Zone 2C Office 2 desk

iv) Pushing of Sources

- (1) The Control Booth Operator and Conference Room Meeting Moderator (the originators) shall be able to “push” up to two PC sources to Zone 2A Cubicle A (the recipient)
- (2) The recipient shall “accept” the sources to ensure it is safe to display them at that time
- (3) When the recipient no longer wish to view the “pushed” sources, the recipient shall select another source (e.g., IPTV) thereby overriding the pushed sources or request the originators to “cancel” pushing the sources
- (4) The Control Booth Operator and Conference Room Meeting Moderator (the originators) shall be able to “push” up to two PC sources to Zone 2C Office 1 (the recipient)
- (5) The recipient shall “accept” the sources to ensure it is safe to display them at that time
- (6) When the recipient no longer wish to view the “pushed” sources, the recipient shall select another source (e.g., IPTV) thereby overriding the pushed sources or request the originators to “cancel” pushing the sources
- (7) Zone 2A Cubicle A and Zone 2C Office 1 (the originators) shall be able to “push” a PC source to Meeting Room 1 (the recipient)
- (8) The recipient shall “accept” the source to ensure it is safe to display it at that time
- (9) When the recipient no longer wish to view the “pushed” source, the recipient shall select another source (e.g., IPTV) thereby overriding the pushed source or request the originators to “cancel” pushing the source
- (10) The Zones receiving the source shall not have control (keyboard or mouse capability) of the source being pushed – for viewing purposes only

**d) Information**

i) General:

- (1) Refer to Appendix B to Annex A - Drawing Package for interconnecting details

## 10. Zone 3

### a) General Requirements

- i) Ability to display PC sources originating from Zone 3
- ii) Ability to display PC sources pushed from the Control Booth
- iii) Ability to display PC sources pushed from the Conference Room
- iv) Ability to push PC sources to Meeting Room 1
- v) Ability to display IPTV content

### b) Specifications

- i) Sources:
  - (1) Local
    - (a) NET 2 PC originating from Zone 3A Cubicle A (qty 1)
    - (b) NET 11 PC originating from Zone 3A Cubicle A (qty 1)
    - (c) NET 53 PC originating from Zone 3A Cubicle A (qty 1)
  - (2) Remote
    - (a) PC sources pushed from Control Booth (qty 2)
    - (b) IPTV set-top boxes dedicated to specific channels (qty 12)
- ii) Destinations:
  - (1) Zone 3A Cubicle A
    - (a) LCD widescreen monitors (qty 3)
    - (b) Powered speaker
  - (2) Zone 3B Collaboration Areas
    - (a) 49-inch HD displays (qty 2)
  - (3) Meeting Room 1

### c) Detailed Functional Requirements

- i) Video:
  - (1) Table 7 lists the PC and video sources displayable in Zone 3A Cubicle A as well as the Zone 3B Collaboration Areas:



Destination	Available Sources
Zone 3A – Cubicle A	NET 2, NET 11, NET 53 PC sources PC sources pushed from Control Booth (qty 2) PC sources pushed from the Conference Room (qty 2) IPTV Rx#1 – Rx #12
Zone 3B – Collaboration Areas	NET 2, NET 11 PC sources from Zone 3A Cubicle A PC sources pushed from Control Booth (qty 2) PC sources pushed from the Conference Room (qty 2) IPTV Rx#1 – Rx #12

**Table 7: Sources available in Zone 3**

ii) Audio:

(1) Cubicle A

- (a) Audio shall be based on “audio breakaway”
- (b) Zone 3A Cubicle A shall be equipped with a powered-speaker
- (c) Since Zone 3A is an open environment, Zone 3A Cubicle A shall adjust the volume accordingly so not to disturb their fellow co-workers
- (d) Hi fidelity audio from the following sources shall be distributed to Zone 3A Cubicle A:
  - (i) PC sources in Zone 3A Cubicle A (qty 3);
  - (i) PC sources pushed from the Control Booth (qty 2);
  - (ii) PC sources pushed from the Conference Room (qty 2); and
  - (iii) IPTV set-top boxes (qty 12).

(2) Collaboration Areas

- (a) Audio shall follow the video source selected
- (b) Hi fidelity audio from any of the IPTV set-top boxes shall be amplified onto the built in speakers of the 49-inch LCD displays
- (c) Each 49-inch LCD display shall only be used for broadcast, when necessary, and shall only amplify a single source at any one time

iii) Control:

(1) Collaboration Areas

- (a) Control of Zone 3B Collaborative Area displays including IPTV set-top box selection shall be achieved via a 7-inch touch screen at Zone 3A Cubicle A
- (b) Volume control and the ability to mute the Zone 3B Collaboration Areas audio shall be via IR remotes, attached to the 49-inch HD displays

iv) Pushing of Sources

- (1) The Control Booth Operator and Conference Room Meeting Moderator (the originators) shall be able to “push” up to two PC sources to Zone 3A Cubicle A (the recipient)
- (2) The recipient shall “accept” the sources to ensure it is safe to display them at that time

- (3) When the recipient no longer wish to view the “pushed” sources, the recipient shall select another source (e.g., IPTV) thereby overriding the pushed sources or request the originators to “cancel” pushing the sources
- (4) Zones 3A Cubicle A (the originator) shall be able to “push” a PC source to Meeting Room 1 (the recipient)
- (5) The recipient shall “accept” the source to ensure it is safe to display it at that time
- (6) When the recipient no longer wish to view the “pushed” source, the recipient shall select another source (e.g., IPTV) thereby overriding the pushed source or request the originator to “cancel” pushing the source
- (7) The Zones receiving the source shall not have control (keyboard or mouse capability) of the source being pushed – for viewing purposes only

**d) Information**

i) General:

- (1) Refer to Appendix B to Annex A - Drawing Package for interconnecting details

## 11.EQT\_5-7

### a) Specifications

EQT\_5-7 will house AV equipment required to operate the system, including:

- i) AV Switch
- ii) CODECs
- iii) Fibre Optic Serial Data Modems
- iv) Integrated Controllers
- v) Logo Generator
- vi) Media Converters
- vii) Optical Electrical Switch
- viii) Power Amplifier
- ix) Power Controllers
- x) Rackmount Console
- xi) System Processor with Voice over Internet protocol (VoIP) telephone interface
- xii) Video Distribution System, comprised of:
  - (1) Fibre Matrix Switch
  - (2) Fibre Transmitters
  - (3) Fibre Receivers
- xiii) 3G-SDI to HDMI Converter

The above equipment will be housed in four (4) equipment racks which will be supplied, installed, secured to the floor and grounded by DND. DND-supplied patch panels, which make up the core backbone cabling infrastructure, will be installed in each equipment rack and terminated by DND.

Each AV rack will be fitted with both 115v and 208v capability.

The matrix router in EQT\_5-7 shall have the ability to route sources to the following zones:

- i) Zone 4A (Cubicles):
  - (1) Cubicle A (qty 1)
- ii) Zone 4B (Collaboration Areas):
  - (1) 49-inch HD displays (qty 2)
- iii) Zone 4C (Office 1):
  - (1) 42-inch HD display (qty 1); and
  - (2) Office 1 desk (qty 1).
- iv) Zone 4C (Office 2):
  - (1) 42-inch HD display (qty 1)
- v) Meeting Room 2:
  - (1) 55-inch HD displays (qty 3);

- (2) Surface mount speakers (qty 1 pair); and
- (3) Operator's Desk (qty 1).

vi) Meeting Room 1 (via EQT\_5-6):

- (1) 70-inch HD displays (qty 2);
- (2) Surface mount speakers (qty 1 pair); and
- (3) Operator's Desk (qty 1).

**b) Information**

ii) General:

- (1) Refer to Appendix B to Annex A - Drawing Package for interconnecting details

## 12. Zone 4

Zone 4 is an area comprised of cubicles (Zone 4A), collaboration areas (Zone 4B) and offices (Zone 4C). Meeting Room 2, which is described in the next chapter, is dedicated to Zone 4 personnel. Zone 4 and Meeting Room 2 are served by EQT\_5-7.

### a) General Requirements

- i) Ability to display PC sources originating from Zone 4
- ii) Ability to display PC sources pushed from the Control Booth
- iii) Ability to display PC sources pushed from the Conference Room
- iv) Ability to push PC sources to Meeting Room 1
- v) Ability to display IPTV content

### b) Specifications

- i) Sources:
  - (1) Local
    - (a) NET 2 PCs originating from Zone 4 (qty 2)
    - (b) NET 4 PCs originating from Zone 4 (qty 2)
    - (c) NET 53 PCs originating from Zone 4 (qty 2)
    - (d) NET 61 PC originating from Zone 4 (qty 2)
  - (2) Remote
    - (a) PC sources pushed from the Control Booth (qty 2)
    - (b) PC sources pushed from the Control Booth (qty 2)
    - (c) Videoconferencing system over the NET 4 Video Conferencing Network
    - (d) Videoconferencing system over the NET 67 Video Conferencing Network
    - (e) IPTV set-top boxes dedicated to specific channels (qty 12)
- ii) Destinations:
  - (1) Zone 4A Cubicle A (qty 1)
    - (a) LCD widescreen monitors (qty 3)
    - (b) Powered speaker
  - (2) Zone 4B Collaboration Areas
    - (a) 49-inch HD displays (qty 2)
  - (3) Zone 4C Office 1
    - (a) LCD widescreen monitors (qty 3)
    - (b) Powered speaker
    - (c) 42-inch HD display
  - (4) Zone 4C Office 2
    - (a) 42-inch HD display

(5) Meeting Room 2

- (a) 55-inch HD displays along the host wall (qty 3)
- (b) Surface mount speakers (qty 1 pair)
- (c) LCD widescreen monitors at the Operator's Desk (qty 2)

(6) EQT-5-7

- (a) Videoconferencing system over the NET 4 Video Conferencing Network
- (b) Videoconferencing system over the NET 67 Video Conferencing Network

(7) Meeting Room 1

- (a) 70-inch HD displays along the host wall (qty 2)
- (b) Surface mount speakers (qty 1 pair)
- (c) LCD widescreen monitors at the Operator's Desk (qty 2)

**c) Detailed Functional Requirements**

i) Video:

- (1) Table 8 lists the PC and video sources displayable in Zone 4A Cubicle A, the Zone 4B Collaboration Areas as well as in Zone 4C Office 1 and 2:

Destination	Available Sources
Zone 4A – Cubicle A	NET 2, NET 4, NET 53, NET 61 PC sources PC sources pushed from Zone 4C Office 1 (qty 2) PC sources pushed from the Control Booth (qty 2) PC sources pushed from the Conference Room (qty 2) IPTV Rx#1 – Rx #12
Zone 4B – Collaboration Areas	NET 2, NET 4, NET 61 PC sources from Zone 4A Cubicle A PC sources pushed from the Control Booth (qty 2) PC sources pushed from the Conference Room (qty 2) IPTV Rx#1 – Rx #12
Zone 4C – Office 1 (Desk)	NET 2, NET 4, NET 53, NET 61 PC sources PC sources pushed from Zone 4A Cubicle A (qty 2) PC sources pushed from the Control Booth (qty 2) PC sources pushed from the Conference Room (qty 2)
Zone 4C – Office 1 (42-inch display)	NET 2, NET 4, NET 53, NET 61 PC sources PC sources pushed from Zone 4A Cubicle A (qty 2) PC sources pushed from the Control Booth (qty 2) PC sources pushed from the Conference Room (qty 2) IPTV Rx#1 – Rx #12

Destination	Available Sources
Zone 4C – Office 2 (42-inch display)	PC sources pushed from Zone 4A Cubicle A (qty 2) PC sources pushed from Zone 4C Office 1 (qty 2) PC sources pushed from the Control Booth (qty 2) PC sources pushed from the Conference Room (qty 2) IPTV Rx#1 – Rx #12

**Table 8: Sources available in Zone 4**

ii) Audio:

(1) Zone 4A Cubicle A

- (a) Audio shall be based on “audio breakaway”
- (b) Zone 4A Cubicle A shall be equipped with a powered-speaker
- (c) Since Zone 4 is an open environment, Cubicle A shall adjust the volume accordingly so not to disturb their fellow co-workers
- (d) Hi fidelity audio from the following sources shall be distributed to Zone 4A Cubicle A:
  - (i) PC sources in Zone 4A Cubicle A (qty 4);
  - (ii) PC sources pushed from Zone 4C Office 1 (qty 2);
  - (iii) PC sources pushed from the Control Booth (qty 2);
  - (iv) PC sources pushed from the Conference Room (qty 2); and
  - (v) IPTV set-top boxes (qty 12).

(2) Zone 4B Collaboration Areas

- (a) Audio shall follow the video source selected
- (b) Hi fidelity audio from the IPTV set-top boxes shall be amplified onto the built in speakers of the 49-inch LCD displays
- (c) Each 49-inch LCD display shall only be used for broadcast, when necessary, and shall only amplify a single source at any one time

(3) Zone 4C Office 1

- (a) Hi fidelity audio from the following sources shall be distributed to the Zone 4C Office 1 desk:
  - (i) PC sources in Zone 4C Office 1 (qty 4);
  - (ii) PC sources pushed from Zone 4A Cubicle A (qty 2);
  - (iii) PC sources pushed from the Control Booth (qty 2); and
  - (iv) PC sources pushed from the Conference Room (qty 2).
- (b) Audio to the Zone 4C Office 1 desk shall be based on “audio breakaway”
- (c) The Zone 4C Office 1 desk shall be equipped with a powered-speaker
- (d) Hi fidelity audio from the following sources shall be distributed to the Zone 4C Office 1 42-inch LCD display:
  - (i) PC sources in Zone 4C Office 1 (qty 4);
  - (ii) PC sources pushed from Zone 4A Cubicle A (qty 2);
  - (iii) PC sources pushed from the Control Booth (qty 2);
  - (iv) PC sources pushed from the Conference Room (qty 2); and
  - (v) IPTV set-top boxes (qty 12).
- (e) Audio to the Zone 4C Office 1 42-inch LCD display shall always follow the video

- (f) The audio to the 42-inch LCD display shall be amplified onto the built-in speakers of the 42-inch LCD display

(4) Zone 4C Office 2

- (a) Hi fidelity audio from the following sources shall be distributed to the Zone 4C Office 2 42-inch LCD display:
  - (i) PC sources pushed from Zone 4A Cubicle A (qty 2);
  - (ii) PC sources pushed from Zone 4C Office 1 (qty 2);
  - (iii) PC sources pushed from the Control Booth (qty 2);
  - (iv) PC sources pushed from the Conference Room (qty 2); and
  - (v) IPTV set-top boxes (qty 12).
- (b) Audio to the Zone 4C Office 2 42-inch LCD display shall always follow the video
- (c) The audio to the 42-inch LCD display shall be amplified onto the built-in speakers of the 42-inch LCD display

iii) Control:

(1) Zone 4B Collaboration Areas

- (a) Control of Zone 4B Collaboration Area displays including IPTV set-top box selection shall be achieved via a 7-inch touch screen at Zone 4A Cubicle A
- (b) Volume control and the ability to mute the Zone 4B Collaboration Areas audio shall be via IR remotes, attached to the 49-inch HD displays

(2) Zone 4C Office 1 and 2

- (a) Control of the Zone 4C Office 1 display including PC and IPTV set-top box selection, room volume control, and the ability to mute the room audio shall be achieved via a 7-inch touch screen on the Zone 4C Office 1 desk
- (b) Control of the Zone 4C Office 2 display including IPTV set-top box selection shall be achieved via the 7-inch touch screen at Zone 4A Cubicle A
- (c) Volume control and the ability to mute the Zone 4C Office 2 42-inch LCD display shall be achieved via a IR remote located at the Zone 4C Office 2 desk

iv) Pushing of Sources

- (1) The Control Booth Operator and Conference Room Meeting Moderator (the originators) shall be able to “push” up to two PC sources to Zone 4A Cubicle A (the recipient)
- (2) The recipient shall “accept” the sources to ensure it is safe to display them at that time
- (3) When the recipient no longer wish to view the “pushed” sources, the recipient shall select another source (e.g., IPTV) thereby overriding the pushed sources or request the originators to “cancel” pushing the sources
- (4) The Control Booth Operator and Conference Room Meeting Moderator (the originators) shall be able to “push” up to two PC sources to Zone 4C Office 1 (the recipient)
- (5) The recipient shall “accept” the sources to ensure it is safe to display them at that time
- (6) When the recipient no longer wish to view the “pushed” sources, the recipient shall select another source (e.g., IPTV) thereby overriding the pushed sources or request the originators to “cancel” pushing the sources
- (7) Zone 4A Cubicle A (the originator) shall be able to “push” a PC source to Zone 4C Office 1 (the recipient)
- (8) The recipient shall “accept” the source to ensure it is safe to display it at that time



- (9) When the recipient no longer wish to view the “pushed” source, the recipient shall select another source (e.g., IPTV) thereby overriding the pushed source or request the originator to “cancel” pushing the source
- (10) Zone 4C Office 1 (the originator) shall be able to “push” a PC source to Zone 4A Cubicle A (the recipient)
- (11) The recipient shall “accept” the source to ensure it is safe to display it at that time
- (12) When the recipient no longer wish to view the “pushed” source, the recipient shall select another source (e.g., IPTV) thereby overriding the pushed source or request the originator to “cancel” pushing the source
- (13) Zones 4A Cubicle A and 4C Office 1 (the originators) shall be able to “push” a PC source to Meeting Room 1 (the recipient)
- (14) The recipient shall “accept” the source to ensure it is safe to display it at that time
- (15) When the recipient no longer wish to view the “pushed” source, the recipient shall select another source (e.g., IPTV) thereby overriding the pushed source or request the originators to “cancel” pushing the source
- (16) The Zones receiving the source shall not have control (keyboard or mouse capability) of the source being pushed – for viewing purposes only

**d) Information**

i) General:

- (1) Refer to Appendix B to Annex A - Drawing Package for interconnecting details.

## 13. Meeting Room 2

### a) General Requirements

- i) Ability to conduct videoconferences over various networks
- ii) Ability to display PC sources originating from Meeting Room 2
- iii) Ability to view PC sources pushed from various zones
- iv) Ability to view IPTV content
- v) Provide a videoconference table which can accommodate up to nine participants

### b) Specifications

#### i) Sources:

##### (1) Local

- (a) Camera
- (b) Microphone
- (c) NET 4 PC
- (d) NET 53 PC
- (e) VoIP telephone interface

##### (2) Remote

- (a) NET 67 PC originating from EQT\_5-7
- (b) PC source pushed from Zone 4A Cubicle A (qty 2)
- (c) PC source pushed from the Zone 4C Office 1 (qty 2)
- (d) PC source pushed from the Control Booth (qty 2)
- (e) PC source pushed from the Conference Room (qty 2)
- (f) Videoconferencing system over the NET 4 Video Conferencing Network
- (g) Videoconferencing system over the NET 67 Video Conferencing Network
- (h) IPTV set-top boxes dedicated to specific channels (qty 12)

#### ii) Destinations:

- (1) 55-inch HD displays along the wall (qty 3)
- (2) Surface mount speakers (qty 1 pair)
- (3) Videoconferencing system over the NET 4 Video Conferencing Network
- (4) Videoconferencing system over the NET 67 Video Conferencing Network
- (5) LCD widescreen monitors at the Operator's Desk (qty 2)

### c) Detailed Functional Requirements

#### i) Presentation Mode

##### (1) Video:

- (a) Table 9 lists the PC and video sources displayable on the Meeting Room 2 and the Operator's Desk displays:

Destination	Available Sources
Meeting Room 2 (55-inch HD Displays)	NET 4, NET 53 PC sources PC sources pushed from Zone 4A Cubicle A (qty 2) PC sources pushed from Zone 4C Office 1 (qty 2) PC sources pushed from the Control Booth (qty 2) PC sources pushed from the Conference Room (qty 2) IPTV Rx#1 – Rx #12
Meeting Room 2 (Operator's Desk)	NET 4, NET 53 PC sources PC sources pushed from Zone 4A Cubicle A (qty 2) PC sources pushed from Zone 4C Office 1 (qty 2) PC sources pushed from the Control Booth (qty 2) PC sources pushed from the Conference Room (qty 2) IPTV Rx#1 – Rx #12

**Table 9: Sources available in Meeting Room 2**

- (b) High resolution computer-video content from the PC sources in Meeting Room 2 shall be displayable on any of the 55-inch HD displays
  - (c) Event Monitoring: High resolution computer-video content from the PC sources pushed from Zone 4A Cubicle A shall be displayable on any of the 55-inch HD displays
  - (d) Event Monitoring: High resolution computer-video content from the PC sources pushed from Zone 4C Office 1 shall be displayable on any of the 55-inch HD displays
  - (e) Event Monitoring: High resolution computer-video content from the PC sources pushed from the Control Booth shall be displayable on any of the 55-inch HD displays
  - (f) Event Monitoring: High resolution computer-video content from the PC sources pushed from the Conference Room shall be displayable on any of the 55-inch HD displays
- (2) Audio:
- (a) Audio shall be based on “audio breakaway”
  - (b) Audio in Meeting Room 2 shall originate from surface mount speakers
  - (c) Hi fidelity audio from the following sources shall be available for distribution to the surface mount speakers:
    - (i) PC sources in Meeting Room 2 (qty 4);
    - (ii) PC sources pushed from Zone 4A Cubicle A (qty 2);
    - (iii) PC sources pushed from Zone 4C Office 1 (qty 2);
    - (iv) PC sources pushed from the Control Booth (qty 2);
    - (v) PC sources pushed from the Conference Room (qty 2); and
    - (vi) IPTV set-top boxes (qty 12).
  - (d) Only one audio source shall be amplified at any one time

(3) Control:

- (a) Control of Meeting Room 2 including PC and IPTV set-top box selection, room volume control, and the ability to mute the room audio shall be achieved via the 10-inch touch screen at the Operator's Desk
- (b) The access point at the Operator's Desk shall be a table box embedded into the desk (cut-out performed by the Contractor)
- (c) The table box shall accommodate the touch screen, USB HID (qty 2), USB 2.0, video (qty 2) and power (qty 2)
- (d) An additional table box accommodating a touch screen, USB HID (qty 2) and USB 2.0 shall be embedded into the meeting room table (cut-out performed by the table manufacturer)
- (e) At this point in time, Meeting Room 2 shall function with a single touch screen
- (f) In the event where multiple touch screens are connected to the AV system, all Meeting Room 2 touch screens shall mirror the actions of one another
- (g) Mouse and keyboard control of the NET 4 and NET 53 PCs in Meeting Room 2 shall be extended to the meeting room table
- (h) The touch screen GUI shall allow the Meeting Room 2 Operator to:
  - (i) Select Language (French or English)
  - (ii) Select Presentation or Videoconferencing
  - (iii) Select Mode I or Mode II
  - (iv) Initiate and accept audioconference calls
  - (v) Select Source(s)
  - (vi) Select Destination(s) in Meeting Room 2
  - (vii) Adjust Volume
  - (viii) Accept pushed sources from Zone 4A Cubicle A
  - (ix) Accept pushed sources from Zone 4C Office 1
  - (x) Accept pushed sources from the Control Booth
  - (xi) Accept pushed sources from the Conference Room
  - (xii) Push source to Meeting Room 2
  - (xiii) Administrative Mode

ii) Pushing of Sources

- (1) The Control Booth Operator and Conference Room Meeting Moderator (the originators) shall be able to "push" up to two PC sources to Meeting Room 2 (the recipient)
- (2) The recipient shall "accept" the sources to ensure it is safe to display them at that time
- (3) When the recipient no longer wish to view the "pushed" sources, the recipient shall select another source (e.g., IPTV) thereby overriding the pushed sources or request the originators to "cancel" pushing the sources
- (4) Zone 4A Cubicle A (the originator) shall be able to "push" up to two PC sources to Meeting Room 2 (the recipient)
- (5) The recipient shall "accept" the sources to ensure it is safe to display them at that time
- (6) When the recipient no longer wish to view the "pushed" sources, the recipient shall select another source (e.g., IPTV) thereby overriding the pushed sources or request the originator to "cancel" pushing the sources
- (7) Zone 4C Office 1 (the originator) shall be able to "push" up to two PC sources to Meeting Room 2 (the recipient)
- (8) The recipient shall "accept" the sources to ensure it is safe to display them at that time
- (9) When the recipient no longer wish to view the "pushed" sources, the recipient shall select another source (e.g., IPTV) thereby overriding the pushed sources or request the originator to "cancel" pushing the sources

- (10) The Meeting Room 2 Operator (the originator) shall be able to “push” a PC source to Meeting Room 1 (the recipient)
- (11) The recipient shall “accept” the source to ensure it is safe to display it at that time
- (12) When the recipient no longer wish to view the “pushed” source, the recipient shall select another source (e.g., IPTV) thereby overriding the pushed source or request the originator to “cancel” pushing the source
- (13) The Zones receiving the source shall not have control (keyboard or mouse capability) of the source being pushed – for viewing purposes only

iii) VTC System (NET 4):

(1) Video:

- (a) Video from the far end and near end shall be displayable on any of the 55-inch HD displays during NET 4 videoconferences
- (b) High resolution computer-video content from the following sources shall be displayable on the 55-inch HD displays during NET 4 videoconferences:
  - (i) PC sources (except NET 53) in Meeting Room 2 (qty 3);
  - (ii) PC sources (except NET 53) pushed from Zone 4A Cubicle A (qty 2);
  - (iii) PC sources (except NET 53) pushed from Zone 4C Office 1 (qty 2);
  - (iv) PC sources pushed from the Control Booth (qty 2); and
  - (v) PC sources pushed from the Conference Room (qty 2); and
- (c) Only a single PC source shall be transmitted over the NET 4 videoconferences at any one time

(2) Audio:

- (a) The audio from the far end shall be distributed to surface mount speakers adjacent to the 55-inch HD displays during NET 4 videoconferences
- (b) Hi fidelity audio from the following PC sources shall be distributed to the surface mount speakers during NET 4 videoconferences:
  - (i) PC sources (except NET 53) in Meeting Room 2 (qty 3);
  - (ii) PC sources (except NET 53) pushed from Zone 4A Cubicle A (qty 2);
  - (iii) PC sources (except NET 53) pushed from Zone 4C Office 1 (qty 2);
  - (iv) PC sources pushed from the Control Booth (qty 2); and
  - (v) PC sources pushed from the Conference Room (qty 2).
- (c) The audio from the above PC sources may be incorporated into the NET 4 videoconference audio stream allowing participants to provide a narrative over the audio that is being sent to the far end
- (d) Meeting Room 2 shall be fitted with a ceiling microphone array, which shall be used during NET 4 videoconferences

(3) Control:

- (a) The touch screen shall allow users to conduct NET 4 videoconferences on the 55-inch HD displays
- (b) The touch screen shall also allow users to control the videoconference, adjust the volume, mute the system and send PC content to the far end
- (c) The touch screen shall allow users to select which source is displayed on the 55-inch HD displays during NET 4 videoconferences:
  - (i) Far end participants;
  - (ii) Near end participants (Main camera);
  - (iii) NET 4 PC originating from Meeting Room 2;
  - (iv) PC sources (except NET 53) pushed from Zone 4A Cubicles A
  - (v) PC sources (except NET 53) pushed from Zone 4C Office 1;

- (vi) PC source pushed from the Control Booth; and
    - (vii) PC source pushed from the Conference Room.
  - (d) All sources shall be displayed onto the 55-inch HD displays in a layout supported by the CODEC manufacturer
  - (e) The touch screen GUI shall allow the Meeting Room 2 Operator to:
    - (i) Select Language (French or English)
    - (ii) Select Presentation or Videoconferencing
    - (iii) Select Mode (NET 4 or NET 67)
    - (iv) Initiate videoconference calls manually
    - (v) Initiate videoconference calls thru phonebook
    - (vi) Enter DTMF codes
    - (vii) Accept videoconference calls manually
    - (viii) Control camera
    - (ix) Select Source(s)
    - (x) Select Destination(s) in Meeting Room 2
    - (xi) Adjust Volume
    - (xii) Accept pushed sources from the Zone 4A Cubicle A, Zone 4C Office 1, the Control Booth and the Conference Room
    - (xiii) Push source to Meeting Room 1
    - (xiv) Administrative Mode
- iv) VTC System (NET 67):
- (1) Video:
    - (a) Video from the far end and near end shall be displayable on any of the 55-inch HD displays during NET 67 videoconferences
    - (b) High resolution computer-video content from the NET 67 PC in EQT\_5-7 shall be displayable on the 55-inch HD displays during NET 67 videoconferences
    - (c) The NET 67 PC shall bypass the matrix switch and be hard-wired into the NET 67 CODEC as a PC input
  - (2) Audio:
    - (a) The audio from the far end shall be distributed to surface mount speakers adjacent to the 55-inch HD displays during NET 67 videoconferences
    - (b) Hi fidelity audio from the NET 67 PC in EQT\_5-7 shall be distributed to the surface mount speakers during NET 67 videoconferences
    - (c) The audio from the NET 67 PC may be incorporated into the NET 67 videoconference audio stream allowing participants to provide a narrative over the audio that is being sent to the far end
    - (d) Meeting Room 2 shall be fitted with a ceiling microphone array, which shall be used during NET 67 videoconferences
  - (3) Control:
    - (a) The touch screen shall allow users to conduct NET 67 videoconferences on the 55-inch HD displays
    - (b) The touch screen shall allow users to receive video calls, adjust the volume, mute the system and send PC content to the far end
    - (c) The NET 67 VTC system shall not be able to initiate calls
    - (d) The touch device shall allow users to select which source is displayed on the 55-inch HD displays during NET 67 videoconferences:
      - (i) Far end participants;
      - (ii) Near end participants (Main camera); and

- (iii) NET 67 PC in EQT\_5-7.
- (e) All sources shall be displayed onto the 55-inch HD displays in a layout supported by the CODEC manufacturer
- (f) The touch screen GUI shall allow the Meeting Room 2 Operator to:
  - (i) Select Language (French or English)
  - (ii) Select Presentation or Videoconferencing
  - (iii) Select Mode (NET 4 or NET 67)
  - (iv) Accept videoconference calls manually
  - (v) Control camera
  - (vi) Select Source(s)
  - (vii) Select Destination(s) in Meeting Room 2
  - (viii) Adjust Volume
  - (ix) Mute Microphones (individually)
  - (x) Administrative Mode

**d) Information**

- i) General:
  - (1) Refer to Appendix B to Annex A - Drawing Package for interconnecting details
  - (2) Refer to Appendix B to Annex A - Drawing Package for details of the Meeting Room 2 table to be provided by the Contractor
  - (3) The 55-inch HD displays shall be mounted on a freestanding frames thereby eliminating the need to reinforce the wall
  - (4) The surface mount speakers shall be mounted to the freestanding frame in order to preserve the integrity of the host wall
  - (5) The Meeting Room 2 Meeting Room table shall accommodate up to nine (9) participants
  - (6) Meeting Room 2 camera shall be mounted under the 55-inch HD displays at approximately 48" – 50" above the finished floor
- ii) Environment / General Considerations:
  - (1) Meeting Room 2 covers an area of approximately 32 sq. metres
  - (2) Meeting Room 2 room has a ceiling height of 3,000 mm, finished floor to suspended ceiling
  - (3) Meeting Room 2 room has a raised floor

## 14. External Feeds

### a) General Requirement

- i) Ability to push PC sources to the Strategic Situation Centre at the Campus
- ii) Ability to view and display the content of the security camera outside the vestibule
- iii)

### b) Detailed Functional Requirements (PC Sources)

- i) Source:
  - (1) PC sources (qty 2)
- ii) Destination:
  - (1) Control Booth
  - (2)
- iii) Video:
  - (1) PC sources originating from outside the SJS facility shall be routed to the Control Booth and be made available in:
    - (a) Presentation Mode I
      - (i) When in Presentation Mode I, the Control Booth Operators shall be able to display limited External Feed high resolution computer-video content
    - (b) Presentation Mode II
      - (ii) When in Presentation Mode II, the Control Booth Operators shall be able to display all External Feed high resolution computer-video content
- iv) Audio:
  - (1) PC sources originating from outside the SJS facility shall be routed to the Control Booth and be made available in:
    - (a) Presentation Mode I
      - (i) When in Presentation Mode I, the Control Booth Operators shall be able to distribute limited External Feed hi fidelity audio through the Conference Room audio system
    - (b) Presentation Mode II
      - (i) When in Presentation Mode II, the Control Booth Operators shall be able to distribute all External Feed hi fidelity audio through the Conference Room audio system
- v) Control:
  - (1) Pushing of Sources



- (a) When the External Feed Operator sends an External Feed PC sources to the Strategic Situation Centre, the External Feed Operator shall call the Control Booth Operators and ask if it is safe to send the information
- (b) Once Control Booth Operators have accepted an External Feed PC sources, the Control Booth Operator shall have full control as to where and when to display/listen to the PC sources (subject to which mode Conference Room is operating in)
- (c) When the Control Booth Operators no longer wishes to view the External Feed PC sources, the Control Booth Operator shall select another source (e.g., IPTV) thereby overriding the External Feed PC sources or call the External Feed Operator and request to “cancel” sending the PC sources to the Strategic Situation Centre
- (d) Control Booth shall not have control (keyboard and mouse capability) of the External Feed PC sources (for viewing purposes only)

**c) Detailed Functional Requirements (Security Camera)**

- i) Source:
  - (1) IP security camera (qty 1)
- ii) Destinations:
  - (1) Designated SJS office cubicle
  - (2) SPS Cubicle A
- iii) Video:
  - (1) The security camera feed shall be input into the video matrix switch and routed to the following destinations:
    - (a) Designated SJS office cubicle in order for SJS personnel to monitor the activity outside the SJS facility from their desks;
    - (b) Control Booth preview monitor in order for SJS personnel to monitor the activity outside the SJS facility during meetings and videoconferences; and
    - (c) Special Purpose Space Cubicle A in order for SJS personnel to monitor the activity outside the SJS facility during non-business hours.

**d) Detailed Functional Requirements (IPTV)**

- i) Source:
  - (1) IPTV set-top boxes (qty 12)
- ii) Destinations:
  - (1) Control Booth
  - (2) Special Purpose Space
  - (3) Conference Room
  - (4) Meeting Room 1
  - (5) Zone 1
  - (6) Zone 2
  - (7) Zone 3
  - (8) Zone 4
  - (9) Meeting Room 2

iii) Video:

- (1) Signals from the IPTV set-top boxes shall be routed to the destinations via EQT\_5-6 and EQT\_5-7

iv) Audio:

- (1) Signals from the IPTV set-top boxes shall be routed to the destinations via EQT\_5-6 and EQT\_5-7

v) Control:

- (1) Each IPTV set-top box shall be tuned to an assigned channel (e.g., CBC News Network, CPAC, The Weather Network...)
- (2) Changing of the IPTV set-top box channels will require a manual intervention and access to the Shared Services Canada equipment room

**e) Information**

i) General:

- (1) DND is responsible for the link between the External Feeds and EQT\_5-6.

**APPENDIX B TO ANNEX A – STATEMENT OF WORK**

**SOLICITATION W8474-17-CA17**

**DRAWING PACKAGE**

**December, 2017**

## **APPENDIX C TO ANNEX A – STATEMENT OF WORK**

**SOLICITATION W8474-17-CA17**

### **GENERAL INFORMATION AND PERFORMANCE REQUIREMENTS**

**December 2017**

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## Table of Contents

<b>GENERAL INSTALLATION</b>	<b>1</b>
INSTALLATION	1
CONTRACTOR PERFORMANCE	1
EQUIPMENT RACKS	2
CABLE DRESS	2
CABLE TYPES	3
POWER CORDS	3
CABLE TERMINATION	4
CABLE AND CONDUCTOR PREPERATION	5
CONNECTORS	5
SOLDER CONNECTIONS	6
INSULATION DISPLACEMENT CONNECTIONS	6
CRIMP CONNECTIONS	6
SCREW CONNECTIONS	7
GROUNDING PRACTICES	7
MATERIALS	7
<b>GENERAL PERFORMANCE REQUIREMENTS</b>	<b>8</b>
STANDARDS	8
MAINTAINABILITY	8
SAFETY	8
EQUIPMENT MODIFICATIONS	8
EQUIPMENT SUBSTITUTIONS	8
CUSTOM / MODIFIED EQUIPMENT	9
SYSTEM SOFTWARE AND SOFTWARE PROGRAMMING	9

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**GENERAL INSTALLATION**

## INSTALLATION

- 1) Installation shall include the following:
  - a) Uncrating, setting in place, fastening to walls, floors, ceilings, counters, or other structures where required of all equipment except as otherwise noted;
  - b) Interconnect wiring of the components of the system;
  - c) Equipment alignment and adjustment;
  - d) Discarding all packing material (e.g., boxes, pallets, foam) at designated disposal areas; and
  - e) All other work whether or not expressly required herein which is necessary to result in a completely tested and functional system.
- 2) All equipment shall be firmly secured in place unless requirements of portability dictate otherwise. Fastenings and supports shall support the equipment and mounts with a safety factor of 3.
- 3) All boxes, equipment, etc. shall be plumb and square.

## CONTRACTOR PERFORMANCE

- 4) All assembly and material cutting shall be limited to a working area specifically designated for this purpose.
- 5) Cable and wire stripping scrap and conductor strands shall be kept away from sensitive electronic equipment such that loose pieces do not become lodged inside equipment.
- 6) All racks, consoles, connection boxes and other equipment enclosures shall be degreased and vacuum cleaned prior to installation of equipment or panels.
- 7) The Contractor shall take measures to protect all cabinets, casework, finished flooring, wall coverings, equipment, etc. from damage resulting from its work. This shall include, but not limited to, the installation of temporary protective coverings. Any such damage shall be corrected by the Contractor at no additional cost to the Client.
- 8) All equipment racks and sub-assemblies shall be substantially constructed at the Contractor's premises or at a designated DND facility. This will include, but not be limited to, wiring, labeling, dressing, supports, and ventilation.
- 9) All spaces shall be cleaned as an ongoing activity. The Contractor shall vacuum clean all work areas and remove all debris, scrap and waste at least daily and after any substantial debris accumulation. At the conclusion of the work in a given room area, a final vacuum cleaning of all such access spaces shall be performed. All loose items, including those which were existing at the start of the project shall be removed. Wet mopping shall be performed on flooring only when other dry cleaning methods are insufficient. No brushing or wet cleaning of equipment shall be permitted.
- 10) The Contractor shall submit construction drawings including interconnecting schematics and rack layouts for approval prior to commencement of work.
- 11) The Contractor shall be responsible for the proper alignment, adjustment and calibration of all audiovisual equipment and shall provide all personnel and test equipment for the system test and adjust.
- 12) The Contractor shall be responsible for verifying the compatibility of all equipment and related hardware with related work performed by others. This includes, but is not limited to, electrical, mechanical, structural, and all finish work.
- 13) The Contractor shall furnish all software necessary to operate software controlled audiovisual equipment or sub-systems (e.g. remote control system, audio DSP). Whether produced by the Contractor or supplied by a software manufacturer, all software will be installed and tested prior to the delivery of equipment to the site.



## EQUIPMENT RACKS

- 14) The Contractor shall use equipment racks (40 RU, 31" deep) to mount all necessary equipment.
- 15) Equipment mounting shall conform to the industry standards of 1-3/4" rack units.
- 16) Each AV rack shall only be filled with a maximum of 60% product and passive patch panels.
- 17) The Contractor shall only use rack rails that are tapped for #10-32 screws (no clip nuts shall be used). A #10-32 x 3/4" inch black truss head Philips rack screw with nylon washer shall be utilized throughout the facility.
- 18) The Contractor shall implement a general ventilation scheme for all racks in the systems. The internal temperature of the racks shall be measured and not exceed 29.5°C.
- 19) All racks shall be inspected carefully prior to installation of equipment. All rough or sharp edges that may cause injury to personnel or damage equipment or cabling shall be deburred or a permanent protective covering applied.
- 20) Provide blank rack panels in all rack openings not occupied by equipment. Blank filler panels shall not exceed three rack units in size. Panel color shall be matte black. Perforated panels may be used to aid in proper ventilation.
- 21) Allow sufficient space for installation of all owner-furnished equipment such as PCs, etc.
- 22) Allow some space for future expansion where possible. All devices within equipment racks shall be mounted to the equipment rack. No devices shall be resting atop (monitor excepted) or mounted to other devices within the equipment racks unless otherwise noted.
- 23) Devices will be mounted in the racks in logical order. Generally, signal flow should move from the top of the rack to bottom. Heavier devices should be mounted in the lower portion to ensure that the assembly is not too top heavy. Frequently used devices will be mounted at the optimal elevation for operator use.
- 24) Contractor rack logo panels shall not be accepted.

## CABLE DRESS

- 25) In general, cable dressing shall be considered from a maintenance standpoint. Suitable service loops shall be provided to allow removal of equipment, or to extend equipment that is mounted in the rack on rack slides. Where there is no rear access to the rack mounted equipment, this requirement shall be carefully addressed, and cabling shall be of sufficient length to enable the removal and replacement of any individual piece of equipment with all others in place.
- 26) It is expected that the Contractor will fabricate some portions of the system off-site. Pre-wiring is acceptable provided that the pre-wired assembly can easily be transported to its final location without complication, and without risk of cable or equipment damage.
- 27) The Contractor shall be responsible for determining the proper length of all cables whether manufactured on or off the job site.
- 28) The Contractor shall determine the desired method of securing cables. All of the following requirements shall be met by the system:
  - a) Velcro cable ties are the preferred method of cable lacing. Lay-in systems are not acceptable except as applied to a horizontal cable tray;

- b) Wires and cables shall be installed in a neat and orderly fashion, with like cable types following similar paths. Groups of cables shall be neatly combed and harnessed. Harnessed groups of cables shall be anchored at suitable intervals to reduce and relieve wire strain, especially strain on connections. Adequate service loops shall be provided at all cable endpoints;
- c) Some rack-mounted equipment utilizes slide assemblies for front extension while in operation. For this type of mounting, additional, carefully dressed service loops on all cables shall be provided and installed with spring operated cable retractor assemblies to gather and recoil the service loop;
- d) For all schemes of cable routing, no point in the path shall be subjected to a bend radius of less than eight times the cable diameter, or minimum cable bend radius specified by the manufacturer;
- e) Captive cables shall not be laced in such a manner as to prevent removal of the equipment to which they are captive;
- f) Wires and cables shall be segregated according to signal type. In addition, audio cable shall be subdivided into three classes: microphone level circuits, line level circuits, and speaker level circuits;
- g) Microphone level audio circuits shall be kept at least 7.5 cm [3"] from any other type of parallel signal circuits and at least 15 cm [6"] from any parallel AC power circuits;
- h) Speaker level audio circuits shall be kept a minimum of 7.5 cm [3"] from line level audio and AC power circuits. All other signal circuits shall be kept at least 7.5 cm [3"] away from any parallel AC power circuits;
- i) Where circuits of different types shall cross, they shall do so at right angles and then return to the above required separations in as short a distance as possible;
- j) Conductors, wires, and cables shall be continuous between termination points. Splices are not acceptable; and
- k) Rack mounting rails shall not be used for cable lacing. Vertical and horizontal lacing bars and/or tie mount bases mounted to cabinets or console shall be provided where appropriate.

#### CABLE TYPES

- 29) The Contractor shall determine the desired method of securing cables. All of the following requirements shall be met by the system:
- 30) All cables installed shall meet appropriate D Strat CS/ AVC2 cabling standards. Instructions on how to terminate cables are described in the W8474-17-CA17 drawing package.
- 31) The Contractor is encouraged to suggest alternate cable types where a significant cost savings may be realized without any loss of quality, reliability and performance. Alternates shall be approved by the Departmental Representative prior to use.
- 32) The Contractor shall determine building and other regulating authority requirements for cables installed as part of the AV scope of the Project. This requirement applies to cables in return air plenums as well as other areas. If the cable type indicated does not comply with these requirements, the Contractor shall propose alternate cable types, and/or encasement in complying raceways or conduits. All cabling not in conduit shall be plenum-rated.

#### POWER CORDS

- 33) All equipment power cords shall terminate in a standard plug that shall be wired in compliance with governing codes and standards.

- 34) The power cord connector type at the equipment shall be provided by the manufacturer. Custom power cords (e.g., 30cm, 60cm, and 90cm) are permitted but shall be manufactured with the same gauge as the OEM power cord. Field terminated power cords shall not be used. If the manufacturer provides a choice, a removable power cord that attaches to the equipment with an IEC 320/CEE 22 connector is preferred. The use of factory manufactured custom length cables are acceptable.
- 35) The power cord may be laced to the rack as long as the cord is removable at the power connector on the piece of equipment. This is to allow removal of the equipment without undoing the cable lacing. Power cords shall not be laced in the same bundle with signal or control cables. Excess lengths of power cords shall be tied in a sheepshank fashion. If the power cord is an active component of the equipment, the cable shall be dressed separately from all other cables terminating at the equipment to facilitate easy removal of the equipment. All power cords shall be plugged into an AC power distribution strip which will be pre-wired into the rack prior to delivery to site.

#### CABLE TERMINATION

- 36) Wire and cable termination shall be performed in accordance with Department of National Defence standards and the guidelines of generally accepted installation practices. The enclosed Drawing Package includes examples of proper cable terminations.
- 37) With respect to audio equipment interconnects, the Contractor shall make every effort to use equipment with balanced inputs and outputs. When this is not possible, such as the case to meet specification, the following are recommended (in order of preference):
- a) An electronic balancing device (professional interface) or balancing transformer should be utilized;
  - b) In the case of an unbalanced output driving a balanced input, forward referencing should be utilized; and
  - c) An active-balanced to unbalanced interconnect is not recommended.
- 38) It is ultimately the Contractor's responsibility to choose the best wiring practices to achieve maximum sonic quality.
- 39) Wire and cable termination shall include all aspects of equipment connection, including, but not limited to, the following:
- a) Wire and cable length;
  - b) Protective jacket removal;
  - c) Conductor separation, dressing and trimming;
  - d) Conductor stripping; and
  - e) Connector device installation including, but not limited to, the following:
    - i) Conductor termination;
    - ii) Shell assembly;
    - iii) Strain relief installation; and
    - iv) Locking/latching device installation.
- 40) All cable labeling shall adhere to InfoComm F501.01:2015 Cable Labeling for Audiovisual Systems (CLAS).

- 41) All cables and patch points on input panels shall be labelled to denote their source device or input panel location, cable number and destination device.
- 42) Cable designators shall start with upper case letters: A for audio, C for control, N for network, P for power, and V for video followed by a three digit numeric designation (e.g. V015, C001). Hand-written labels or PAN-CODE™ cable markers shall not be accepted.
- 43) It is the responsibility of the Contractor to determine and affirm the type and extender of all required mating connectors. Since manufacturers of equipment may exercise their right to make changes in connector types and wiring, it shall remain the responsibility of the Contractor to verify this aspect of the design prior to cable fabrication and installation.
- 44) Exposed portions of shield shall be protected with a PVC heat shrinkable sleeve. Exposed ends of outer jackets on shielded cables shall be insulated with sleeves to eliminate the possibility of portions of the cut off foil shielded touching adjacent shields or metal. Either rubber "Hellerman" type sleeves or heat shrink sleeves shall be used. Bare shield drain wires shall be insulated with small diameter clear Teflon or PVC heat shrink (as appropriate) from under the sleeve to within 3.175 mm [1/8"] of the point of termination.
- 45) Conductors and/or cables interconnecting assemblies shall be formed into a bundled harness and dressed to preclude damage from adjacent surfaces and sharp edges,
- 46) Cabling required in pedestrian areas such as hallways, shall be contained in floor track and conform to the vertical and horizontal directions of the walls and ceilings;
- 47) Cable runs shall be continuous, without splices or adapters from terminal to terminal;
- 48) Primary power and electronic wiring shall not be co-located in conduit;
- 49) Marett type connectors are not permitted, nor is the use of nail rings or staples to secure cable harnesses to structures.

#### CABLE AND CONDUCTOR PREPERATION

- 50) All cables shall be prepared in such a way that the individual conductors, shield or their insulation are not nicked or cut in any way. The cable outer jacket shall be cut square.
- 51) Insulation shall be removed from conductor in such a manner that conductor strands shall be nicked to the extent that base metal shows through the plating and wire strands remain in the original lay, and are not combed out. The conductor's insulation shall be cut square within 6.35 mm [1/4"] of the outer diameter of the insulated conductor. If required, the conductor shall be tinned with a minimum amount of 60-40 or 63-37 solder (tin/lead with resin flux).

#### CONNECTORS

- 52) Only approved cable connectors shall be used. All cable mounted connectors shall be covered by a metal shell connector hood or shall have crimp ferrules which securely grasp the cable outer jacket to provide protection to the rear connections made on the connector and provide strain relief for the cable. All connectors shall have incorporated a mechanical means of attaching the connector to its mate to assure that a connector will not fall off unless intentionally removed.
- 53) Audio Connector Requirements - Circular (XLR type): These shall be approved connectors with tarnish resistant contact surfaces. No connection shall be made to the shell unless specifically called out in the drawings.
- 54) Video Connector Requirements: Only approved connectors with tarnish resistant contact surfaces shall be used. Kings TRS finish ("bright nickel") or equal is recommended. The centre conductor pin and socket shall be captive

and finished with gold or silver surfaced over nickel. All connectors shall be specified by the manufacturer as to be acceptable with the specific cable being used. Kings crimp BNC connectors or approved alternate shall be used.

- 55) Panel Mounted Connectors: Care shall be taken to insure that the approved sleeves of panel mount connectors make contact with the mounting panel. This shall include:
- a) Audio (microphone, line level): Locking XLR type;
  - b) Audio (speaker level): Locking/latching "Speakon" type;
  - c) Audio (line level): 1/4" diameter locking/latching, tip/ring/sleeve;
  - d) Video: HDMI or DVI type;
  - e) Serial Data: DB-9 or DB-25, metal shell; and
  - f) Video/Audio: Shielded CAT6 metal shell.

#### SOLDER CONNECTIONS

- 56) Only Kester, or an approved alternate, 60-40 or 63-37 solder (tin/lead) with rosin flux shall be used. The solder shall be designed for electronic use. Solder fillets shall wet and flow around conductor and terminal. In no case shall the general outline of the conductor be visible in excessive solder. The insulation shall not be charred, melted or burned by the soldering operation. There shall be no evidence of either lead or terminal contamination. The final solder joint shall be bright and shiny and shall show no evidence of being a "cold" joint.
- 57) Mechanical connections made to terminals prior to soldering shall be the minimum required to reliably retain wire, usually a simple bend around solder eyelet or post. Avoid practice of multiple wraps on solder terminals, as that practice makes conductor removal very difficult after soldering.

#### INSULATION DISPLACEMENT CONNECTIONS

- 58) Insulation displacement connections such as ribbon cables and the telephone connector technology shall only be installed with termination tooling as specified by the connector manufacturer. If shown in the connector manufacturer's data, the controlled-cycle crimp tool shall be selected. If the manufacturer has a multi-conductor mass-termination tool available, this shall be selected for all connectors of ten pins or more.
- 59) Individual conductors of cables installed on terminal blocks shall not be stripped, and shall be punched down with a spring loaded impact tool designed for this specific purpose. Bare cable conductors shall be insulated with Teflon, PVC heat shrink or other insulating sleeve (as appropriate) prior to being punched down on terminal block. During the punch down process, the free end of the conductor shall be cut off, and the installer shall ascertain that this cut off end is not left within the block or block assembly.
- 60) Only cables designed specifically for insulation displacement termination with the specific termination device employed shall be used.

#### CRIMP CONNECTIONS

- 61) Where crimp connectors are utilized, they shall be installed using the manufacturer recommended controlled cycle crimp tool that assures that the proper crimp pressure has been applied. The Contractor shall develop a procedure to insure that the crimp tooling is properly checked for compliance with the manufacturer's standards, and that it is producing crimp-type connections within the required tolerances. The frequency of this depends on the usage and on the length of time a particular tool holds its calibration.

- 62) Only tooling recommended by the manufacturer shall be used. Only pins and connectors of the proper size and design for the cable to which they are to be applied shall be used. There shall be no abnormal deformation of the contact during the crimping operation. There shall be no damage to the contact during the crimping operation that could interfere with its retention in its shell or its mating. There shall be no damage done to the conductor which either severs strands or exposes the individual strands base metal by the crimping operation.

#### SCREW CONNECTIONS

- 63) Only insulated crimp on spade terminals shall be used for application to barrier strips. Multiple gang lugs or ring lugs are not acceptable for this purpose. This is only applicable to stranded conductor wires. It is suggested that stranded conductor wire be "double over" on the crimp end prior to crimping. Solid conductors may be attached directly to the barrier strip.
- 64) All conductors shall be stripped prior to installation underneath screws on terminals. Unlike the stranded control cable, solid conductor wire does not require crimp lugs on individual conductors. All screw terminated solid connectors shall be wrapped in the same direction as screw rotation during tightening.

#### GROUNDING PRACTICES

- 65) The audiovisual system will be serviced by the earthing conductor that is provided with the mains supply.
- a) All devices in the audiovisual system racks will be serviced with a grounded AC outlet. Devices having two prong power cords will also have a 14-gauge green copper wire connected from the chassis to the grounded copper buss bar mounted to the equipment rack frame. Under no circumstances will the prong of a three prong power cord be removed;
  - b) Audio cables shield shall be connected to ground at one point only. Exceptions may be made for phantom powered microphones. This ground point shall be at the system ground of the destination device, which shall be strapped to the system ground in the rack. For intra-rack wiring this requires the shield to be connected at both ends, but grounded at only one end;
  - c) All video receptacles shall be insulated from the mounting panel, outlet box, or wireway. Unless otherwise detailed, this shall be accomplished by using insulated-from-panel type receptacles; and
  - d) The Contractor should take care to consider ground references within each device and the grounding factors on site.

#### MATERIALS

- 66) General: Materials used in installations shall be chosen with due consideration being given to the intended use, safety, durability, retention of appearance and avoidance of corrosion or other chemical effects.
- 67) Toxic Materials: Material capable of producing harmful toxic effects under operating conditions, equipment malfunction, or accidental other causes, shall not be used.
- 68) Metals: Metals used shall be corrosion-resistant or treated to resist corrosion in atmospheric conditions to which the installation will be subjected.
- 69) Plastics: Plastics shall be durable and resistant to cracking, brittleness, discolouration, deformation or similar defects, upon ageing or when subjected to hot or cold thermal extremes.

**GENERAL PERFORMANCE REQUIREMENTS****STANDARDS**

- 70) General standards used in the design and installation of the audiovisual system shall conform to the highest quality broadcast industry standards. The following list provides a general indication of the type of industry organizations with published technical standards, and is not intended to be all-inclusive.

AES	Audio Engineering Society: Audio Standards
ASTM	American Society for Testing and Materials: Test and Materials Standards
BICSI	Building Industry Consulting Service International
CEC	Canadian Electrical Code: Electrical Standards
CSA	Canadian Standards Association
DND	Department of National Defence
EIA	Electronic Industry Association: Equipment Mounting, Construction, and Tooling
IEEE	Institute of Electrical and Electronic Engineers: Electrical/Signal Standards
InfoComm	Audiovisual Communications Industry Association
NCAC	National Council of Acoustical Consultants: Acoustic Standards

**MAINTAINABILITY**

- 71) The Contractor shall provide a fully functioning system that is easily accessible for service while the system is operational. Where this is not practical due to mutually accepted circumstances, service functions will be designed to allow a minimal amount of equipment and support disassembly. The audiovisual system design, construction and installation will allow components to be accessible for inspection, maintenance and repair with a minimal disassembly of other components or surrounding equipment.

**SAFETY**

- 72) The audiovisual system will be inherently safe, when operated and maintained in compliance with the Contractor provided operations and maintenance / technical manuals. In addition, equipment will meet or exceed governing standards and requirements for safety. This shall include provisions and installation of seismic bracing and restraints.

**EQUIPMENT MODIFICATIONS**

- 73) The audiovisual systems shall be designed to utilize new "Commercial-Off-The Shelf" equipment. Every effort shall be made to avoid the use of custom or modified equipment. However, some AV equipment may require modifications to accommodate installation, remote control or other integration requirements.
- 74) Where equipment shall be modified to conform to system specifications and design parameters, the modifications made shall in no way affect the performance of the equipment as published by the manufacturer. Equipment modifications may also be impacted by and shall comply with the terms of other sections of this AV Specification.

**EQUIPMENT SUBSTITUTIONS**

- 75) Requests for use of alternate equipment to that recommended in the Equipment Specification will be considered on an item by item basis. Equipment substitutions will be considered in cases where a specific component of the system is no longer available, or where the alternate equipment is shown to provide equal or greater quality and performance.



- 76) All proposed equipment substitutions shall be submitted to the Departmental Representative with the Contractor's bid. Proposed substitution submittals shall include full information, specifications, and data sheets for the proposed alternative equipment. All equipment shall be new and shall meet or exceed the last published specifications of the manufacturer in all respects.
- 77) Equipment substitutions will be considered after commencement of work on the Project only where the contracted equipment becomes unavailable, where unanticipated lead times could delay the Project for other legitimate practical considerations. Equipment substitutions submitted after commencement of work on the Project shall be approved by the departmental representative in writing.
- 78) Approval of equipment substitutions shall not imply release of Contractor responsibility for meeting all requirements and design objectives as outlined in Solicitation W8474-17-CA17.

#### CUSTOM / MODIFIED EQUIPMENT

- 79) It shall be the responsibility of the Contractor to provide all appropriate design, engineering and fabrication in the provision of specified custom or modified equipment.
- 80) All specified custom or modified equipment shall be included in the scope of the Contractor's work. No portion may be omitted from the scope of the Contractor's work. Bids excluding any portion of the custom or modified equipment will be deemed non-responsive.
- 81) Substitutions of "Commercial-Off-The-Shelf" equipment for specified custom equipment will be considered when submitted per the procedures noted for Equipment Substitutions.

#### SYSTEM SOFTWARE AND SOFTWARE PROGRAMMING

- 82) The Contractor shall be responsible for providing a complete and working system in the provision of software programming.
- 83) All software programming shall be included in the scope of the Contractor's work. No portion may be omitted from the scope of the Contractor's work. Bids excluding any portion of the software programming will be deemed non-responsive.
- 84) Contractor shall supply system software as specified in Appendix C to Annex A – Statement of Work (Audio Visual Capabilities).
- 85) The Contractor shall supply a complete set of system software, software programming code including IP tables and DSP programs.
- 86) All equipment shall be upgraded to the latest version of approved firmware prior to final commissioning.
- 87) In the case of commercial software, a complete set of software shall be provided including the license and documentation for all devices, utilities, and tools used in the operation and maintenance of the audiovisual system.
- 88) In the case of non-commercial or custom software, a complete set of software shall be provided, including license (if applicable) and documentation for all devices, utilities, and tools used in the operation and maintenance of the audiovisual system. Documentation shall be presented in such a way as to allow the Client or support cell the ability to perform unassisted operation, maintenance, troubleshooting and programming.
- 89) All commercial software provided by the Contractor as part of the Project shall be procured and transferred in full compliance with the publisher's copyright, licensing and other requirements of ownership and use. All software license agreements shall be registered in Client's name.



- 90) Client shall retain full rights to all custom software, programming, and software programming code developed by the Contractor as part of the project. This shall include the right to use, reproduce and modify the software and software programming code as reasonably required to operate the audiovisual systems and to support their ongoing maintenance and development.
- 91) Further improvements of custom programming shall occur up to 90 days after commissioning is completed. This shall allow for unforeseen adjustments that shall allow for optimal functioning of the systems.

**APPENDIX D TO ANNEX A – STATEMENT OF WORK**

**SOLICITATION W8474-17-CA17**

**D STRAT CS /AVC2 DRAWINGS STANDARDS (REV B)**

**December 2017**

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## Table of Contents

ACRONYMS .....	1
DEFINITIONS.....	1
INTRODUCTION.....	2
1. GENERAL REQUIREMENTS .....	3
1.1. IMPERIAL / METRIC UNIT REQUIREMENTS .....	3
1.2. OVERALL LAYOUT DWG .....	3
1.3. DELIVERABLES REQUIREMENTS - AS-BUILT DWGS .....	3
1.4. TEXT SPECIFICATIONS .....	4
1.5. CLOSED SHAPES .....	4
1.6. PDF AS-BUILT DWG CONVERSION .....	4
2. DRAWING NUMBER CONVENTION.....	6
2.1. D STRAT CS/AVC2 STANDARD DWG SIZES .....	6
2.2. FUNCTION D STRAT CS/AVC2 STANDARD DWG SIZES .....	6
2.3. ACTUAL SIZE REQUIREMENT.....	7
2.4. D STRAT CS/AVC2 BORDER SETUP .....	7
2.5. BORDER DESCRIPTIONS .....	7
2.6. TEXT BLOCK NAMING CONVENTION (D STRAT CS/AVC2 USE ONLY).....	8
2.7. D STRAT CS/AVC2 DRAWING NUMBER.....	9
2.8. SAMPLE D STRAT CS/AVC2 TITLE BLOCK .....	10
2.9. LAYER STANDARDS.....	11
2.10. PREDEFINED LAYER STATUSES.....	11
2.11. D STRAT CS/AVC2 BORDER LAYERS .....	11
2.12. D STRAT CS/AVC2 SCHEMATIC LAYERS.....	12

2.13. D STRAT CS/AVC2 SCHEMATIC LEGEND .....	12
2.14. D STRAT CS/AVC2 LAYER SAMPLE .....	13
2.15. D STRAT CS/AVC2 ARCH LEGEND .....	14
2.16. BREAKDOWN OF TITLE BLOCK.....	15
2.17. REVISION BLOCK DESCRIPTION .....	15
3. ELECTRONIC FILE STANDARDS .....	16
3.1. REFERENCE FILE STANDARDS .....	16
3.2. LAYOUT VS DESIGN MODEL INFORMATION .....	16
3.3. LINE WIDTH.....	16
3.4. COLOUR.....	17
3.5. TEXT STYLES.....	17
3.6. D STRAT CS/AVC2 TEXT STYLES AND FONT USE TABLE.....	18
3.7. D STRAT CS/AVC2DIMENSION STYLES.....	18
3.8. D STRAT CS/AVC2 DIMENSION STYLES TABLE.....	18
4. GRAPHIC SCALE .....	19
5.0 D STRAT CS/AVC2 SECTION & DETAIL IDENTIFIERS .....	20
6.0 SAMPLE USE OF D STRAT CS/AVC2 IDENTIFIERS .....	21

**ACRONYMS**

DND	Department of National Defence
AEC	Architectural, Engineering, and Construction
CAD	Computer Aided Design
ISO	International Organization for Standardization
SI	International System of Units

**DEFINITIONS**

Layer: Classification system for graphics in the design/drawing file. Allows grouping of drawing components, which enables the user to turn items on and off, change colour, line width, and other properties as a group. The term Layer is used in AutoCAD.

Sheet Layout: A Model file used to assemble Design Model data, border graphics and annotation to compose the final plotted drawing. This is referred to as Paper Space in AutoCAD.

**INTRODUCTION**

Traditionally this Standard has focused on CAD and the requirements surrounding the graphics drawing conventions in support of AEC project delivery. While the basic requirements involving CAD remain, it is important to support within the framework of the D Strat CS/AVC2. Standard to suit AEC industry advances. The practical use of any drawing or package of drawings within the D STRAT CS/AVC2 does not terminate with the construction of the facility, but continues over the life cycle of the facility. All drawings produced as part of the final contract document package shall be completely computer-generated; manual revisions to existing drawings are not permitted.

## 1. GENERAL REQUIREMENTS

### 1.1. IMPERIAL / METRIC UNIT REQUIREMENTS

All drawings detailing construction engineering, architectural, and related works for D STRAT CS/AVC2 shall be prepared using the International System of Units (SI). Units for linear dimensioning are restricted to Primary & Alternate Units. Primary units may be in Imperial in feet & inches (0'-0") or decimal form (two decimal places) & Alternate units be single digit for metric numerals between square brackets. Refer to chart below.

SET DIM STYLE: AV-Imperial		SET DIM STYLE: AV-Metric	
Line Type	Continuous	Line Type	Continuous
Line Weight	Bylayer	Line Weight	Bylayer
Colour	Bylayer	Colour	Bylayer
Text	Romans	Text	Romans
Primary Units Imperial	Engineering 0'-0"	Primary Units mm	Single Decimal (0)
Conversion to mm	X units by 25.4	Conversion to inches	X units by 0.039375
Alternate Units [mm]	Single Decimal (0)	Alternate Units Imperial	Engineering 0'-0"
Conversion to imperial	X units by 0.3048	Conversion to imperial	X units by 0.039375

### 1.2. OVERALL LAYOUT DWG

Overall schematic layout is one drawing consisting of audio, control, video, fibre, network, power, any other system required to be illustrated for the project. This provides over-all view of AV system. For clarity multiple sheet layouts may be required, keep same file name but add Pg1 or Pg2 at the end of each electronic file name. Require separate electronic file for AV Rack & Architectural layouts consist of a floor plan, elevations, electrical conduit and reflective ceiling plan and any miscellaneous details.

### 1.3. DELIVERABLES REQUIREMENTS - AS-BUILT DWGS

Upon completion of the project, final project drawings (all disciplines) shall be updated to —As-Built status by the consultant/contractor responsible for the work. Final Deliverables —2 sets of hard copies of As-Built drawings and 2 copies native digital files (ACAD drawing & PDF). **Save all AutoCAD files in release 2015 format.**

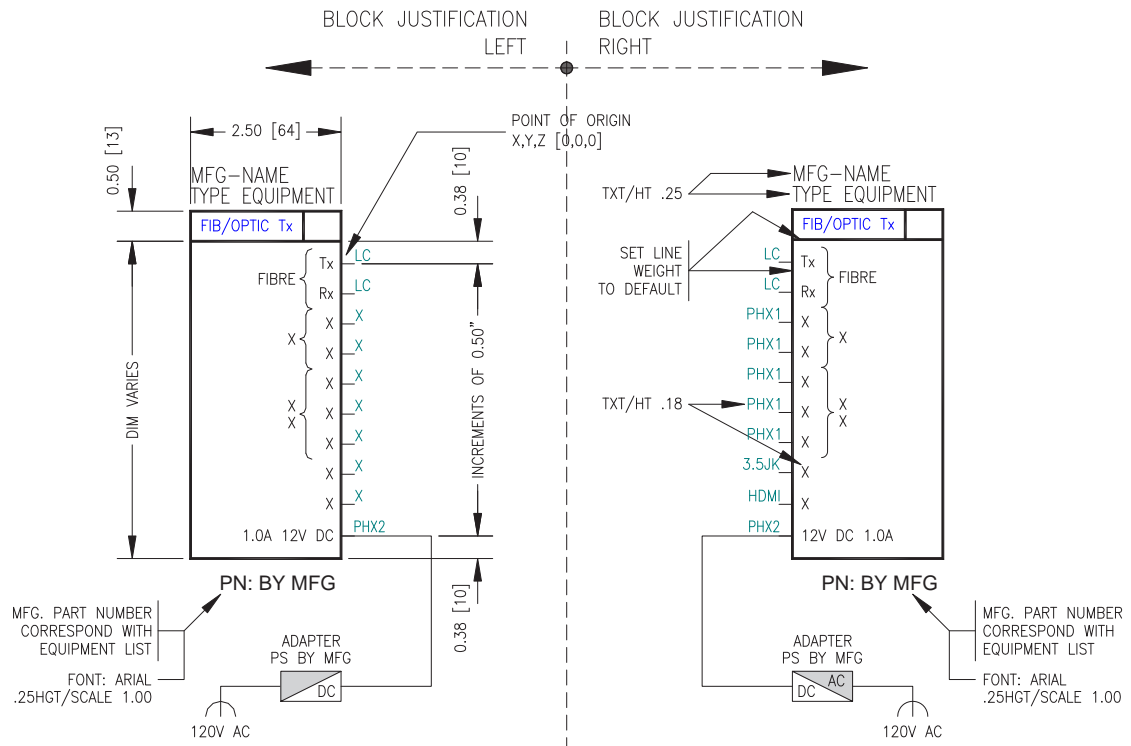


## 1.4. TEXT SPECIFICATIONS

D STRAT CS/AVC2 will not accept any drawing with lower text characters. This includes 8.5x11 & 11x17 drawing sizes. All character text to be UPPER CASE. Minimum height 3mm [1/8"] and title block text minimum height 6mm [1/4"]. AVC2 standard font style is ROMANS for all closed shapes, general text, & dimensions. ARIAL font may be used for all title descriptions. For more information refer to Section 3.5 & 3.6.

## 1.5. CLOSED SHAPES

All shapes drawn shall be closed shapes by having a graphic point at the point of origin. This is particularly important for sitting as it ensures that data migration to GIS can be performed correctly.

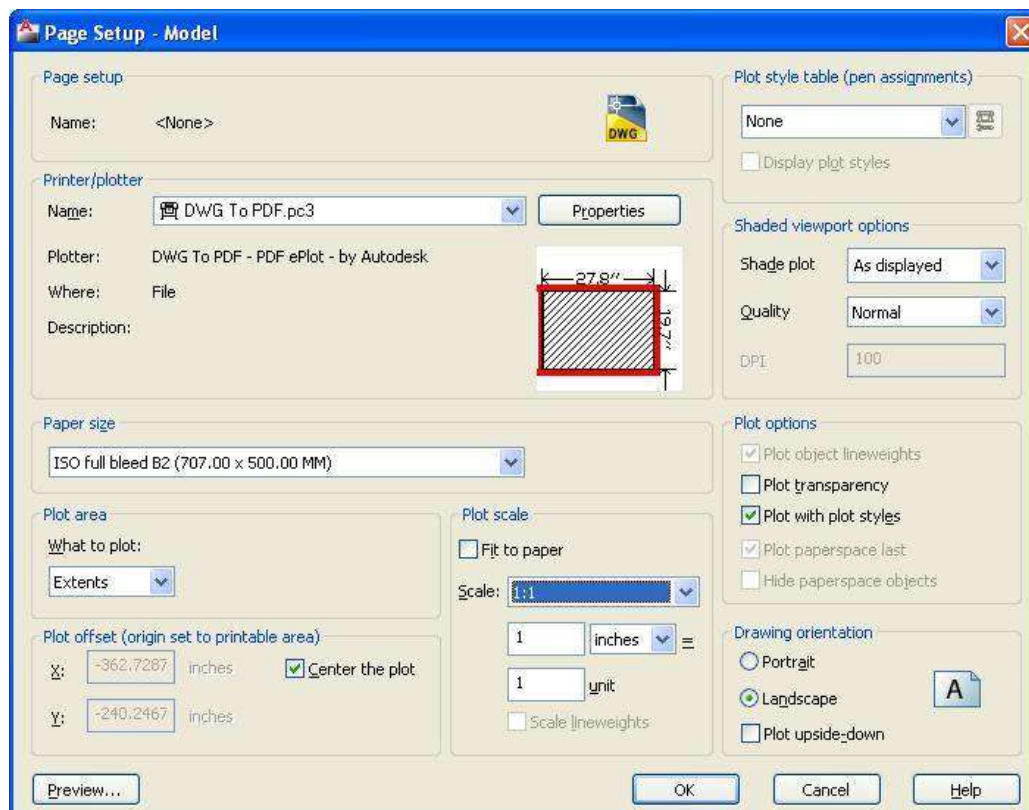


### NOTE:

- SET DEFAULT LINE WEIGHT TO .35
- FONT TYPE TO BE ROMANS, ALL CHARACTER TEXT MUST BE UPPER CASE (UNLESS NOTED OTHERWISE).
- IF NO MANUFACTURER PART NUMBER AVAILABLE, INSERT TEXT 'P/N: BY NAME'. (MODEL NAME IS LISTED ABOVE BLOCK OUTLINE).

## 1.6. PDF AS-BUILT DWG CONVERSION

- As-built DWG drawings shall be converted at plot scale of 1:1.
- Refer to 3.1 for JSCSS standard drawing sizes
- Change Printer/Plotter setup to 'DWG To PDF.pc3'
- Select paper size
- Click 'OK' icon

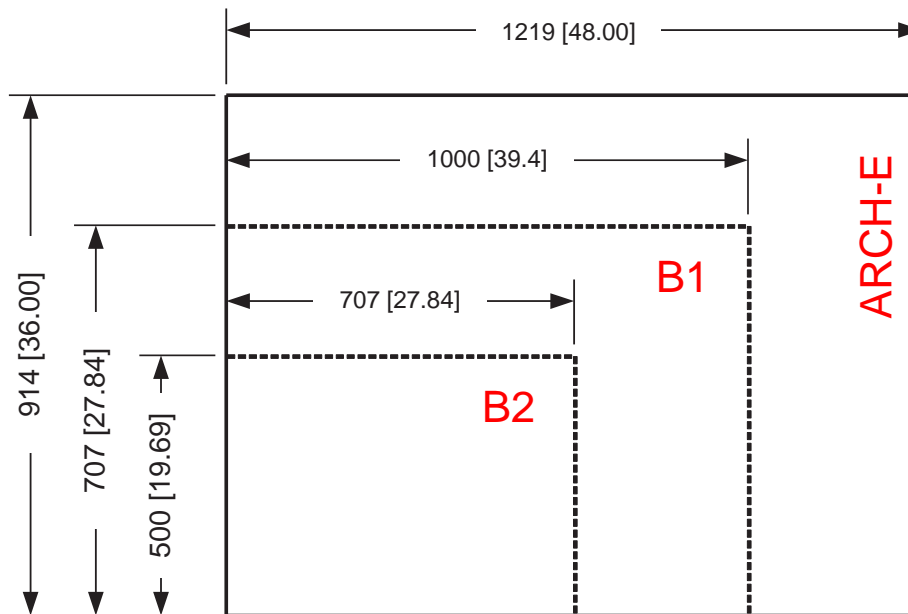


## 2. DRAWING NUMBER CONVENTION

### 2.1. D STRAT CS/AVC2 STANDARD DWG SIZES

New DND ISO drawing sizes as illustrated below.

Dimensions included 13mm [0.50 inch] cutting border.

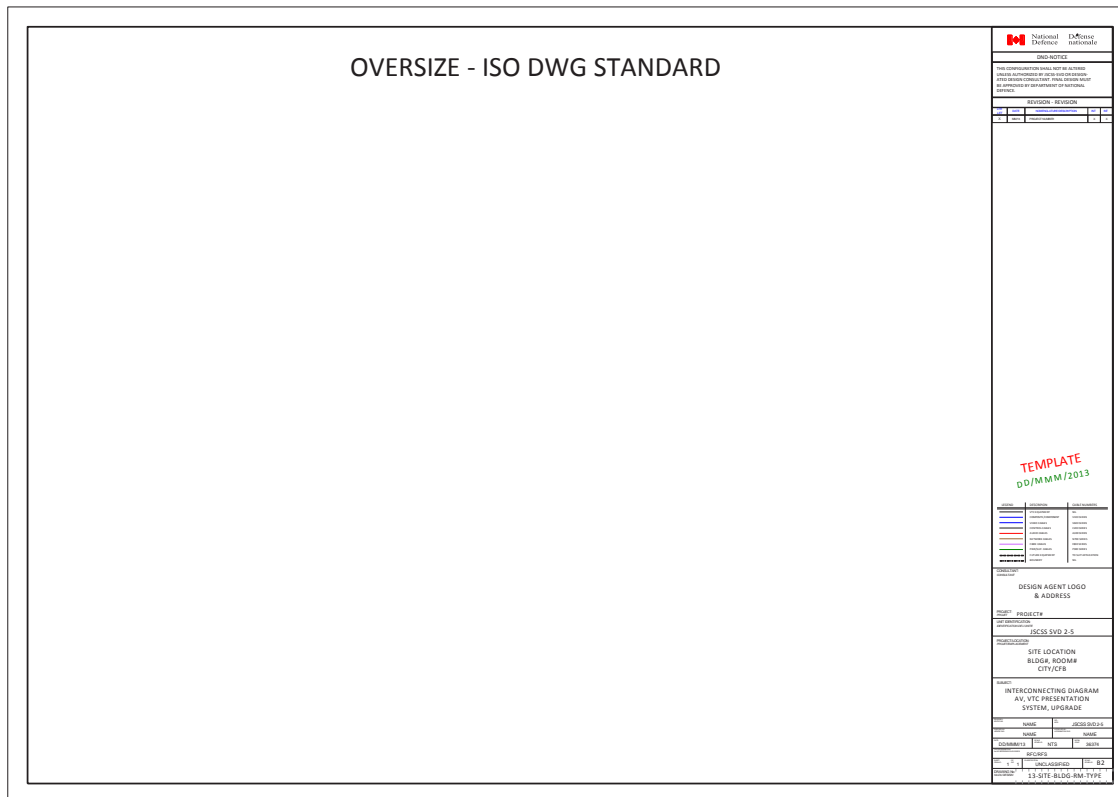


## OVER SIZED ISO DRAWING STANDARDS

### 2.2. FUNCTION D STRAT CS/AVC2 STANDARD DWG SIZES

- B2 used for cable assembly and rack layout. This drawing shall indicate a list of all manufacturer components used to build proposed items.
- B1 used for architectural layouts & elevations or independent interconnecting diagrams of Audio, Control or Video schematic layouts.
- ARCH-E combines all audio, control, video, fibre, network, and power interconnecting schematic or architectural layouts.

All drawing information shall be drawn true scale (1:1). That is, if a building segment is 50'-0" long, the line drawn to represent it shall also be 50'-0" long.



All final DND drawings shall use one of D STRAT CS/AVC2 standard templates.

- Borders can be placed as an external reference or as a block.
- Border blocks shall not be exploded.
- Borders can be placed in or referenced to the sheet layout. Borders shall not be scaled in a sheet layout. The scaling of the design should occur through scaled reference or viewport attachments.

- All layout viewport scales shall be locked when submitted.
- Borders should be initially set up using a DND template.

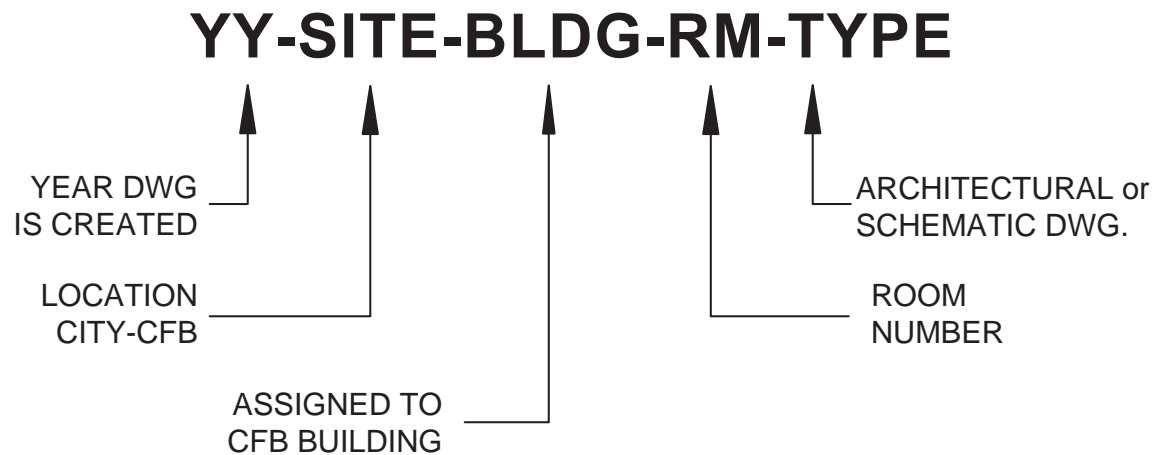
## 2.6. TEXT BLOCK NAMING CONVENTION (D STRAT CS/AVC2 USE ONLY)

Project Managers will assign drawing numbers to all schematic and engineering drawings and fill in Project/Location text block and Subject text block and send a PDF illustration below to design agent.

		National Défense		Défense nationale	
DND - NOTICE					
THIS CONFIGURATION SHALL NOT BE ALTERED UNLESS AUTHORIZED BY D-STRAT-CS/AVC2 OR DESIGNATED DESIGN CONSULTANT. FINAL DESIGN MUST BE APPROVED BY DEPARTMENT OF NATIONAL DEFENCE.					
REVISION - REVISION					
UNIT LET	DATE	NOMENCLATURE / DESCRIPTION		OWN DES	CRD VERIF
P1	MMM/YY	PROJ/DIR: DT-017LMXX, PROPOSAL		INT.	INT.
AB	MMM/YY	PROJ/DIR: DT-017LMXX, CLOSED AS-BUILT		INT.	INT.
					
CONSULTANT: CONSULTANT					
DESIGN AGENT LOGO & ADDRESS					
PROJECT: PROJECT					
UNIT IDENTIFICATION IDENTIFICATION DE L'UNITÉ					
D-STRAT-CS / AVC2					
PROJECT LOCATION: PROJET/EMPLACEMENT					
PROJECT SITE LOCATION BLDG #, ROOM # CITY / CFB					
SUBJECT: INTERCONNECTING DIAGRAM AUDIO, VIDEO & CONTROL PRESENTATION SYSTEM UPGRADE					
OWN BY: DES		NAME		DATE RPM	
CHECKED BY: VERIFIE PAR		NAME		APPROVED BY: APPROBATION PAR	
DATE DD/MMM/YY		SCALE: ECHELLE		NSCM CONF	
FILE REFERENCE NO NO DE REFERENCE DU DOSSIER		RFC/RFS		36374	
SHEET FEUILLE		OF DE		CLASSIFICATION UNCLASSIFIED	
DRAWING NO NO DU DESSIN		1		DND SEE GRADEUR	
YY-SITE-BLDG-RM-TYPE					

## 2.7. D STRAT CS/AVC2 DRAWING NUMBER

Project Managers will assign drawing numbers to all schematic and engineering drawings and send assigned numbers to design agents. Contract and other non-standard drawings shall be numbered with the combination of following illustration.



Year: Fiscal year RFC has been approved to D STRAT CS/AVC2.

Location City/CFB: Refer to 3.6 Naming Convention.


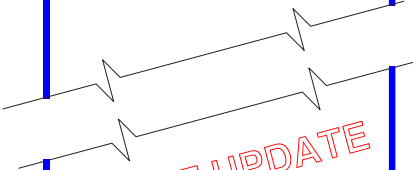









Building: Armed forces assigned building numbers to existing building on most CFB sites.

Room Number: Example, 101A listed by floor assigned room number (maximum 3 or 4 characters).

Architectural/Schematic: Two types

- PL01 – Architectural layout showing electrical conduits and proposed AV equipment; and
- SCH01 – Interconnecting diagram schematic layout illustrating multiple AV cables & equipment.

## 2.8. SAMPLE D STRAT CS/AVC2 TITLE BLOCK

		National Défense		Défense nationale	
<b>DND - NOTICE</b>					
THIS CONFIGURATION SHALL NOT BE ALTERED UNLESS AUTHORIZED BY D-STRAT-CS/AVC2 OR DESIGNATED DESIGN CONSULTANT. FINAL DESIGN MUST BE APPROVED BY DEPARTMENT OF NATIONAL DEFENCE.					
<b>REVISION - REVISION</b>					
LTS REV	DATE	NOMENCLATURE / DESCRIPTION		DATE REV	CAO REV
P1	MM/YY	PROJ/DIR: DT-017LMXX, PROPOSAL		INT.	INT.
AB	MM/YY	PROJ/DIR: DT-017LMXX, CLOSED AS-BUILT		INT.	INT.
 <p style="color: red; font-size: 2em; transform: rotate(-15deg);">LAST UPDATE</p> <p style="color: green; font-size: 1.5em;">DD\MMM\20YY</p>					
<b>LEGEND</b>		<b>DESCRIPTION</b>		<b>CABLE NUMBERS</b>	
		VTC EQUIPMENT		NIL	
		VIDEO CABLES		V100 & V600 SERIES	
		CONTROL CABLES		C200 SERIES	
		AUDIO CABLES		A300 SERIES	
		NETWORK CABLES		N700 SERIES	
		FIBRE CABLES		F800 SERIES	
		PWR/SUP. CABLES		P900 SERIES	
		FUTURE EQUIPMENT		TO SUIT APPLICATION	
		BOUNDARY		NIL	
CONSULTANT: CONSULTANT					
PROJECT: PROJET					
UNIT IDENTIFICATION IDENTIFICATION DE L'UNITÉ <b>D-STRAT-CS / AVC2</b>					
PROJECT LOCATION PROJET/EMPLACEMENT <b>PROJECT SITE LOCATION BLDG #, ROOM # CITY / CFB</b>					
SUBJECT: <b>INTERCONNECTING DIAGRAM AUDIO, VIDEO &amp; CONTROL PRESENTATION SYSTEM UPGRADE</b>					
OWN BY: DESS		NAME		SPE BPR: NAME	
CHECKED BY: VERIFIE PAR		NAME		APPROVED BY: APPROBATION PAR D-STRAT-CS/AVC2	
DATE: DD/MM/YY		SCALE: ECHELLE NTS		NSCM CONF 36374	
FILE REFERENCE NO. NO DE REFERENCE DU DOSSIER RFC/RFS					
SHEET FEUILLE 1 DE 1		CLASSIFICATION UNCLASSIFIED		DND SIDE GRANDEUR B1	
DRAWING NO. NO DU DESSIN <b>YY-SITE-BLDG-RM-TYPE</b>					

## 2.9. LAYER STANDARDS

Features or items can be grouped together and classified into Layers in AutoCAD. The standards set forth in this document do not encompass every case and condition imaginable; therefore, there may be some cases where items cannot be classified into one of the predefined layers. In those cases, exceptions to the standards will be accepted. Layer names that are created should follow the general structure layer types, and a description shall be provided.

## 2.10. PREDEFINED LAYER STATUSES

All features shall be drawn with their properties of colour, line width, and line style set to by layer. This allows all properties of the objects to be inherited from the settings of the layer in which they are placed. The CAD user can change the line width, colour, and line style by simply changing the properties of the entire layer.

## 2.11. D STRAT CS/AVC2 BORDER LAYERS

NAME	COLOUR	LINE/WT	DESCRIPTION
B2 BDR *	5 (BLUE)	Default 0.35	New construction related to RFC
B2 BDRTXT *	1 (RED)	0.20	Block titles within drawing template
B2 BTXT *	7 (BLACK)	0.20	Equipment blocks stating manufacture & model number
B2 IDTXT *	7 (BLACK)	0.20	Identification text within ISO title block
DIM-IMP	7 (BLACK)	0.20	JSCSS Dimension style (imperial units)
DESIGN AGENT	7 (BLACK)	0.20	Design Agent logo or address
VP	253 (GRAY)	0.09	Outline of viewport window

All layers shall have continuous line type. Refer to 3.1 Standard Drawing Sizes. The layers denoted by (\*) will change depending on which oversize drawing is selected.












**2.12. D STRAT CS/AVC2 SCHEMATIC LAYERS**

LAYER NAME	COLOUR	LINE/WT	DESCRIPTION
PROPOSAL	94 (DK-GRN)	Default 0.35	New construction related to RFC or RFS
SCH AUDIO	RED	Default 0.35	Interconnecting Audio cables
SCH BLKS	BLACK	0.20	Equipment blocks stating manufacture & model number
SCH BTXT	BLACK	0.20	Block text within ISO drawing template
SCH BDY	BLACK	0.20	Boundary outline indicating area where equipment to be installed
SCH CONN	134	0.20	Type of connector found at each end of cable assembly
SCH CTRL	BLACK	Default 0.35	Interconnecting Control cables
SCH FIBRE	200 (PURPLE)	Default 0.35	Interconnecting Fibre cables
SCH NTKWK	34 (BROWN)	Default 0.35	Interconnecting Network cables
SCH PWR	94 (DK-GRN)	Default 0.35	Interconnecting Power cables
SCH VIDEO	5 (NAVY)	Default 0.35	Interconnecting Video cables (analog & digital)

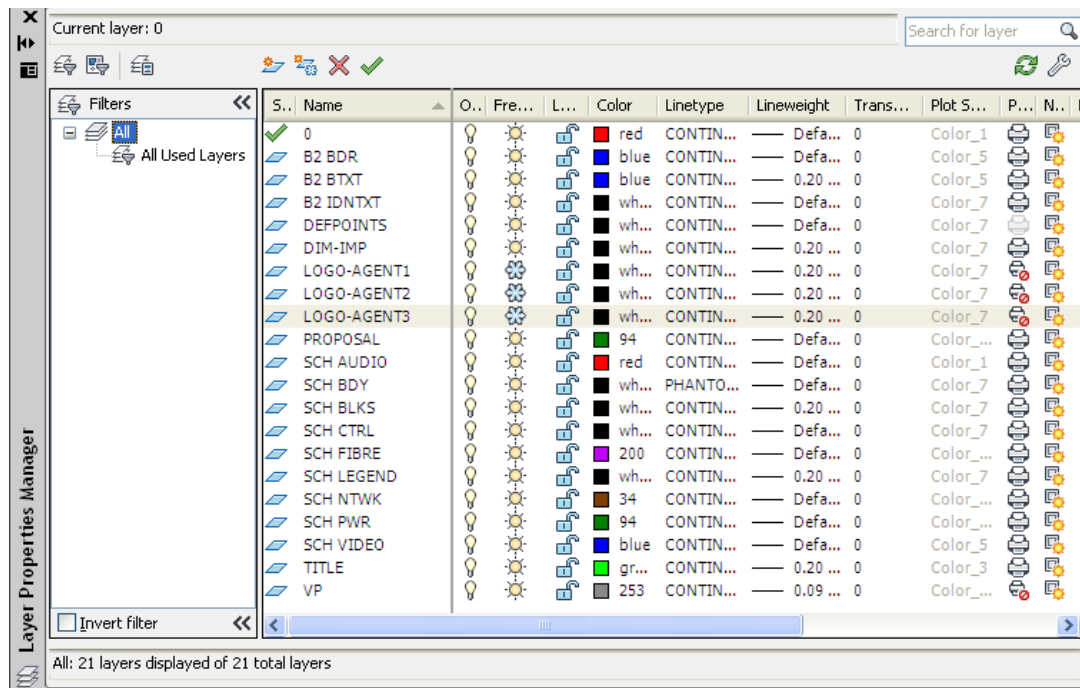
All schematic layers have Continuous line type, except Boundary outline” has Phantom line type.

NOTE: SYMBOL LEGEND-VTC is part of all ISO drawing templates. To remove schematic layers must delete block legend from template drawing and purge drawing.












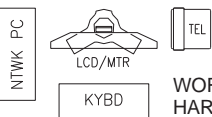
**2.13. D STRAT CS/AVC2 SCHEMATIC LEGEND**

LEGEND	DESCRIPTION	CABLE NUMBERS
	CONTROL CABLES	C200 SERIES
	AUDIO CABLES	A300 SERIES
	OVER FLOW (ANY SERIES)	400 SERIES
	MULTI-PURPOSE CABLE	M500 SERIES
	VIDEO CABLES (DIGITAL)	V600 SERIES
	NETWORK CABLES	N700 SERIES
	FIBRE CABLES	F800 SERIES
	PWR/SUP. CABLES	P900 SERIES
	FUTURE EQUIPMENT	TO SUIT APPLICATION
	BOUNDARY	NIL
	AV EQUIPMENT	NIL


## 2.14. D STRAT CS/AVC2 LAYER SAMPLE



**2.15. D STRAT CS/AVC2 ARCH LEGEND**LEGEND: ARCHITECTURAL











	BUILDING GROUND BUSS BAR (SCHEMATIC)
	BUSS BAR BLDG/GRD (ARCH)
	TELECOM OULET WITH DUAL DVO "CEILING MOUNTED"
	120V AC OUTLET
	DEDICATED OUTLET 120V AC
	DVO DROP NETWORK#1
	DVO DROP NETWORK#2
	KVM SWITCH
	CLASSIFIED JIFFY POLE
	JIFFY POLE
	DASCO CABINET
	WORKSTATION HARDWARE

LEGEND: ARCH/SYMBOLS







	CLASSIFIED PULL BOX (SIZE VARIES)
	'A'-200mmX200mm [8X8]
	'B'-300mmX300mm [12X12]
	'C'-400mmX400mm [16X16]
	'D'-600mmX600mm [24X24]

LETTER CHANGES DEPENDING ON SIZE OF PULL BOX (SEE CHART)

REFLECTIVE CEILING:

	DIFFUSER, AC/HT
	AIR RETURN
	LIGHT FIXTURE (24X24 OR 24X48)
	VTC FIXTURE 24X24 (DIMMABLE)
	POCKET LIGHT
	FIRE SPRINKLER
	SPEAKER, CEILING
	PANDUIT (LD3, LD5, LD10)
	DROP CEILING ENTRANCE FITTING
	PANDUIT T45EE ENTRANCE FITTING
	PANDUIT T70EE ENTRANCE FITTING

LEGEND: LINE IDENTIFICATION'S

	1" EMT (ELECT. MECHANICAL TUBING)		SURFACE RACEWAY
	2" EMT (ELECT. MECHANICAL TUBING)		CONDUIT (EMT) DOWN
	EXISTING CONDUIT 25mmØ (UNLESS OTHERWISE NOTED)		CONDUIT (EMT) UP

**2.16. BREAKDOWN OF TITLE BLOCK**

CONSULTANT: CONSULTANT	
DESIGN AGENT LOGO & ADDRESS	
PROJECT: PROJET	PROJECT NUMBER
UNIT IDENTIFICATION: IDENTIFICATION DE L'UNITÉ D-STRAT-CS/AVC2	
PROJECT/LOCATION: PROJET/EMPLACEMENT SITE LOCATION BLDG#, ROOM# CITY/CFB	
SUBJECT: INTERCONNECTING DIAGRAM AV, VTC PRESENTATION SYSTEM, UPGRADE	
DRAWN BY: DÉCRIT PAR	NAME D-STRAT-CS/AVC2
CHECKED BY: VÉRIFIÉ PAR	NAME NAME
DATE DD/MM/YY	SCALE ÉCHELLE: NTS
FILE REFERENCE No: No DE RÉFÉRENCE DU DOSSIER	RFC 36374
SHEET: FEUILLE: 1 DE 1	CLASSIFICATION: UNCLASSIFIED
DRAWING No: No DU Dessin	SCALE ÉCHELLE: B2
YY-SITE-BLDG-RM-TYPE	

BLOCK TITLES	DESCRIPTION
DRAWING No.	Drawing number assigned by D-STRAT-CS/AVC2
SHEET 1 of 1	Number of sheets required to illustrate subject material
CLASSIFICATION:	For JSCSS SVD 2-5 use only
FILE REFERENCE No.	Approved RFC or Directive No. by D-STRAT-CS/AVC2
DWG SIZE:	ISO oversized drawing standard (B2,B1, or Arch-E)
SCALE:	Use 'NTS' for schematic diagrams. Optional to list viewport window scale used in architectural layouts
NSCM:	NATO Stock Control Manufacture number assigned by DND
CHECKED BY:	Person responsible for overall design
APPROVED BY:	Person signing off as-built drawings
OPI:	Office of primary interest. Dept. responsible for closure
DRAWN BY:	Person who drew conceptual drawing design
PROJECT LOCATION:	Building Name or Building Number, Floor & Room number
UNIT IDENTIFICATION:	Dept. submitted RFC to D-STRAT-CS/AVC2
CONSULTANT:	Authorized Design Agent by D-STRAT-CS/AVC2

**2.17. REVISION BLOCK DESCRIPTION**

- LTR: Revision letter runs from "A to Z" (Upper Case Only) in the proposal design stage.
- Delete all revisions prior to final as-built drawing and use double digit figure "AB". Any revision after as-built start with "BB to ZZ" characters.
- DATE: When the revision was made on the drawing stating Day, Month, Year.
- NOMENCLATURE: List type of change made such as Project Directive number or any design change made by others.
- DWN: Person who did drawing change.
- CKD: Authorized design agent signs off the revision.

REVISION - REVISION				
LTR LET	DATE	NOMENCLATURE / DESCRIPTION	DWN DES	CKD VERIFI
P1	MMM/YY	PROJ/DIR: DT-017LMXX, PROPOSAL	INT.	INT.
AB	MMM/YY	PROJ/DIR: DT-017LMXX, CLOSED AS-BUILT	INT.	INT.

### **3. ELECTRONIC FILE STANDARDS**

This information in this section covers the computer-based standards of the final DND drawing. See the accompanying guides for system-specific requirements, instructions, and information on how to comply with DND standard.

#### **3.1. REFERENCE FILE STANDARDS**

External reference files shall only be used during design development. All external reference files shall be bound within the final delivered electronic drawing file.

#### **3.2. LAYOUT VS DESIGN MODEL INFORMATION**

The following rules shall be used when determining where information should reside:

- Only items that are not graphically linked to objects in the design model shall appear in sheet layout (e.g., borders, title blocks, general notes, titles, legends, notes: to computer operators that are not to be printed).
- All notes directly linked to the design should be placed in the design model (e.g., leaders, dimensions, and labels).
- 

#### **3.3. LINE WIDTH**

Standards for varying widths of lines have been established to improve presentation and readability of drawings. While CAD systems have the capability of showing a wide array of line widths, only a small number of them are required for drawing legibility.

The following table shall be used to establish these line widths for all drawings unless substantial improvement in readability can be gained through the use of additional widths.

LINE WIDTHS	Width (mm)	APPLICATION
Extra Fine	0.13	Grids
Fine	0.18	Hatching, Centrelines
Thin	0.25	Light & Background features
Medium	0.35	Misc. Features
Wide	0.50	Section Lines, Finished Grade
Extra wide	0.70	Border outline

### 3.4. COLOUR

The following are important notes on the use of colours on D STRAT CS/AVC2 drawings:

The AutoCAD colour table is to be used as the colour scheme on all CAD drawings to improve interoperability between CAD systems.

- Colour is not used to determine printing pen width. Pen width is determined by the line weight attribute.
- A relationship between line weight and colour has been standardized and is to be maintained where possible to improve screen clarity between features and layers.
- All objects shall be placed using the colour attribute set to “BY LAYER” where possible.

### 3.5. TEXT STYLES

D STRAT CS/AVC2 has adopted a number of text styles to ensure that drawing text display and print in a consistent manner. To improve interoperability between CAD systems, D STRAT CS/AVC2 has standardized True Type fonts for general use throughout all drawings. See Table 4-11.

The majority of text on D STRAT CS/AVC2 submitted drawings shall be Arial Narrow (size of 2.5 mm) for general notes, dimensions, and annotation. Details, titles, sections, etc., shall be Arial (size 5 mm). Other requirements to consider:

- Full size drawings are often printed at half-size; therefore, text size shall be appropriate to accommodate this requirement.
- All text presented on the drawing should have a vertical orientation and be UPPER CASE only.

**3.6. D STRAT CS/AVC2 TEXT STYLES AND FONT USE TABLE**

APPLICATION	STYLE FONT	COLOUR	SIZE (mm)	DESCRIPTION
BLOCK TEXT	ROMANS	By layer	0.20	Block text used in creating blocks
GENERAL TEXT	ROMANS	By layer	0.20	Identify objects, general notes
TITLE TEXT	ARIAL	By layer	0.20	Main Titles on drawing (upper case only)
BORDER TEXT	ARIAL NARROW	By layer	Varies	Block Titles within ISO drawing template
CANADA LOGO	Times New Roman	By layer	0.18	ISO drawing templates

**3.7. D STRAT CS/AVC2 DIMENSION STYLES**

D STRAT CS/AVC2 has adopted a number of dimension styles to ensure that drawing dimensions display and print in a consistent manner. To improve interoperability, these dimension styles are available in both CAD systems.

**3.8. D STRAT CS/AVC2 DIMENSION STYLES TABLE**

STYLE NAME	APPLICATION/USAGE	SYMBOLS & ARROWS	UNITS	ANGLE UNITS
Architecture	Inside Architectural	Slash	Imperial Feet & Inches [mm]	Decimal degrees
Imperial (FT)	Inside building features	Arrow	Imperial Inches (two decimal places) & [mm]	Decimal degrees
Meters (M)	Outside engineering or siting	Slash	Meters ( 3 decimal places)	Degrees, Minutes & Seconds

The following rules shall be followed:

- The true dimensions value should be shown and should not to be overridden or altered.
- Where part of the drawing is not to scale (NTS) or there is a break in the information, the dimension shown shall be followed by the abbreviation NTS or by using a break symbol in the dimension line.
- No units are to be designated.

#### 4. GRAPHIC SCALE

Graphic bar scale shall be used in all Architectural drawings to indicate the units of measurement. In scale notation title block note selected scale of view port window or leave default drawing template setting NTS (not to scale).

- Bar scale are only used in architectural drawings
- Bar scale are inserted in model space below main title block such as Floor Plan & Elevation details.
- When two or more scales are used on the same drawing sheet, each scale shall be clearly indicated below each particular title, and notation "AS NOTED" or "SCALE AS SHOWN" indicated in the scale notation in title block.



BAR SCALE: IMPERIAL (INCHES)

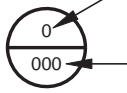
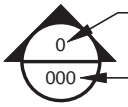
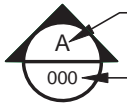


BAR SCALE: METERIC (M)

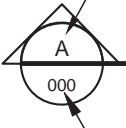
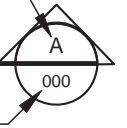


5.0 D STRAT CS/AVC2 SECTION & DETAIL IDENTIFIERS

DND standard symbols be used shall be used for all cross-referencing identifiers. Details and Elevations are identified by a number; Sections are identified by a letter.

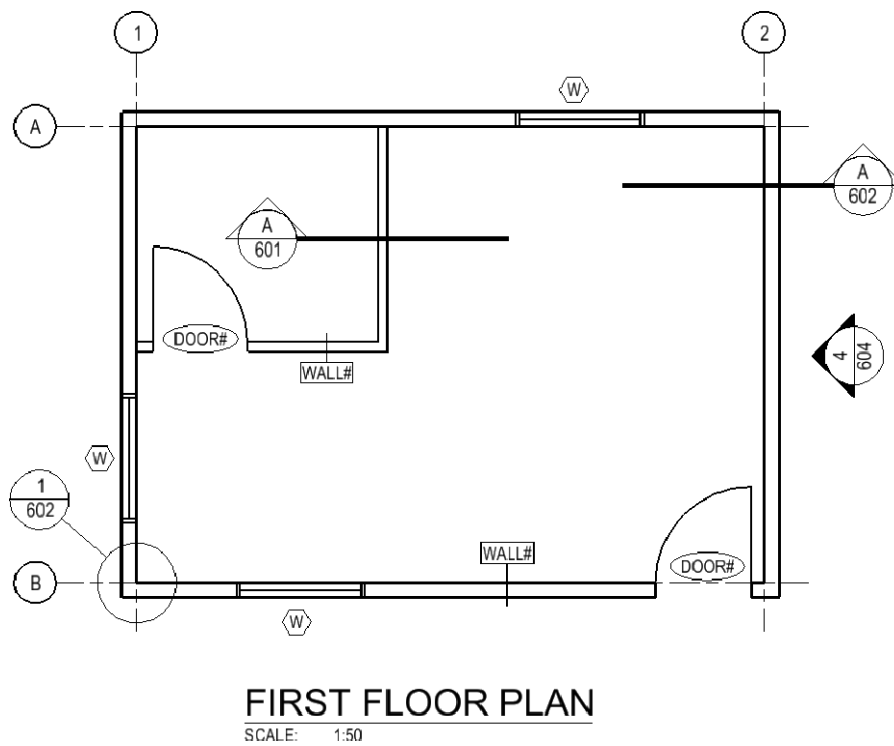
 <p>DETAIL NUMBER <i>NUMERO DU DETAIL</i></p> <p>SHEET NUMBER WHERE DRAWN <i>NUMERO DE FEUILLE OU SE TROUVE LA COUPE</i></p>	 <p>ELEVATION NUMBER <i>NUMERO DU ELEVATION</i></p> <p>SHEET NUMBER WHERE DRAWN <i>NUMERO DE FEUILLE OU SE TROUVE LA COUPE</i></p>	 <p>SECTION LETTER <i>LETTRE DE COUPE</i></p> <p>SHEET NUMBER WHERE DRAWN <i>NUMERO DE FEUILLE OU SE TROUVE LA COUPE</i></p>
DETAIL IDENTIFIER	ELEVATION IDENTIFIER	SECTION IDENTIFIER

TITLE IDENTIFIERS: SECTIONS, DETAILS, ELEVATIONS (LEFT & RIGHT OPTIONS)

 <p>SECTION LETTER <i>LETTRE DE COUPE</i></p> <p><b>SECTION</b></p> <p>SCALE: 1:10</p> <p>SHEET NUMBER WHERE DRAWN <i>NUMERO DE FEUILLE OU SE TROUVE LA COUPE</i></p>	 <p>SECTION LETTER <i>LETTRE DE COUPE</i></p> <p><b>SECTION</b></p> <p>SCALE: 1:10</p> <p>SHEET NUMBER WHERE DRAWN <i>NUMERO DE FEUILLE OU SE TROUVE LA COUPE</i></p>
RIGHT IDENTIFIER	LEFT IDENTIFIER

## 6.0 SAMPLE USE OF D STRAT CS/AVC2 IDENTIFIERS

It is acceptable practice to have 2 identifiers with the same detail numbers or section letters, provided that the sheet numbers are different. For example, this sample Floor Plan shows 2 Section “A” identifiers for 2 different section details, which is acceptable since one section is drawn on sheet 601 and the other on sheet 602.



**APPENDIX E TO ANNEX A – STATEMENT OF WORK**

**SOLICITATION W8474-17-CA17**

**EQUIPMENT LIST**

**April 12, 2018**

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**Table of Contents**

EQT\_5-6 (Racks 1 thru 4)..... 1

EQT\_5-6 (Racks 5 and 6) ..... 20

CONTROL BOOTH..... 23

CONFERENCE ROOM ..... 28

MEETING ROOM 1..... 40

SPECIAL PURPOSE SPACE ..... 46

ZONE 1 ..... 54

ZONE 2..... 59

ZONE 3..... 64

EXTERNAL FEEDS ..... 67

EQT\_5-7 (Racks 1 thru 3)..... 70

ZONE 4..... 81

MEETING ROOM 2..... 85

## EQT\_5-6 (Racks 1 thru 4)

Item	Criteria	Quantity	Notes
CODEC	<ul style="list-style-type: none"> <li>CODEC #1: JSCSS has tested and approved the proposed CODEC to operate on the NET 11 network and has extensive training and the required certification to support the product.</li> <li>CODEC #2: JSCSS has tested and approved the proposed CODEC to operate on the NET 11 network and has extensive training and the required certification to support the product.</li> <li>CODEC #3: The proposed CODEC is on the list of approved equipment to operate on NET 67.</li> </ul>	3	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Cisco</li> <li>Model: CTS-SX80-K9</li> </ul> </li> <li>Includes SX80 CODEC, rack ears, and power cable</li> </ul>
Fibre Optic Transmitter (Cameras and Logo Generator)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	3	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Model: VQM-0HV003-LCTX</li> </ul> </li> </ul>
Fibre Optic Chassis (Cameras and Logo Generator)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Model: CHS-000004</li> </ul> </li> </ul>

Item	Criteria	Quantity	Notes
Fibre Optic Transmitter (CODEC)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	3 each	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Models: <ul style="list-style-type: none"> <li>VQM-0HV003-LCTX</li> <li>VQM-HA0006-LCTX</li> </ul> </li> </ul> </li> </ul>
Fibre Optic Receiver (CODEC)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	3 each	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Models: <ul style="list-style-type: none"> <li>VQM-0HV003-LCRX</li> <li>VQM-HA0006-LCRX</li> </ul> </li> </ul> </li> </ul>
Fibre Optic Chassis (CODEC)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	3	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Model: <ul style="list-style-type: none"> <li>CHS-000004</li> </ul> </li> </ul> </li> </ul>
Fibre Optic Matrix Switch (Chassis)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Model: <ul style="list-style-type: none"> <li>TLX-MSC-000320</li> </ul> </li> </ul> </li> </ul>

Item	Criteria	Quantity	Notes
Fibre Optic Matrix Switch (Cards)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	20	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Model:</li> <li>VXM-D00T16</li> </ul> </li> </ul>
Fibre Optic Matrix Switch (Controller Card)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Model:</li> <li>TLX-MSM-C00320</li> </ul> </li> </ul>
SMP Appliance	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Model:</li> <li>SMP-A000320</li> </ul> </li> </ul>
SMP Client Module	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	4	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Model:</li> <li>SMP-C000001</li> </ul> </li> </ul>



Item	Criteria	Quantity	Notes
Fibre Optic Chassis (SMP Client Module)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Model:</li> <li>CHS-000004</li> </ul> </li> </ul>
Fibre Optic Matrix Switch (9-inch Touch Panel)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Model:</li> <li>VXM-000016</li> </ul> </li> </ul>
Fibre Optic Receiver (Breakout Audio)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	2	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Model:</li> <li>VQM-HA0006-LCRX</li> </ul> </li> </ul>
Fibre Optic Chassis (Breakout Audio)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Model:</li> <li>CHS-000004</li> </ul> </li> </ul>

Item	Criteria	Quantity	Notes
Fibre Optic Receiver (AV Recorders)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	2 each	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Models: <ul style="list-style-type: none"> <li>VQM-0HV003-LCTX</li> <li>VQM-HA0006-LCTX</li> </ul> </li> </ul> </li> </ul>
Fibre Optic Chassis (AV Recorder)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Model: <ul style="list-style-type: none"> <li>CHS-000004</li> </ul> </li> </ul> </li> </ul>
Integrated Controller (Conference Room)	<ul style="list-style-type: none"> <li>Eight RS-232 ports</li> <li>Eight relay ports</li> <li>Eight IR ports</li> <li>LAN port to connect to AV network</li> <li>Four port switch to extend network over a secure isolated Ethernet network</li> <li>Ability to communicate to other integrated controllers throughout the SJS facility</li> <li>PoE Power Output = 70W</li> <li>Height: 1 RU</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>AMX</li> <li>NX-4200</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Controller Expansion Module (Control Booth)	<ul style="list-style-type: none"> <li>Ability to provide two additional RS-232 ports thru a secure isolated Ethernet network</li> </ul>	2	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>AMX</li> <li>EXB-COM2</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>

Item	Criteria	Quantity	Notes
Controller Expansion Module Mounting Panel	<ul style="list-style-type: none"> <li>Ability to hold up to three controller expansion modules</li> <li>Height: 1 RU</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>AMX</li> <li>AC-RK</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Integrated Controller (Special Purpose Space and Meeting Room 1)	<ul style="list-style-type: none"> <li>Four RS-232 ports</li> <li>Four relay ports</li> <li>LAN port to connect to AV network</li> <li>One port to extend network over a secure isolated Ethernet network</li> <li>Ability to communicate to other integrated controllers throughout the SJS facility</li> <li>Height: 1 RU</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>AMX</li> <li>NX-2200</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Power Supply (Special Purpose Space and Meeting Room 1)	<ul style="list-style-type: none"> <li>12 VDC</li> <li>5.4A output current</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>AMX</li> <li>PSR5.4</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Integrated Controller (Zones 1 thru 3)	<ul style="list-style-type: none"> <li>Four RS-232 ports</li> <li>Four relay ports</li> <li>LAN port to connect to AV network</li> <li>One port to extend network over a secure isolated Ethernet network</li> <li>Ability to communicate to other integrated controllers throughout the SJS facility</li> <li>Height: 1 RU</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>AMX</li> <li>NX-2200</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>

Item	Criteria	Quantity	Notes
Power Supply (Zones 1 thru 3)	<ul style="list-style-type: none"> <li>12 VDC</li> <li>5.4A output current</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>AMX</li> <li>PSR5.4</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Power Controller (NET 11 VTC)	<ul style="list-style-type: none"> <li>Ability to provide one switched outlet for 120 VAC power control with up to 1200 W of equipment power</li> </ul>	2	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>AMX</li> <li>PC1</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Power Controller Mounting Panel (NET 11 VTC)	<ul style="list-style-type: none"> <li>Ability to hold up to three power controllers</li> <li>Height: 1 RU</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>AMX</li> <li>AC-RK</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Power Controller (NET 67 VTC)	<ul style="list-style-type: none"> <li>Ability to provide one switched outlet for 120 VAC power control with up to 1200 W of equipment power</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>AMX</li> <li>PC1</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Power Controller Mounting Panel (NET 67 VTC)	<ul style="list-style-type: none"> <li>Ability to hold up to three power controllers</li> <li>Height: 1 RU</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>AMX</li> <li>AC-RK</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>

Item	Criteria	Quantity	Notes
3G-SDI to HDMI Converter	<ul style="list-style-type: none"> <li>Accepts 3G-SDI, HD-SDI and SDI signals up to 2.97 Gbps</li> <li>3G-SDI, HD-SDI and SDI to HDMI video scaling</li> <li>Height: 1 RU</li> </ul>	4	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>Extron</li> <li>DSC 3G-HD A</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Universal Rack Shelf	<ul style="list-style-type: none"> <li>Ability to screw 3G-SDI to HDMI converter to the rack shelf</li> <li>Includes one eight, one quarter and one half false faceplates</li> </ul>	3	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>Extron</li> <li>RSU 129</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Media Converter (NET 11 VTC)	<ul style="list-style-type: none"> <li>One 10/100/1000BaseT electrical port</li> <li>One 100/1000BaseX optical SFP port</li> <li>Signal strength bar graph indicating received optical power</li> <li>1310 nm wavelength</li> <li>50/125 µm fibre size</li> <li>Rack mountable</li> </ul>	2	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>Luxcom</li> <li>OM1001J-1000-LX</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Media Converter Mounting Panel (NET 11 VTC)	<ul style="list-style-type: none"> <li>Ability to hold up to three media converters</li> <li>Height: 1 RU</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>Luxcom</li> <li>MP05</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>

Item	Criteria	Quantity	Notes
Media Converter (NET 67 VTC)	<ul style="list-style-type: none"> <li>One 10/100/1000BaseT electrical port</li> <li>One 100/1000BaseX optical SFP port</li> <li>Signal strength bar graph indicating received optical power</li> <li>1310 nm wavelength</li> <li>50/125 µm fibre size</li> <li>Rack mountable</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>Luxcom</li> <li>OM1001J-1000-LX</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Media Converter Mounting Panel (NET 67 VTC)	<ul style="list-style-type: none"> <li>Ability to hold up to three media converters</li> <li>Height: 1 RU</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>Luxcom</li> <li>MP05</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Fibre Optic Serial Data Modem	<ul style="list-style-type: none"> <li>Ability to isolate and extend RS-232 signalling</li> </ul>	2	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>Luxcom</li> <li>OM10C-DCE-MM-ST</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Fibre Optic Serial Data Modem Mounting Panel	<ul style="list-style-type: none"> <li>Ability to hold up to six fibre optic serial data modems</li> <li>Height: 1 RU</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>Luxcom</li> <li>MP-3</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>

Item	Criteria	Quantity	Notes
Fibre Optic Multiplexer – RS-232 / Ethernet Cards (AV Recorders)	<ul style="list-style-type: none"> <li>4-slot chassis</li> <li>Optical cards to extend data over two pairs of fibre</li> <li>LC connectors</li> <li>Extends five bi-directional asynchronous RS-232 data ports over a single pair of fibre</li> <li>Extends a 4-port 10BASE-T / 100BASE-TX Ethernet switch over a single pair of fibre</li> </ul> Height: 1 RU	See notes	<ul style="list-style-type: none"> <li><b>Recommended make and models:</b> <ul style="list-style-type: none"> <li>Luxcom</li> <li>OM200-CH4 (qty 1)</li> <li>OM200-OCA1-MM-LC-00-R (qty 2)</li> <li>OM200-RS232 (qty 1)</li> <li>OM200-ETHERNET (qty 1)</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Fibre Optic Multiplexer Mounting Panel	<ul style="list-style-type: none"> <li>Rack mounting bracket set for OM200-CH4</li> <li>Height: 1 RU</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>Luxcom</li> <li>MB-CH4</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
23-port Optical Electrical Switch (Conference Room and Meeting room 1)	<ul style="list-style-type: none"> <li>Three 10/100/1000BaseT electrical ports</li> <li>18 100BaseFX optical ports</li> <li>Two 1000BaseFX optical ports</li> <li>1310 nm wavelength</li> <li>50/125 µm fibre size</li> <li>Rack mountable</li> <li>Height: 1 RU</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>Luxcom</li> <li>OM124</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Small Form-factor Pluggable (SFP) Transceiver (Conference Room and Meeting room 1)	<ul style="list-style-type: none"> <li>1310 nm wavelength</li> <li>50/125 µm fibre size</li> <li>LC connectors</li> </ul>	13	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>Luxcom</li> <li>SFP-100-FX</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>

Item	Criteria	Quantity	Notes
23-port Optical Electrical Switch (Offices and Collaboration Areas)	<ul style="list-style-type: none"> <li>Three 10/100/1000BaseT electrical ports</li> <li>18 100BaseFX optical ports</li> <li>Two 1000BaseFX optical ports</li> <li>1310 nm wavelength</li> <li>50/125 µm fibre size</li> <li>Rack mountable</li> <li>Height: 1 RU</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>Luxcom</li> <li>OM124</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Small Form-factor Pluggable (SFP) Transceiver (Offices and Collaboration Areas)	<ul style="list-style-type: none"> <li>1310 nm wavelength</li> <li>50/125 µm fibre size</li> <li>LC connectors</li> </ul>	12	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>Luxcom</li> <li>SFP-100-FX</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
AV Switch (Core Switch)	<ul style="list-style-type: none"> <li>Rear panel ports</li> <li>Front facing LED lights</li> <li>Eight PoE+ ports</li> <li>PoE Power Output: 130W</li> <li>Two Gigabit RJ-45</li> <li>Two Gigabit SFP</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>Luxul</li> <li>AMS-1208P</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
AV Switch (Conference Room and Control Booth)	<ul style="list-style-type: none"> <li>Rear panel ports</li> <li>Front facing LED lights</li> <li>Eight PoE+ ports</li> <li>PoE Power Output: 130W</li> <li>Two Gigabit RJ-45</li> <li>Two Gigabit SFP</li> </ul>	2	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>Luxul</li> <li>AMS-1208P</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
AV Switch (Special Purpose Space and Meeting Room 1)	<ul style="list-style-type: none"> <li>Rear panel ports</li> <li>Front facing LED lights</li> <li>Eight PoE+ ports</li> <li>PoE Power Output: 130W</li> <li>Two Gigabit RJ-45</li> <li>Two Gigabit SFP</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>Luxul</li> <li>AMS-1208P</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>



Item	Criteria	Quantity	Notes
AV Switch (Zone 1 thru 3)	<ul style="list-style-type: none"> <li>• Rear panel ports</li> <li>• Front facing LED lights</li> <li>• Eight PoE+ ports</li> <li>• PoE Power Output: 130W</li> <li>• Two Gigabit RJ-45</li> <li>• Two Gigabit SFP</li> </ul>	1	<ul style="list-style-type: none"> <li>• <b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>• Luxul</li> <li>• AMS-1208P</li> </ul> </li> <li>• If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>

Item	Criteria	Quantity	Notes
Power Amplifier (Conference Room)	<ul style="list-style-type: none"> <li>The power amplifier shall be a four-channel network-processing amplifier</li> <li>The power amplifier section shall consist of four amplifier channels, fed by digital audio streams over the network</li> <li>Total power provided shall be of up to 1600 W (continuous) and shall utilize a method to distribute that power across one, two, three, or all four channels</li> <li>An independent input section shall provide four inputs to the system</li> <li>The power amplifier section shall combine a class-D power amplifier with a custom power stage</li> <li>The amplifier front panel shall also include input and output LED metering, a 400 x 240 TFT color display, navigation buttons, an LED power button/indicator, a fault indicator, control knob, and cast aluminum handles</li> <li>The amplifier back panel shall provide a dual RJ-45 jack for connection to the system network, enabling integration into the processing system for bi-directional passage of digital audio, control signals, and status monitoring data</li> <li>The back panel shall also provide four analog audio mic/line inputs with phantom power, using 3-pin phoenix connectors that are routed to the central system processor via the network</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>QSC</li> <li>CXD4.2Q</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>

Item	Criteria	Quantity	Notes
Power Amplifier (Special Purpose Space and Meeting Room 1)	<ul style="list-style-type: none"> <li>The power amplifier shall be a four-channel network-processing amplifier</li> <li>The power amplifier section shall consist of four amplifier channels, fed by digital audio streams over the network</li> <li>Total power provided shall be of up to 2500 W (continuous) and shall utilize a method to distribute that power across one, two, three, or all four channels</li> <li>An independent Input section shall provide four inputs to the system</li> <li>The power amplifier section shall combine a class-D power amplifier with a custom power stage</li> <li>The amplifier front panel shall also include Input and Output LED Metering, a 400 x 240 TFT color display, navigation buttons, an LED power button/indicator, a fault indicator, control knob, and cast aluminum handles</li> <li>The amplifier back panel shall provide a dual RJ-45 jack for connection to the system network, enabling integration into the processing system for bi-directional passage of digital audio, control signals, and status monitoring data</li> <li>The back panel shall also provide four analog audio mic/line inputs with phantom power, using 3-pin phoenix connectors that are routed to the central system processor via the network</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>QSC</li> <li>CXD4.3Q</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>

Item	Criteria	Quantity	Notes
System Processor (Conference Room)	<ul style="list-style-type: none"> <li>The audio, video and control system processor shall be an Intel-based centralized processor and control engine</li> <li>It shall be a single-chassis processor with no internal or external audio busses to other processors</li> <li>The system shall operate on a native gigabit Ethernet, employs DiffServ quality of service, IEEE 1588 time reference, UDP/IP data transport, and floating point format audio data representation</li> <li>The overall system latency from analog input to synchronized analog outputs shall be 2.5 microseconds or less. For routed networks, the end to end system latency shall be 3.2 microseconds or less.</li> <li>The system shall have the capability of being completely redundant. The processor shall be able to support a second synchronized backup processor with complete automatic failover in ten seconds or less. Each processor and I/O peripheral shall have redundant network connections for seamless audio stream failover.</li> <li>The system processor shall have a minimum network channel capability of 256 channels inputs, an end node capacity of 256 channels, and 128x128 total on-board channels of 32-bit (internal processing) audio. I/O capacity shall be 8 card slots using one of numerous I/O circuit cards (HD-15 pin Amp Out, Line Out, High-performance Mic/Line In, Standard Mic/Line In, CobraNet In/Out, Dante In/Out, AVB In/Out, and AES/EBU In/Out)</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>QSC</li> <li>Q-SYS Core510i</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>

Item	Criteria	Quantity	Notes
System Processor (Conference Room)  (CONTINUED)	<ul style="list-style-type: none"> <li>The system processor shall store a single design which can be comprised of components, wiring, links, text, and graphics on a single or multiple schematic pages</li> <li>Designs shall include but not limited to any of the following DSP functions: test and measurement components, control components, and layout components: Acoustic Echo Cancellers, Audio Players, Audio Streaming components, Delay components, Auto Gain control elements, Ambient Noise Compensators, FIR Filters, Public Address Routers, Room Combiners, Tone Generators, Tone and Noise Generators, Dual Trace FFT Measurement Modules, Real Time Analyzers, Signal Injectors, and Signal Probes</li> <li>The system processor shall support custom user control interfaces either on proprietary touch screen controllers, or network computers utilizing a control application. Custom control interfaces shall be capable of having multiple user-selectable pages with different controls on each.</li> </ul>		
System Processor I/O Card (Conference Room)	<ul style="list-style-type: none"> <li>Input card shall provide four channels of microphone /line level analog audio input with 48V phantom power</li> <li>Input shall be on four 3-terminal Euro- style detachable terminal blocks</li> </ul>	3	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>QSC</li> <li>Q-SYS CIML4</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>

Item	Criteria	Quantity	Notes
System Processor I/O Card (Conference Room)	<ul style="list-style-type: none"> <li>Output card shall provide four channels of balanced, line level analog output</li> <li>Output shall be on four 3-terminal Euro- style detachable terminal blocks</li> </ul>	4	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>QSC</li> <li>Q-SYS COL4</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>

<p>System Processor (Special Purpose Space and Meeting Room 1)</p>	<ul style="list-style-type: none"> <li>• The audio, video and control system processor shall be an Intel based centralized processor and control engine. It shall be a single-chassis processor with no internal or external audio busses to other processors. The system shall operate on a native gigabit Ethernet, employs DiffServ quality of service, IEEE 1588 time reference, UDP/IP data transport, and floating point format audio data representation. The overall system latency from analog input to synchronized analog outputs shall be 2.5 microseconds or less. For routed networks, the end to end system latency shall be 3.2 microseconds or less.</li> <li>• The system shall have the capability of being completely redundant. The processor shall be able to support a second synchronized backup processor with complete automatic failover in ten seconds or less. Each processor and I/O peripheral shall have redundant network connections for seamless audio stream failover.</li> <li>• The system processor shall have a minimum network channel capability of 128 channels inputs an, an end node capacity of 128 channels, and 24 total on-board channels of 32-bit (internal processing) audio. I/O capacity shall be 8 input channels, 8 output channels, and 8 channels that can be individually selected as input or output.</li> <li>• The system processor shall provide a single POTS telephone line connection</li> </ul>	<p>1</p>	<ul style="list-style-type: none"> <li>• <b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>• QSC</li> <li>• Q-SYS Core-110F</li> </ul> </li> <li>• If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
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Item	Criteria	Quantity	Notes
System Processor (Special Purpose Space and Meeting Room 1)  (CONTINUED)	<ul style="list-style-type: none"> <li>The system processor shall store a single design which can be comprised of components, wiring, links, text, and graphics on a single or multiple schematic pages. Designs shall include but not limited to any of the following DSP functions, test and measurement components, control components, and layout components: Acoustic Echo Cancellers, Audio Players, Audio Streaming components, Delay components, Auto Gain control elements, Ambient Noise Compensators, FIR Filters, Public Address Routers, Room Combiners, Tone Generators, Tone and Noise Generators, Dual Trace FFT Measurement Modules, Real Time Analyzers, Signal Injectors, and Signal Probes.</li> <li>The system processor shall support custom user control interfaces either on proprietary touch screen controllers, or network computers utilizing a control application, or iOS devices on Wi-Fi. Custom control interfaces shall be capable of having multiple user-selectable pages with different controls on each.</li> </ul>		
Logo Generator	<ul style="list-style-type: none"> <li>Not applicable</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Government Furnished Equipment (GFE)</b> <ul style="list-style-type: none"> <li>Extron</li> <li>MGP 462 or MGP 464</li> </ul> </li> </ul>



## EQT\_5-6 (Racks 5 and 6)

Item	Criteria	Quantity	Notes
CODEC	<ul style="list-style-type: none"> <li>CODEC #1: JSCSS has tested and approved the proposed CODEC to operate on the NET 3 network and has extensive training and the required certification to support the product.</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Cisco</li> <li>Model: CTS-SX80-K9</li> </ul> </li> <li>Includes SX80 CODEC, rack ears, and power cable</li> </ul>
Fibre Optic Transmitter (CODEC)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1 each	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Models: <ul style="list-style-type: none"> <li>VQM-0HV003-LCTX</li> <li>VQM-HA0006-LCTX</li> </ul> </li> </ul> </li> </ul>
Fibre Optic Receiver (CODEC)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1 each	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Models: <ul style="list-style-type: none"> <li>VQM-0HV003-LCRX</li> <li>VQM-HA0006-LCRX</li> </ul> </li> </ul> </li> </ul>
Fibre Optic Chassis (CODEC)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Model: <ul style="list-style-type: none"> <li>CHS-000004</li> </ul> </li> </ul> </li> </ul>

Item	Criteria	Quantity	Notes
Integrated Controller (SJS Facility)	<ul style="list-style-type: none"> <li>Four RS-232 ports</li> <li>Four relay ports</li> <li>LAN port to connect to AV network</li> <li>One port to extend network over a secure isolated Ethernet network</li> <li>Ability to communicate to other integrated controllers throughout the SJS facility</li> <li>Height: 1 RU</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>AMX</li> <li>NX-2200</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Power Supply	<ul style="list-style-type: none"> <li>12 VDC</li> <li>5.4A output current</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>AMX</li> <li>PSR5.4</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Power Controller (NET 3 VTC)	<ul style="list-style-type: none"> <li>Ability to provide one switched outlet for 120 VAC power control with up to 1200 W of equipment power</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>AMX</li> <li>PC1</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Integrated Controller Expansion Module and Power Controller Mounting Panel (NET 3 VTC)	<ul style="list-style-type: none"> <li>Ability to hold up to three modules</li> <li>Height: 1 RU</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>AMX</li> <li>AC-RK</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Fibre Optic Serial Data Modem	<ul style="list-style-type: none"> <li>Ability to isolate and extend RS-232 signalling</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>Luxcom</li> <li>OM10C-DTE-MM-ST</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>

Item	Criteria	Quantity	Notes
Fibre Optic Serial Data Modem Mounting Panel	<ul style="list-style-type: none"> <li>Ability to hold up to six fibre optic serial data modems</li> <li>Height: 1 RU</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>Luxcom</li> <li>MP-3</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Media Converter (NET 3 VTC)	<ul style="list-style-type: none"> <li>One 10/100/1000BaseT electrical port</li> <li>One 100/1000BaseX optical SFP port</li> <li>Signal strength bar graph indicating received optical power</li> <li>1310 nm wavelength</li> <li>50/125 µm fibre size</li> <li>Rack mountable</li> </ul>	2	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>Luxcom</li> <li>OM1001J-1000-LX</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Mounting Panel (NET 3 VTC)	<ul style="list-style-type: none"> <li>Ability to hold up to three media converters</li> <li>Height: 1 RU</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>Luxcom</li> <li>MP05</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Rackmount Console	<ul style="list-style-type: none"> <li>19-inch rackmount LCD monitor, keyboard and integrated touchpad</li> <li>Screen size: 17.3-inch</li> <li>Native screen resolution: 1,920 x 1,080p</li> <li>16:9 aspect ratio</li> <li>1 x HDMI female</li> <li>1 x DVI-D female</li> <li>Height: 1 RU</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>Middle Atlantic</li> <li>RM-KB-LCD17HD</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> <li>DND will supply a rack-mounted NET 3 PC</li> </ul>

## CONTROL BOOTH

Item	Criteria	Quantity	Notes
Fibre Optic Transmitter (Operator A and B)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	2 each	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Models: <ul style="list-style-type: none"> <li>VTM-H00004-LCTX</li> <li>VTM-H00004-LCTX</li> <li>VTM-H00024-LCTX</li> <li>VQM-U00001-LCTX</li> </ul> </li> </ul> </li> </ul>
Fibre Optic Receiver (Operator A and B)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	2 each	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Models: <ul style="list-style-type: none"> <li>VQM-0HV003-LCRX</li> <li>VQM-0H0003-LCRX</li> <li>VQM-HAP001-LCRX</li> </ul> </li> </ul> </li> </ul>
Fibre Optic Chassis (Operator A and B)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	2 each	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Models: <ul style="list-style-type: none"> <li>VTM-004200</li> <li>CHS-000004</li> </ul> </li> </ul> </li> </ul>
Fibre Optic Receiver (AV Recorders)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	2 each	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Models: <ul style="list-style-type: none"> <li>VQM-0HV003-LCRX</li> <li>VQM-HA0006-LCRX</li> </ul> </li> </ul> </li> </ul>

Item	Criteria	Quantity	Notes
Fibre Optic Chassis (AV Recorder)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Model:</li> <li>CHS-000004</li> </ul> </li> </ul>
Touch Panel Interface	<ul style="list-style-type: none"> <li>Must support proposed 21.5-inch capacitive multi-touch touch panel</li> <li>LAN</li> <li>1 x DVI-D</li> <li>1 x USB (Type A)</li> <li>Height: 1 RU</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>AMX</li> <li>TPI-PRO-DVI-2</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Power Supply	<ul style="list-style-type: none"> <li>12 VDC</li> <li>5.4A output current</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>AMX</li> <li>PSR5.4</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Audio Video Recorder	<ul style="list-style-type: none"> <li>4 x HDMI (DVI) input</li> <li>4 x ¼" left/right TRS audio</li> <li>CODEC: H.264, MPEG-4, Motion JPEG</li> <li>Colour resolution: 4:2:0</li> <li>Frame Rate: 4 x 1,080p streams at 30 fps each</li> <li>Storage: 2 x 512 GB SSD, 2 x local USB</li> <li>2 x RS-232 control via USB</li> <li>Height: 2 RU</li> </ul>	2	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>Epiphan</li> <li>Pearl2 Rackmount Twin</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>

Item	Criteria	Quantity	Notes
Operator's Desk	<ul style="list-style-type: none"> <li>High pressure laminate panel finish</li> <li>Custom millwork base - Open</li> <li>Millwork base modesty panel; full height</li> <li>HPL work surface with ergonomic PVC edge</li> <li>Upgrade work surface edge to ergonomic soft urethane</li> <li>Custom 4-point rackmount kit with base slide-out rotating shelf</li> <li>Wire basket tray; 4" (102mm) wide</li> <li>North America power bar with mounting bracket; 120V/15A, 6 outlets, 6' power cord, CSA/UL</li> <li>Under counter keyboard drawer with integrated palm rest</li> <li>Desktop mounted double tier monitor arm (max 40 lbs. (18.1 kg) per arm)</li> <li>Desktop mounted single tier monitor arm (max 40 lbs. (18.1 kg) per arm)</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>Evans Consoles</li> <li>AVM-RE</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Powered Speaker	<ul style="list-style-type: none"> <li>20W D-class power amplifier</li> <li>4" speaker full range driver</li> <li>Flat panel design</li> <li>Auto stand-by mode</li> <li>Connector: XLR (balanced)</li> <li>Connector: 1/4" (unbalanced)</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>Fostex</li> <li>6301NX</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Fibre Optic Multiplexer – RS-232 Card (AV Recorders)	<ul style="list-style-type: none"> <li>2-slot chassis</li> <li>Extends up to five bi-directional asynchronous RS-232 data ports over a single pair of fibre</li> <li>Height: 1 RU</li> </ul>	1 each	<ul style="list-style-type: none"> <li><b>Recommended make and models:</b> <ul style="list-style-type: none"> <li>Luxcom</li> <li>OM200-CH2</li> <li>OM200-OCA1-MM-LC-00-R</li> <li>OM200-RS232</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>

Item	Criteria	Quantity	Notes
Fibre Optic Multiplexer Mounting Panel	<ul style="list-style-type: none"> <li>Rack mounting bracket set for OM200-CH2</li> <li>Height: 1 RU</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>Luxcom</li> <li>MB-CH2</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Media Converter and Mounting Clip (Touch Panel)	<ul style="list-style-type: none"> <li>Ability to convert 100BaseFX fibre optic signal to 10BaseT or 100BaseTX electrical signal</li> <li>ST connections</li> </ul>	1 each	<ul style="list-style-type: none"> <li><b>Recommended make and models:</b> <ul style="list-style-type: none"> <li>Luxcom</li> <li>OM101-MM-ST</li> <li>MC-OM101</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Touch Panel	<ul style="list-style-type: none"> <li>21.5-inch capacitive multi-touch</li> <li>Number of touch points: 10</li> <li>Edge-lit LED LCD</li> <li>1,920 x 1,080p resolution</li> <li>No camera</li> <li>No microphone</li> <li>No Bluetooth capability</li> <li>No Wireless capability</li> <li>No Near Field Communication</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>Planar</li> <li>PLL2250MW</li> <li>(997-9044-00)</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Reference Monitor	<ul style="list-style-type: none"> <li>21.5-inch diagonal</li> <li>Aspect ratio: 16:9</li> <li>Contrast ratio: 3,000:1</li> <li>Viewing angle (H) : 178° (H)</li> <li>Viewing angle (H) : 178° (V)</li> <li>1,920 x 1,080p resolution</li> <li>Video inputs: HDMI and VGA</li> <li>No camera</li> <li>No microphone</li> <li>No "SMART" buttons</li> <li>No Bluetooth capability</li> <li>No Wireless capability</li> <li>No Near Field Communication</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>Planar</li> <li>PCT2235</li> <li>(997-8286-00)</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>

Item	Criteria	Quantity	Notes
Microphone (Operator's Desk)	<ul style="list-style-type: none"> <li>The microphone shall be of adjustable-height desktop type for public address/paging applications</li> <li>The microphone shall provide suppression of unwanted background noise</li> <li>The microphone shall be of dynamic type, have a cardioid polar pattern and its frequency response shall be tailored for voice communication</li> <li>The microphone shall provide a Push-to-talk switch with lockable ON position for hands-free operation</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>Shure</li> <li>522</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>



## CONFERENCE ROOM

Item	Criteria	Quantity	Notes
Fibre Optic Receiver (Host Wall)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Model:</li> <li>VQM-0HV003-LCRX</li> </ul> </li> </ul>
Fibre Optic Chassis (Host Wall)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Model: CHS-000001</li> </ul> </li> </ul>
Fibre Optic Receiver (Left Side)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	4	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Model:</li> <li>VEL-0H0003-LCRX</li> </ul> </li> </ul>
Fibre Optic Receiver (Right Side)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	4	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Model:</li> <li>VEL-0H0003-LCRX</li> </ul> </li> </ul>

Item	Criteria	Quantity	Notes
Fibre Optic Transmitter (Laptops)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	3	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Model:</li> <li>VTM-H00004-LCTX</li> </ul> </li> </ul>
Fibre Optic Chassis (Laptops)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	3	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Model: VTS-004200</li> </ul> </li> </ul>
Fibre Optic Receiver (Table)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	3 each	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Models:</li> <li>VQM-0H0003-LCRX</li> <li>VQM-HAP001-LCRX</li> </ul> </li> </ul>
Fibre Optic Chassis (Table)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	3	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Model: CHS-000002</li> </ul> </li> </ul>

Item	Criteria	Quantity	Notes
Fibre Optic Receiver (Lectern)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1 each	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Models: <ul style="list-style-type: none"> <li>VQM-0HV003-LCRX</li> <li>VQM-HAP001-LCRX</li> <li>VQM-U00001-LCRX</li> </ul> </li> </ul> </li> </ul>
Fibre Optic Chassis (Lectern)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Model: CHS-000004</li> </ul> </li> </ul>
Touch Panel (Lectern)	<ul style="list-style-type: none"> <li>7-inch capacitive multi-touch</li> <li>No camera</li> <li>No microphone</li> <li>No "SMART" buttons cluttering the front of the panel</li> <li>No Bluetooth capability</li> <li>No Wireless capability</li> <li>No Near Field Communication</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>AMX</li> <li>MXT-700-NC</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Touch Panel (Table)	<ul style="list-style-type: none"> <li>10-inch capacitive multi-touch</li> <li>No camera</li> <li>No microphone</li> <li>No "SMART" buttons cluttering the front of the panel</li> <li>No Bluetooth capability</li> <li>No Wireless capability</li> <li>No Near Field Communication</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>AMX</li> <li>MXT-1000-NC</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>

Item	Criteria	Quantity	Notes
Mount (Ceiling)	<ul style="list-style-type: none"> <li>Continuous tilt ranges with four set locking points to eliminate guess work when adjusting multiple screens</li> <li>Simple on/off- connection for ease of installation and service</li> <li>Compatible with any VESA pattern within a 400 x 400 mm range</li> <li>Orientation: Landscape</li> <li>Weight Capacity: 56.7 kg</li> </ul>	8	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>Chief</li> <li>MCM1U</li> </ul> </li> <li>Ceiling plate and extension column are required</li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Digital Wall Clock	<ul style="list-style-type: none"> <li>Type: Digital and 15 character alphanumeric in red, green, yellow and blue</li> <li>Display: 4-digit, 7-segment LED</li> <li>Character Height:: 2.5" HR/MIN</li> <li>Character Height:: 1.2" location characters</li> <li>Accurate to one second per year</li> <li>Weight: not to exceed 15.8 lbs</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>Digital Display Systems</li> <li>BTZ-42425-6ERG</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Projection Screen (Electric)	<ul style="list-style-type: none"> <li>Surface Material: Matte White XT1000E</li> <li>Aspect Ratio: 16:9</li> <li>Voltage: 110 V</li> <li>Diagonal: 100" (49" x 87")</li> </ul>	2	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>Draper</li> <li>116454</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>

Item	Criteria	Quantity	Notes
Technology Table	<ul style="list-style-type: none"> <li>• High pressure laminate panel finish</li> <li>• Base desktop console</li> <li>• Curved end millwork units (laminate finish)</li> <li>• Removable glass insert with etched customer logo</li> <li>• Veneer work surface with solid wood nosing</li> <li>• Electrical adjustable lifting platform with lower telephone shelf platform</li> <li>• Hinged enclosure panels (laminate finish)</li> <li>• Microphone mounting holes</li> <li>• MHO desktop power unit; 2 AC, 2 configurable data ports</li> <li>• PCS 5 power &amp; communications grommet with (2) electrical outlets (120V/15A), (1) Cat 6 data jack and (1) VGA 15 pin female to female jack</li> <li>• Power data modules (all wiring by others), include (2) 110V/15A power outlets and (2) voice/data slots</li> </ul>	1	<ul style="list-style-type: none"> <li>• <b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>• Evans Consoles</li> <li>• TECH-SX</li> </ul> </li> <li>• If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Lectern	<ul style="list-style-type: none"> <li>• Veneer panel finish</li> <li>• Custom millwork Base - Closed cabinet</li> <li>• Veneer work surface</li> <li>• Cut out in work surface for 7" touch panel</li> <li>• Single tier slat wall system</li> <li>• North America power bar with mounting bracket; 120V/15A, 6 outlets, 6' power cord,</li> <li>• Round cable grommet; 1 3/4" (44 mm)</li> <li>• Slat wall mounted single tier monitor arm (max 40 lbs. (18.1 kg) per arm)</li> </ul>	1	<ul style="list-style-type: none"> <li>• <b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>• Evans Consoles</li> <li>• PD-VN</li> </ul> </li> <li>• If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>

Item	Criteria	Quantity	Notes
Media Converter and Mounting Clip (HD Displays)	<ul style="list-style-type: none"> <li>Ability to convert 100BaseFX fibre optic signal to 10BaseT or 100BaseTX electrical signal</li> <li>ST connections</li> </ul>	10 each	<ul style="list-style-type: none"> <li><b>Recommended make and models:</b> <ul style="list-style-type: none"> <li>Luxcom</li> <li>OM101-MM-ST</li> <li>MC-OM101</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Optical Electrical Switch (Touch Panels at Table and Lectern)	<ul style="list-style-type: none"> <li>Four 10/100/1000BaseT PoE+ ports</li> <li>Two 100/1000BaseFX optical SFP ports</li> <li>Two signal strength bar graphs indicating received optical link margin</li> <li>1310 nm wavelength</li> <li>50/125 µm fibre size</li> <li>Rack mountable</li> </ul>	1 each	<ul style="list-style-type: none"> <li><b>Recommended make and models:</b> <ul style="list-style-type: none"> <li>Luxcom</li> <li>OM1006A-0-0-0-0</li> <li>82-230-A</li> <li>LTIPS-56-1.07-U-2</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Fibre Optic Multiplexer – Ethernet Card (Gooseneck Mics at Table)	<ul style="list-style-type: none"> <li>2-slot chassis</li> <li>Extends a 4-port 10BASE-T / 100BASE-TX Ethernet switch over a single pair of fibre</li> <li>Height: 1 RU</li> </ul>	1 each	<ul style="list-style-type: none"> <li><b>Recommended make and models:</b> <ul style="list-style-type: none"> <li>Luxcom</li> <li>OM200-CH2</li> <li>OM200-OCA1-MM-LC-00-R</li> <li>OM200-ETHERNET</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Mount (Host Wall)	<ul style="list-style-type: none"> <li>VisionFrame</li> <li>Ability to support two 98-inch ultra HD displays</li> <li>Freestanding</li> </ul>	See Notes	<ul style="list-style-type: none"> <li><b>Recommended makes and models:</b> <ul style="list-style-type: none"> <li>Middle Atlantic</li> <li>VFMS-F-250836   01 VF (qty 1)</li> <li>VFMS-64x80T (qty 2)</li> <li>PDT-2015C-NS (qty 2)</li> </ul> </li> <li>The Chief XBM1U may be an alternative (subject to material beneath the raised floor)</li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>

Item	Criteria	Quantity	Notes
HD Display (Host Wall)	<ul style="list-style-type: none"> <li>• 98-inch</li> <li>• Aspect ratio: 16:9</li> <li>• 24 x 7 operation</li> <li>• Native resolution: 3,840 x 2,160p</li> <li>• Brightness: 500 cd/m2</li> <li>• Contrast ratio: 1,300:1</li> <li>• Dynamic contrast ratio: 50,000:1</li> <li>• HDMI inputs: 2</li> <li>• DVI-D inputs: 1</li> <li>• Serial: RS-232</li> <li>• Power consumption: 650 W</li> <li>• Bezel width: 32.5 mm</li> <li>• No Bluetooth capability</li> <li>• No wireless capability</li> <li>• No near field communication</li> </ul>	2	<ul style="list-style-type: none"> <li>• <b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>• Panasonic</li> <li>• TH-98LQ70U</li> </ul> </li> <li>• If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Camera	<ul style="list-style-type: none"> <li>• HD SDI video output</li> <li>• RS-232C serial interface</li> <li>• Supports resolutions up to 1,080p</li> <li>• 30x optical zoom</li> <li>• The camera video and audio shall not be recordable at the unit</li> <li>• Black</li> </ul>	3	<ul style="list-style-type: none"> <li>• <b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>• Panasonic</li> <li>• AW-HE40HK-PJ9-NR</li> </ul> </li> <li>• If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>

Item	Criteria	Quantity	Notes
Speaker (Ceiling-mounted)	<ul style="list-style-type: none"> <li>The ceiling mount 2-way co-axial system shall incorporate a 6.5-inch woofer with treated-paper cone and a 19 mm aluminum dome tweeter. The tweeter shall be mounted coaxially in front of the woofer on a waveguide that matches the directivity of the two drivers at the crossover point.</li> <li>The system shall meet the following performance criteria: conical coverage angle of 140 degrees; frequency response of 65 Hz to 20 kHz +0/-10 dB, measured on axis; sensitivity of 87 dB SPL in half space at 1 meter with an input of 4 V rms; maximum continuous output of 106 dB SPL; maximum peak output of 112 dB SPL on axis at 1 meter; power handling of 60 watts for 8 hours with an IEC noise signal; recommended amplifier power of 120 watts; nominal impedance of 16 ohms.</li> <li>The loudspeaker shall have a switchable low-distortion, wide-bandwidth laminated core transformer with taps for 60, 30, 15, and 7.5 watts at 70V and 60, 30, and 15 watts at 100V. The system shall be switchable between 16Ω (bypass) and constant-voltage operation.</li> <li>The loudspeaker shall have a low-profile powder coated steel back can. The baffle and the grille shall have a white paintable finish (RAL 9010) with UV inhibitors to prevent discoloration. The enclosure shall retain the grille magnetically. Any logo on the grille shall be removable without leaving a blemish.</li> </ul>	8	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>QSC</li> <li>AD-C6T-LP</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet and graphical representation of how proposed speakers meet the performance of above ceiling speakers</li> </ul>



Item	Criteria	Quantity	Notes
<p>Speaker (Ceiling-mounted)</p> <p>(CONTINUED)</p>	<ul style="list-style-type: none"> <li>• The loudspeaker shall have a double-stepped long-travel dog-ear blind mounting system that can capture ceiling thicknesses from 0 to 2.25 in. The conduit cover plate shall be removable, retained by a captive Phillips head screw. A mud ring shall be provided to allow pre-installation wiring. The loudspeaker connections shall be a locking 4-pole Euro-block that accepts four 18 AWG wire pairs.</li> <li>• The loudspeaker shall be listed as safe for use in air-handling spaces under UL1480 and UL2043. The loudspeaker shall meet or exceed IP-34 for ingress protection; it shall meet the IEC 60529 IP-X3 splash rating. The switchable transformer shall be listed under UL1876. The baffle shall meet UL94-V0 and UL94-5VB flammability ratings and shall comply with IEC60849/EN60849 safety standards.</li> <li>• The loudspeaker's enclosure shall be 3.95 in (10.0 cm) high and 13.39 in (34.0 cm) in diameter. The loudspeaker shall weigh no more than 9.3 lb (4.2 kg)</li> <li>• The grille shall be white in colour</li> </ul>		

Item	Criteria	Quantity	Notes
System Processor Channel Expander (Conference Room)	<ul style="list-style-type: none"> <li>The networked input / output peripheral shall provide eight software definable channels, each one individually selectable as input or output</li> <li>When set as an input channel, a channel shall provide balanced analog mic/line input level, and phantom power</li> <li>When set as an output channel, a channel shall provide balanced analog line level output</li> <li>The device shall provide up to 8 channels of input and output via USB for integration with soft codec applications</li> <li>The device shall provide control connectivity through GPIO and RS232</li> <li>The device shall provide redundant network connection with PoE+ support</li> </ul>	2	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>QSC</li> <li>Q-SYS I/O-8 Flex</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
HD Display	<ul style="list-style-type: none"> <li>54.6-inch</li> <li>Aspect ratio: 16:9</li> <li>24 x 7 operation</li> <li>Native resolution: 1,920 x 1,080p</li> <li>Brightness: 700 cd/m2</li> <li>Contrast ratio: 1,300:1</li> <li>HDMI inputs: 2</li> <li>DisplayPort input: 1</li> <li>DVI-D input: 1</li> <li>Serial: RS-232</li> <li>Built-in speakers: 10W + 10W</li> <li>Power consumption: 175 W</li> <li>Bezel width: 7.8 mm</li> <li>Fanless architecture</li> <li>Mounting: VESA, 400mm</li> <li>No Bluetooth capability</li> <li>No wireless capability</li> <li>No near field communication</li> </ul>	8	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>Sharp</li> <li>PN-R556</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>

Item	Criteria	Quantity	Notes
Microphone (Table)	<ul style="list-style-type: none"> <li>The microphone shall be an electret condenser 5" gooseneck microphone (12.7 cm) with cardioid polar pattern, black finish, and logic controlled bi-colored status indicator</li> <li>The microphone shall be mounted to a desktop base preamp</li> <li>The microphone shall be resistant to RF interference from portable mobile and handheld devices</li> <li>The frequency response shall be 50 Hz to 17 kHz and the sensitivity shall be 18 mV/Pa</li> </ul>	13	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>Shure</li> <li>MX405/C and MX400DP</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Microphone (Lectern)	<ul style="list-style-type: none"> <li>The microphone shall be an electret condenser 18" gooseneck microphone (45.7 cm) with cardioid polar pattern, black finish, and logic controlled colored status indicator</li> <li>The microphone shall be mounted to a desktop base preamp</li> <li>The microphone shall be resistant to RF interference from portable mobile and handheld devices</li> <li>The frequency response shall be 50 Hz to 17 kHz and the sensitivity shall be 21 mV/Pa</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>Shure</li> <li>MX418D/C</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>

Item	Criteria	Quantity	Notes
Microphone (Ceiling)	<ul style="list-style-type: none"> <li>The ceiling array microphone shall consist of eight highly directional pickup lobes to capture individual talkers and deliver discrete audio signals over a single network cable</li> <li>The microphone shall support 10 total channels (8 independent transmit channels, 1 automatic mixing transmit channel, and 1 echo reduction reference receive channel)</li> <li>The microphone shall provide built-in digital signal processing to deliver steerable coverage, echo reduction, automatic mixing, and equalization</li> <li>Audio routing shall be controlled through a computer on the Dante™ network</li> <li>Browser-based control software shall provide the ability to aim individual lobes based on participant seating, and control digital signal processing from any computer on the network</li> <li>Pickup lobe width shall be selectable, with narrow, medium, and wide settings</li> <li>Mounting options shall include ceiling tile, suspension mounting, and VESA mounting options</li> <li>The microphone dimensions shall be 24" x 24" x 2.23"</li> <li>The microphone shall be white in color</li> <li>The microphone shall be powered over PoE, with power consumption of 9 Watts maximum</li> </ul>	2	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>Shure</li> <li>MXA910W</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Camera Mount	<ul style="list-style-type: none"> <li>Ability to support Panasonic AW-HE40HK-PJ9-NR camera</li> <li>Shelf to be deep enough to accommodate Telegartner STX IP20 connector with shielded CAT 6 cable</li> </ul>	3	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>Vaddio</li> <li>535-2000-243</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>

## MEETING ROOM 1

Item	Criteria	Quantity	Notes
Fibre Optic Receiver (Host Wall)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Models: <ul style="list-style-type: none"> <li>VQM-0HV003-LCRX</li> </ul> </li> </ul> </li> </ul>
Fibre Optic Chassis (Host Wall)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Model: CHS-000001</li> </ul> </li> </ul>
Fibre Optic Transmitter (Operator's Desk)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1 each	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Models: <ul style="list-style-type: none"> <li>VTM-H00004-LCTX</li> <li>VQM-AH0003-LCTX</li> </ul> </li> </ul> </li> </ul>
Fibre Optic Receiver (Operator's Desk)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1 each	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Models: <ul style="list-style-type: none"> <li>VQM-0HV003-LCRX</li> <li>VQM-HAP001-LCRX</li> </ul> </li> </ul> </li> </ul>

Item	Criteria	Quantity	Notes
Fibre Optic Chassis (Operator's Desk)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1 each	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Models: <ul style="list-style-type: none"> <li>VTs-004200</li> <li>CHS-000004</li> </ul> </li> </ul> </li> </ul>
Fibre Optic Receiver (Table)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Model: <ul style="list-style-type: none"> <li>VQM-HAP001-LCRX</li> </ul> </li> </ul> </li> </ul>
Fibre Optic Chassis (Table)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Model: <ul style="list-style-type: none"> <li>CHS-000002</li> </ul> </li> </ul> </li> </ul>
Touch Panel	<ul style="list-style-type: none"> <li>10-inch capacitive multi-touch</li> <li>No camera</li> <li>No microphone</li> <li>No "SMART" buttons</li> <li>No Bluetooth capability</li> <li>No Wireless capability</li> <li>No Near Field Communication</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>AMX</li> <li>MXT-1000-NC</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>

Item	Criteria	Quantity	Notes
VTC Table	<ul style="list-style-type: none"> <li>High pressure laminate panel finish</li> <li>Medium conference table support podium</li> <li>Recessed storage in work surface with lift off cover</li> <li>Conference table work surface with ergonomic soft urethane edge</li> <li>Wire basket tray; 4" (102mm) wide</li> <li>North America power bar with mounting bracket; 120V/15A, 6 outlets, 6' power cord, CSA/UL</li> <li>MHO desktop power unit; (2) RJ-45</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>Evans Consoles</li> <li>CT-MW</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Speaker (Surface mount)	<ul style="list-style-type: none"> <li>6.5" Woofer</li> <li>1" tweeter</li> <li>White</li> <li>Ability to install speaker onto host wall mount</li> </ul>	1 (pair)	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>Extron</li> <li>SM26 (60-1308-03)</li> <li>SMK P SM 26/28 (70-978-03)</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet and graphical representation of how proposed speakers meet the performance of above wall speakers</li> </ul>
Media Converter and Mounting Clip (Touch Panel)	<ul style="list-style-type: none"> <li>Ability to convert 100BaseFX fibre optic signal to 10BaseT or 100BaseTX electrical signal</li> <li>ST connections</li> </ul>	1 each	<ul style="list-style-type: none"> <li><b>Recommended make and models:</b> <ul style="list-style-type: none"> <li>Luxcom</li> <li>OM101-MM-ST</li> <li>MC-OM101</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>

Item	Criteria	Quantity	Notes
Media Converter and Mounting Clip (HD Display)	<ul style="list-style-type: none"> <li>Ability to convert 100BaseFX fibre optic signal to 10BaseT or 100BaseTX electrical signal</li> <li>ST connections</li> </ul>	2 each	<ul style="list-style-type: none"> <li><b>Recommended make and models:</b> <ul style="list-style-type: none"> <li>Luxcom</li> <li>OM101-ST-MM</li> <li>MC-OM101</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Mount (Host Wall)	<ul style="list-style-type: none"> <li>VisionFrame</li> <li>Ability to support two 70-inch HD displays</li> <li>Freestanding</li> </ul>	See Notes	<ul style="list-style-type: none"> <li><b>Recommended makes and models:</b> <ul style="list-style-type: none"> <li>Middle Atlantic</li> <li>VFMS-F-250851   01 VF (qty 1)</li> <li>VFMS-64x80T (qty 2)</li> <li>PDT-2015C-NS (qty 1)</li> </ul> </li> <li>The Chief XBM1U may be an alternative (subject to material beneath the raised floor)</li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Camera	<ul style="list-style-type: none"> <li>HD SDI video output</li> <li>RS-232C serial interface</li> <li>Supports resolutions up to 1,080p</li> <li>30x optical zoom</li> <li>The camera video and audio shall not be recordable at the unit</li> <li>Black</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>Panasonic</li> <li>AW-HE40HK-PJ9-NR</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>



Item	Criteria	Quantity	Notes
HD Display	<ul style="list-style-type: none"> <li>• 69.5-inch</li> <li>• Aspect ratio: 16:9</li> <li>• 24 x 7 operation</li> <li>• Native resolution: 1920 x 1080p</li> <li>• Brightness: 700 cd/m2</li> <li>• Contrast ratio: 5000:1</li> <li>• DisplayPort input: 1</li> <li>• HDMI inputs: 2</li> <li>• DVI-D input: 1</li> <li>• Serial: RS-232</li> <li>• Built-in speakers: 10W + 10W</li> <li>• Power consumption: 230 W</li> <li>• Bezel width: 8 mm (13 mm bottom)</li> <li>• Mounting: VESA, 400mm</li> <li>• Fanless architecture</li> <li>• No Bluetooth capability</li> <li>• No wireless capability</li> <li>• No near field communication</li> </ul>	2	<ul style="list-style-type: none"> <li>• <b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>• Sharp</li> <li>• PN-R706</li> </ul> </li> <li>• If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>

Item	Criteria	Quantity	Notes
Microphone (Ceiling)	<ul style="list-style-type: none"> <li>The ceiling array microphone shall consist of eight highly directional pickup lobes to capture individual talkers and deliver discrete audio signals over a single network cable</li> <li>The microphone shall support 10 total channels (8 independent transmit channels, 1 automatic mixing transmit channel, and 1 echo reduction reference receive channel)</li> <li>The microphone shall provide built-in digital signal processing to deliver steerable coverage, echo reduction, automatic mixing, and equalization</li> <li>Audio routing shall be controlled through a computer on the Dante™ network</li> <li>Browser-based control software shall provide the ability to aim individual lobes based on participant seating, and control digital signal processing from any computer on the network</li> <li>Pickup lobe width shall be selectable, with narrow, medium, and wide settings</li> <li>Mounting options shall include ceiling tile, suspension mounting, and VESA mounting options</li> <li>The microphone dimensions shall be 24" x 24" x 2.23"</li> <li>The microphone shall be white in color</li> <li>The microphone shall be powered over PoE, with power consumption of 9 Watts maximum</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>Shure</li> <li>MXA910W</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Camera Mount	<ul style="list-style-type: none"> <li>Ability to support Panasonic AW-HE40HK-PJ9-NR camera</li> <li>Shelf to be deep enough to accommodate Telegartner STX IP20 connector with shielded CAT 6 cable</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>Vaddio</li> <li>535-2000-243</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>

## SPECIAL PURPOSE SPACE

Item	Criteria	Quantity	Notes
Fibre Optic Transmitter (Cubicles A, B, G, H)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	4 each	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Models: <ul style="list-style-type: none"> <li>VTM-H00004-LCTX</li> <li>VTM-H00024-LCTX</li> <li>VQM-AH0003-LCTX</li> </ul> </li> </ul> </li> </ul>
Fibre Optic Receiver (Cubicles A, B, G, H)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	4 each	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Models: <ul style="list-style-type: none"> <li>VQM-0HV003-LCRX</li> <li>VQM-HAP001-LCRX</li> </ul> </li> </ul> </li> </ul>
Fibre Optic Chassis (Cubicles A, B, G, H)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	4 each	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Models: <ul style="list-style-type: none"> <li>VTM-004200</li> <li>CHS-000004</li> </ul> </li> </ul> </li> </ul>
Fibre Optic Transmitter (Cubicles C, D, E, F)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	4 each	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Models: <ul style="list-style-type: none"> <li>VTM-H00004-LCTX</li> <li>VTM-H00004-LCTX</li> <li>VTM-H00024-LCTX</li> </ul> </li> </ul> </li> </ul>

Item	Criteria	Quantity	Notes
Fibre Optic Receiver (Cubicles C, D, E, F)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	4 each	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Models: <ul style="list-style-type: none"> <li>VQM-0HV003-LCRX</li> <li>VQM-HAP001-LCRX</li> </ul> </li> </ul> </li> </ul>
Fibre Optic Chassis (Cubicles C, D, E, F)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	4 each	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Models: <ul style="list-style-type: none"> <li>VTS-004200</li> <li>CHS-000004</li> </ul> </li> </ul> </li> </ul>
Fibre Optic Transmitter (Office)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1 each	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Models: <ul style="list-style-type: none"> <li>VTM-H00004-LCTX</li> <li>VTM-H00004-LCTX</li> <li>VTM-H00024-LCTX</li> <li>VQM-AH0003-LCTX</li> </ul> </li> </ul> </li> </ul>
Fibre Optic Receiver (Office - Desk)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1 each	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Models: <ul style="list-style-type: none"> <li>VQM-0HV003-LCRX</li> <li>VQM-HAP001-LCRX</li> </ul> </li> </ul> </li> </ul>

Item	Criteria	Quantity	Notes
Fibre Optic Chassis (Office - Desk)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1 each	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Models: <ul style="list-style-type: none"> <li>VTs-004200</li> <li>CHS-000004</li> </ul> </li> </ul> </li> </ul>
Fibre Optic Receiver (Office - TV)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Model: <ul style="list-style-type: none"> <li>VEL-0H0003-LCRX</li> </ul> </li> </ul> </li> </ul>
Fibre Optic Receiver (Host Wall)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	2	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Model: <ul style="list-style-type: none"> <li>VQM-0HV003-LCRX</li> </ul> </li> </ul> </li> </ul>
Fibre Optic Chassis (Host Wall)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	2	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Model: <ul style="list-style-type: none"> <li>CHS-000001</li> </ul> </li> </ul> </li> </ul>

Item	Criteria	Quantity	Notes
Touch Panel (Cubicle A)	<ul style="list-style-type: none"> <li>• 10-inch capacitive multi-touch</li> <li>• No camera</li> <li>• No microphone</li> <li>• No “SMART” buttons</li> <li>• No Bluetooth capability</li> <li>• No Wireless capability</li> <li>• No Near Field Communication</li> </ul>	1	<ul style="list-style-type: none"> <li>• <b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>• AMX</li> <li>• MXT-1000-NC</li> </ul> </li> <li>• If alternate product proposed, please provide manufacturer’s specification sheet</li> </ul>
Touch Panel (Office)	<ul style="list-style-type: none"> <li>• 7-inch capacitive multi-touch</li> <li>• No camera</li> <li>• No microphone</li> <li>• No “SMART” buttons</li> <li>• No Bluetooth capability</li> <li>• No Wireless capability</li> <li>• No Near Field Communication</li> </ul>	1	<ul style="list-style-type: none"> <li>• <b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>• AMX</li> <li>• MXT-700-NC</li> </ul> </li> <li>• If alternate product proposed, please provide manufacturer’s specification sheet</li> </ul>
Mount (Office - TV)	<ul style="list-style-type: none"> <li>• Support displays up to 47 inches</li> <li>• Weight capacity: 125 lbs (57 kg)</li> <li>• VESA compliant 400 x 400 mm mounting pattern</li> </ul>	1	<ul style="list-style-type: none"> <li>• <b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>• Chief</li> <li>• MTM1U</li> </ul> </li> <li>• If alternate product proposed, please provide manufacturer’s specification sheet</li> </ul>
Fibre Optic Multiplexer – Ethernet Card (Host Wall)	<ul style="list-style-type: none"> <li>• 2-slot chassis</li> <li>• Extends a 4-port 10BASE-T / 100BASE-TX Ethernet switch over a single pair of fibre</li> <li>• Height: 1 RU</li> </ul>	1 each	<ul style="list-style-type: none"> <li>• <b>Recommended make and models:</b> <ul style="list-style-type: none"> <li>• Luxcom</li> <li>• OM200-CH2</li> <li>• OM200-OCA1-MM-LC-00-R</li> <li>• OM200-ETHERNET</li> </ul> </li> <li>• If alternate product proposed, please provide manufacturer’s specification sheet</li> </ul>

Item	Criteria	Quantity	Notes
Media Converter and Mounting Clip (Cubicle A – Touch Panel)	<ul style="list-style-type: none"> <li>Ability to convert 100BaseFX fibre optic signal to 10BaseT or 100BaseTX electrical signal</li> <li>ST connections</li> </ul>	1 each	<ul style="list-style-type: none"> <li><b>Recommended make and models:</b> <ul style="list-style-type: none"> <li>Luxcom</li> <li>OM101-MM-ST</li> <li>MC-OM101</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Media Converter and Mounting Clip (Office 1 – Touch Panel)	<ul style="list-style-type: none"> <li>Ability to convert 100BaseFX fibre optic signal to 10BaseT or 100BaseTX electrical signal</li> <li>ST connections</li> </ul>	1 each	<ul style="list-style-type: none"> <li><b>Recommended make and models:</b> <ul style="list-style-type: none"> <li>Luxcom</li> <li>OM101-MM-ST</li> <li>MC-OM101</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Media Converter and Mounting Clip (Office 1 – TV)	<ul style="list-style-type: none"> <li>Ability to convert 100BaseFX fibre optic signal to 10BaseT or 100BaseTX electrical signal</li> <li>ST connections</li> </ul>	1 each	<ul style="list-style-type: none"> <li><b>Recommended make and models:</b> <ul style="list-style-type: none"> <li>Luxcom</li> <li>OM101-MM-ST</li> <li>MC-OM101</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Mount (Host Wall)	<ul style="list-style-type: none"> <li>VisionFrame</li> <li>Ability to support four 70-inch HD displays</li> <li>Freestanding</li> </ul>	See Notes	<ul style="list-style-type: none"> <li><b>Recommended makes and models:</b> <ul style="list-style-type: none"> <li>Middle Atlantic</li> <li>VFMS-F-250863   01 VF (qty 1)</li> <li>VFMS-64x80T (qty 4)</li> <li>PDT-2015C-NS (qty 1)</li> </ul> </li> <li>The Chief XBM1U may be an alternative (subject to material beneath the raised floor)</li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>

Item	Criteria	Quantity	Notes
Speaker (Ceiling-mounted)	<ul style="list-style-type: none"> <li>The ceiling mount 2-way co-axial system shall incorporate a 6.5-inch woofer with treated-paper cone and a 19 mm aluminum dome tweeter. The tweeter shall be mounted coaxially in front of the woofer on a waveguide that matches the directivity of the two drivers at the crossover point.</li> <li>The system shall meet the following performance criteria: conical coverage angle of 140 degrees; frequency response of 65 Hz to 20 kHz +0/-10 dB, measured on axis; sensitivity of 87 dB SPL in half space at 1 meter with an input of 4 V rms; maximum continuous output of 106 dB SPL; maximum peak output of 112 dB SPL on axis at 1 meter; power handling of 60 watts for 8 hours with an IEC noise signal; recommended amplifier power of 120 watts; nominal impedance of 16 ohms.</li> <li>The loudspeaker shall have a switchable low-distortion, wide-bandwidth laminated core transformer with taps for 60, 30, 15, and 7.5 watts at 70V and 60, 30, and 15 watts at 100V. The system shall be switchable between 16Ω (bypass) and constant-voltage operation.</li> <li>The loudspeaker shall have a low-profile powder coated steel back can. The baffle and the grille shall have a white paintable finish (RAL 9010) with UV inhibitors to prevent discoloration. The enclosure shall retain the grille magnetically. Any logo on the grille shall be removable without leaving a blemish.</li> </ul>	4	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>QSC</li> <li>AD-C6T-LP</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet and graphical representation of how proposed speakers meet the performance of above ceiling speakers</li> </ul>



Item	Criteria	Quantity	Notes
<p>Speaker (Ceiling-mounted)</p> <p>(CONTINUED)</p>	<ul style="list-style-type: none"> <li>The loudspeaker shall have a double-stepped long-travel dog-ear blind mounting system that can capture ceiling thicknesses from 0 to 2.25 in. The conduit cover plate shall be removable, retained by a captive Phillips head screw. A mud ring shall be provided to allow pre-installation wiring. The loudspeaker connections shall be a locking 4-pole Euro-block that accepts four 18 AWG wire pairs.</li> <li>The loudspeaker shall be listed as safe for use in air-handling spaces under UL1480 and UL2043. The loudspeaker shall meet or exceed IP-34 for ingress protection; it shall meet the IEC 60529 IP-X3 splash rating. The switchable transformer shall be listed under UL1876. The baffle shall meet UL94-V0 and UL94-5VB flammability ratings and shall comply with IEC60849/EN60849 safety standards.</li> <li>The loudspeaker's enclosure shall be 3.95 in (10.0 cm) high and 13.39 in (34.0 cm) in diameter. The loudspeaker shall weigh no more than 9.3 lb (4.2 kg)</li> <li>The grille shall be white in colour</li> </ul>		

Item	Criteria	Quantity	Notes
HD Display (Wall of Knowledge)	<ul style="list-style-type: none"> <li>• 69.5-inch</li> <li>• Aspect ratio: 16:9</li> <li>• 24 x 7 operation</li> <li>• Native resolution: 1920 x 1080p</li> <li>• Brightness: 700 cd/m2</li> <li>• Contrast ratio: 5000:1</li> <li>• DisplayPort input: 1</li> <li>• HDMI inputs: 2</li> <li>• DVI-D input: 1</li> <li>• Serial: RS-232</li> <li>• Built-in speakers: 10W + 10W</li> <li>• Power consumption: 230 W</li> <li>• Bezel width: 8 mm (13 mm bottom)</li> <li>• Mounting: VESA, 400mm</li> <li>• Fanless architecture</li> <li>• No Bluetooth capability</li> <li>• No wireless capability</li> <li>• No near field communication</li> </ul>	4	<ul style="list-style-type: none"> <li>• <b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>• Sharp</li> <li>• PN-R706</li> </ul> </li> <li>• If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
HD Display (Office - TV)	<ul style="list-style-type: none"> <li>• 41.9-inch</li> <li>• Aspect ratio: 16:9</li> <li>• 24 x 7 operation</li> <li>• Native resolution: 1920 x 1080p</li> <li>• Brightness: 700 cd/m2</li> <li>• Contrast ratio: 1300:1</li> <li>• HDMI inputs: 2</li> <li>• DisplayPort input: 1</li> <li>• DVI-D input: 1</li> <li>• Serial: RS-232</li> <li>• Built-in speakers: 10W + 10W</li> <li>• Power consumption: 135 W</li> <li>• Bezel width: 7.8 mm</li> <li>• Fanless architecture</li> <li>• Mounting: VESA, 400mm</li> <li>• No Bluetooth capability</li> <li>• No wireless capability</li> <li>• No near field communication</li> </ul>	1	<ul style="list-style-type: none"> <li>• <b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>• Sharp</li> <li>• PN-R426</li> </ul> </li> <li>• If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>

## ZONE 1

Item	Criteria	Quantity	Notes
Fibre Optic Transmitter (Cubicle A)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1 each	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Models: <ul style="list-style-type: none"> <li>VTM-H00004-LCTX</li> <li>VTM-H00004-LCTX</li> <li>VTM-H00024-LCTX</li> <li>VQM-AH0003-LCTX</li> </ul> </li> </ul> </li> </ul>
Fibre Optic Receiver (Cubicle A)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1 each	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Models: <ul style="list-style-type: none"> <li>VQM-0HV003-LCRX</li> <li>VQM-HAP001-LCRX</li> </ul> </li> </ul> </li> </ul>
Fibre Optic Chassis (Cubicle A)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1 each	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Models: <ul style="list-style-type: none"> <li>VTM-004200</li> <li>CHS-000004</li> </ul> </li> </ul> </li> </ul>
Fibre Optic Transmitter (Office 1)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1 each	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Models: <ul style="list-style-type: none"> <li>VTM-H00004-LCTX</li> <li>VTM-H00004-LCTX</li> <li>VTM-H00024-LCTX</li> <li>VQM-AH0003-LCTX</li> </ul> </li> </ul> </li> </ul>

Item	Criteria	Quantity	Notes
Fibre Optic Receiver (Office 1)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1 each	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Models: <ul style="list-style-type: none"> <li>VQM-0HV003-LCRX</li> <li>VQM-HAP001-LCRX</li> </ul> </li> </ul> </li> </ul>
Fibre Optic Chassis (Office 1)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1 each	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Models: <ul style="list-style-type: none"> <li>VTS-004200</li> <li>CHS-000004</li> </ul> </li> </ul> </li> </ul>
Fibre Optic Receiver (Offices)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	4	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Model: <ul style="list-style-type: none"> <li>VEL-0H0003-LCRX</li> </ul> </li> </ul> </li> </ul>
Fibre Optic Receiver (Collaboration Areas)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	2	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Model: <ul style="list-style-type: none"> <li>VEL-0H0003-LCRX</li> </ul> </li> </ul> </li> </ul>

Item	Criteria	Quantity	Notes
Touch Panel (Cubicle A)	<ul style="list-style-type: none"> <li>• 7-inch capacitive multi-touch</li> <li>• No camera</li> <li>• No microphone</li> <li>• No “SMART” buttons</li> <li>• No Bluetooth capability</li> <li>• No Wireless capability</li> <li>• No Near Field Communication</li> </ul>	1	<ul style="list-style-type: none"> <li>• <b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>• AMX</li> <li>• MXT-700-NC</li> </ul> </li> <li>• If alternate product proposed, please provide manufacturer’s specification sheet</li> </ul>
Touch Panel (Office 1)	<ul style="list-style-type: none"> <li>• 7-inch capacitive multi-touch</li> <li>• No camera</li> <li>• No microphone</li> <li>• No “SMART” buttons</li> <li>• No Bluetooth capability</li> <li>• No Wireless capability</li> <li>• No Near Field Communication</li> </ul>	1	<ul style="list-style-type: none"> <li>• <b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>• AMX</li> <li>• MXT-700-NC</li> </ul> </li> <li>• If alternate product proposed, please provide manufacturer’s specification sheet</li> </ul>
Mount (Offices)	<ul style="list-style-type: none"> <li>• Support displays up to 47 inches</li> <li>• Weight capacity: 125 lbs (57 kg)</li> <li>• VESA compliant 400 x 400 mm mounting pattern</li> </ul>	4	<ul style="list-style-type: none"> <li>• <b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>• Chief</li> <li>• MTM1U</li> </ul> </li> <li>• If alternate product proposed, please provide manufacturer’s specification sheet</li> </ul>
Mount (Collaboration Areas)	<ul style="list-style-type: none"> <li>• Support displays up to 63 inches</li> <li>• Weight capacity: 200 lbs (91 kg)</li> <li>• VESA compliant 400 x 400 mm mounting pattern</li> </ul>	2	<ul style="list-style-type: none"> <li>• <b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>• Chief</li> <li>• LSM1U</li> </ul> </li> <li>• If alternate product proposed, please provide manufacturer’s specification sheet</li> </ul>
Media Converter and Mounting Clip (Cubicle A – Touch Panel)	<ul style="list-style-type: none"> <li>• Ability to convert 100BaseFX fibre optic signal to 10BaseT or 100BaseTX electrical signal</li> <li>• ST connections</li> </ul>	1 each	<ul style="list-style-type: none"> <li>• <b>Recommended make and models:</b> <ul style="list-style-type: none"> <li>• Luxcom</li> <li>• OM101-MM-ST</li> <li>• MC-OM101</li> </ul> </li> <li>• If alternate product proposed, please provide manufacturer’s specification sheet</li> </ul>

Item	Criteria	Quantity	Notes
Media Converter and Mounting Clip (Office 1 – Touch Panel)	<ul style="list-style-type: none"> <li>Ability to convert 100BaseFX fibre optic signal to 10BaseT or 100BaseTX electrical signal</li> <li>ST connections</li> </ul>	1 each	<ul style="list-style-type: none"> <li><b>Recommended make and models:</b> <ul style="list-style-type: none"> <li>Luxcom</li> <li>OM101-MM-ST</li> <li>MC-OM101</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Media Converter and Mounting Clip (Offices and Collaboration Areas)	<ul style="list-style-type: none"> <li>Ability to convert 100BaseFX fibre optic signal to 10BaseT or 100BaseTX electrical signal</li> <li>ST connections</li> </ul>	6 each	<ul style="list-style-type: none"> <li><b>Recommended make and models:</b> <ul style="list-style-type: none"> <li>Luxcom</li> <li>OM101-MM-ST</li> <li>MC-OM101</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
HD Display (Offices)	<ul style="list-style-type: none"> <li>41.9-inch</li> <li>Aspect ratio: 16:9</li> <li>24 x 7 operation</li> <li>Native resolution: 1920 x 1080p</li> <li>Brightness: 700 cd/m2</li> <li>Contrast ratio: 1300:1</li> <li>HDMI inputs: 2</li> <li>DisplayPort input: 1</li> <li>DVI-D input: 1</li> <li>Serial: RS-232</li> <li>Built-in speakers: 10W + 10W</li> <li>Power consumption: 135 W</li> <li>Bezel width: 7.8 mm</li> <li>Fanless architecture</li> <li>Mounting: VESA, 400mm</li> <li>No Bluetooth capability</li> <li>No wireless capability</li> <li>No near field communication</li> </ul>	4	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>Sharp</li> <li>PN-R426</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>

Item	Criteria	Quantity	Notes
HD Display (Collaboration Areas)	<ul style="list-style-type: none"> <li>• 48.5-inch</li> <li>• Aspect ratio: 16:9</li> <li>• 24 x 7 operation</li> <li>• Native resolution: 1920 x 1080p</li> <li>• Brightness: 700 cd/m2</li> <li>• Contrast ratio: 1300:1</li> <li>• HDMI inputs: 2</li> <li>• DisplayPort input: 1</li> <li>• DVI-D input: 1</li> <li>• Serial: RS-232</li> <li>• Built-in speakers: 10W + 10W</li> <li>• Power consumption: 155 W</li> <li>• Bezel width: 7.8 mm</li> <li>• Fanless architecture</li> <li>• Mounting: VESA, 400mm</li> <li>• No Bluetooth capability</li> <li>• No wireless capability</li> <li>• No near field communication</li> </ul>	2	<ul style="list-style-type: none"> <li>• <b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>• Sharp</li> <li>• PN-R496</li> </ul> </li> <li>• If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>

## ZONE 2

Item	Criteria	Quantity	Notes
Fibre Optic Transmitter (Cubicle A)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1 each	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Models: <ul style="list-style-type: none"> <li>VTM-H00004-LCTX</li> <li>VTM-H00024-LCTX</li> <li>VQM-AH0003-LCTX</li> </ul> </li> </ul> </li> </ul>
Fibre Optic Receiver (Cubicle A)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1 each	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Models: <ul style="list-style-type: none"> <li>VQM-0HV003-LCRX</li> <li>VQM-HAP001-LCRX</li> </ul> </li> </ul> </li> </ul>
Fibre Optic Chassis (Cubicle A)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1 each	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Models: <ul style="list-style-type: none"> <li>VTM-004200</li> <li>CHS-000004</li> </ul> </li> </ul> </li> </ul>
Fibre Optic Transmitter (Office 1)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1 each	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Models: <ul style="list-style-type: none"> <li>VTM-H00004-LCTX</li> <li>VTM-H00024-LCTX</li> <li>VQM-AH0003-LCTX</li> </ul> </li> </ul> </li> </ul>



Item	Criteria	Quantity	Notes
Fibre Optic Receiver (Office 1)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1 each	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Models: <ul style="list-style-type: none"> <li>VQM-0HV003-LCRX</li> <li>VQM-HAP001-LCRX</li> </ul> </li> </ul> </li> </ul>
Fibre Optic Chassis (Office 1)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1 each	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Models: <ul style="list-style-type: none"> <li>VTS-004200</li> <li>CHS-000004</li> </ul> </li> </ul> </li> </ul>
Fibre Optic Receiver (Offices)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	2	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Model: <ul style="list-style-type: none"> <li>VEL-0H0003-LCRX</li> </ul> </li> </ul> </li> </ul>
Fibre Optic Receiver (Collaboration Areas)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	2	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Model: <ul style="list-style-type: none"> <li>VEL-0H0003-LCRX</li> </ul> </li> </ul> </li> </ul>

Item	Criteria	Quantity	Notes
Touch Panel (Cubicle A)	<ul style="list-style-type: none"> <li>• 7-inch capacitive multi-touch</li> <li>• No camera</li> <li>• No microphone</li> <li>• No “SMART” buttons</li> <li>• No Bluetooth capability</li> <li>• No Wireless capability</li> <li>• No Near Field Communication</li> </ul>	1	<ul style="list-style-type: none"> <li>• <b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>• AMX</li> <li>• MXT-700-NC</li> </ul> </li> <li>• If alternate product proposed, please provide manufacturer’s specification sheet</li> </ul>
Touch Panel (Office 1)	<ul style="list-style-type: none"> <li>• 7-inch capacitive multi-touch</li> <li>• No camera</li> <li>• No microphone</li> <li>• No “SMART” buttons</li> <li>• No Bluetooth capability</li> <li>• No Wireless capability</li> <li>• No Near Field Communication</li> </ul>	1	<ul style="list-style-type: none"> <li>• <b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>• AMX</li> <li>• MXT-700-NC</li> </ul> </li> <li>• If alternate product proposed, please provide manufacturer’s specification sheet</li> </ul>
Mount (Offices)	<ul style="list-style-type: none"> <li>• Support displays up to 47 inches</li> <li>• Weight capacity: 125 lbs (57 kg)</li> <li>• VESA compliant 400 x 400 mm mounting pattern</li> </ul>	2	<ul style="list-style-type: none"> <li>• <b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>• Chief</li> <li>• MTM1U</li> </ul> </li> <li>• If alternate product proposed, please provide manufacturer’s specification sheet</li> </ul>
Mount (Collaborative Areas)	<ul style="list-style-type: none"> <li>• Support displays up to 63 inches</li> <li>• Weight capacity: 200 lbs (91 kg)</li> <li>• VESA compliant 400 x 400 mm mounting pattern</li> </ul>	2	<ul style="list-style-type: none"> <li>• <b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>• Chief</li> <li>• LSM1U</li> </ul> </li> <li>• If alternate product proposed, please provide manufacturer’s specification sheet</li> </ul>
Media Converter and Mounting Clip (Cubicle A – Touch Panel)	<ul style="list-style-type: none"> <li>• Ability to convert 100BaseFX fibre optic signal to 10BaseT or 100BaseTX electrical signal</li> <li>• ST connections</li> </ul>	1 each	<ul style="list-style-type: none"> <li>• <b>Recommended make and models:</b> <ul style="list-style-type: none"> <li>• Luxcom</li> <li>• OM101-MM-ST</li> <li>• MC-OM101</li> </ul> </li> <li>• If alternate product proposed, please provide manufacturer’s specification sheet</li> </ul>

Item	Criteria	Quantity	Notes
Media Converter and Mounting Clip (Office 1 – Touch Panel)	<ul style="list-style-type: none"> <li>Ability to convert 100BaseFX fibre optic signal to 10BaseT or 100BaseTX electrical signal</li> <li>ST connections</li> </ul>	1 each	<ul style="list-style-type: none"> <li><b>Recommended make and models:</b> <ul style="list-style-type: none"> <li>Luxcom</li> <li>OM101-MM-ST</li> <li>MC-OM101</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Media Converter and Mounting Clip (Offices and Collaboration Areas)	<ul style="list-style-type: none"> <li>Ability to convert 100BaseFX fibre optic signal to 10BaseT or 100BaseTX electrical signal</li> <li>ST connections</li> </ul>	4 each	<ul style="list-style-type: none"> <li><b>Recommended make and models:</b> <ul style="list-style-type: none"> <li>Luxcom</li> <li>OM101-MM-ST</li> <li>MC-OM101</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
HD Display (Offices)	<ul style="list-style-type: none"> <li>41.9-inch</li> <li>Aspect ratio: 16:9</li> <li>24 x 7 operation</li> <li>Native resolution: 1920 x 1080p</li> <li>Brightness: 700 cd/m2</li> <li>Contrast ratio: 1300:1</li> <li>HDMI inputs: 2</li> <li>DisplayPort input: 1</li> <li>DVI-D input: 1</li> <li>Serial: RS-232</li> <li>Built-in speakers: 10W + 10W</li> <li>Power consumption: 135 W</li> <li>Bezel width: 7.8 mm</li> <li>Fanless architecture</li> <li>Mounting: VESA, 400mm</li> <li>No Bluetooth capability</li> <li>No wireless capability</li> <li>No near field communication</li> </ul>	2	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>Sharp</li> <li>PN-R426</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>

Item	Criteria	Quantity	Notes
HD Display (Collaboration Areas)	<ul style="list-style-type: none"> <li>• 48.5-inch</li> <li>• Aspect ratio: 16:9</li> <li>• 24 x 7 operation</li> <li>• Native resolution: 1920 x 1080p</li> <li>• Brightness: 700 cd/m2</li> <li>• Contrast ratio: 1300:1</li> <li>• HDMI inputs: 2</li> <li>• DisplayPort input: 1</li> <li>• DVI-D input: 1</li> <li>• Serial: RS-232</li> <li>• Built-in speakers: 10W + 10W</li> <li>• Power consumption: 155 W</li> <li>• Bezel width: 7.8 mm</li> <li>• Fanless architecture</li> <li>• Mounting: VESA, 400mm</li> <li>• No Bluetooth capability</li> <li>• No wireless capability</li> <li>• No near field communication</li> </ul>	2	<ul style="list-style-type: none"> <li>• <b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>• Sharp</li> <li>• PN-R496</li> </ul> </li> <li>• If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>

### ZONE 3

Item	Criteria	Quantity	Notes
Fibre Optic Transmitter (Cubicle A)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1 each	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Models: <ul style="list-style-type: none"> <li>VTM-H00004-LCTX</li> <li>VTM-H00024-LCTX</li> <li>VQM-AH0003-LCTX</li> </ul> </li> </ul> </li> </ul>
Fibre Optic Receiver (Cubicle A)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1 each	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Models: <ul style="list-style-type: none"> <li>VQM-0HV003-LCRX</li> <li>VQM-HAP001-LCRX</li> </ul> </li> </ul> </li> </ul>
Fibre Optic Chassis (Cubicle A)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1 each	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Models: <ul style="list-style-type: none"> <li>VTM-004200</li> <li>CHS-000004</li> </ul> </li> </ul> </li> </ul>
Fibre Optic Receiver (Collaboration Areas)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	2	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Model: <ul style="list-style-type: none"> <li>VEL-0H0003-LCRX</li> </ul> </li> </ul> </li> </ul>

Item	Criteria	Quantity	Notes
Touch Panel (Cubicle A)	<ul style="list-style-type: none"> <li>• 7-inch capacitive multi-touch</li> <li>• No camera</li> <li>• No microphone</li> <li>• No “SMART” buttons</li> <li>• No Bluetooth capability</li> <li>• No Wireless capability</li> <li>• No Near Field Communication</li> </ul>	1	<ul style="list-style-type: none"> <li>• <b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>• AMX</li> <li>• MXT-700-NC</li> </ul> </li> <li>• If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Mount (Collaborative Areas)	<ul style="list-style-type: none"> <li>• Support displays up to 63 inches</li> <li>• Weight capacity: 200 lbs (91 kg)</li> <li>• VESA compliant 400 x 400 mm mounting pattern</li> </ul>	2	<ul style="list-style-type: none"> <li>• <b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>• Chief</li> <li>• LSM1U</li> </ul> </li> <li>• If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Media Converter and Mounting Clip (Cubicle A – Touch Panel)	<ul style="list-style-type: none"> <li>• Ability to convert 100BaseFX fibre optic signal to 10BaseT or 100BaseTX electrical signal</li> <li>• ST connections</li> </ul>	1 each	<ul style="list-style-type: none"> <li>• <b>Recommended make and models:</b> <ul style="list-style-type: none"> <li>• Luxcom</li> <li>• OM101-MM-ST</li> <li>• MC-OM101</li> </ul> </li> <li>• If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Media Converter and Mounting Clip (Collaboration Areas)	<ul style="list-style-type: none"> <li>• Ability to convert 100BaseFX fibre optic signal to 10BaseT or 100BaseTX electrical signal</li> <li>• ST connections</li> </ul>	2 each	<ul style="list-style-type: none"> <li>• <b>Recommended make and models:</b> <ul style="list-style-type: none"> <li>• Luxcom</li> <li>• OM101-MM-ST</li> <li>• MC-OM101</li> </ul> </li> <li>• If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>

Item	Criteria	Quantity	Notes
HD Display (Collaboration Areas)	<ul style="list-style-type: none"> <li>• 48.5-inch</li> <li>• Aspect ratio: 16:9</li> <li>• 24 x 7 operation</li> <li>• Native resolution: 1920 x 1080p</li> <li>• Brightness: 700 cd/m2</li> <li>• Contrast ratio: 1300:1</li> <li>• HDMI inputs: 2</li> <li>• DisplayPort input: 1</li> <li>• DVI-D input: 1</li> <li>• Serial: RS-232</li> <li>• Built-in speakers: 10W + 10W</li> <li>• Power consumption: 155 W</li> <li>• Bezel width: 7.8 mm</li> <li>• Fanless architecture</li> <li>• Mounting: VESA, 400mm</li> <li>• No Bluetooth capability</li> <li>• No wireless capability</li> <li>• No near field communication</li> </ul>	2	<ul style="list-style-type: none"> <li>• <b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>• Sharp</li> <li>• PN-R496</li> </ul> </li> <li>• If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>

## EXTERNAL FEEDS

Item	Criteria	Quantity	Notes
Fibre Optic Transmitter (PC Sources)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	2	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Models:</li> <li>VQM-AH0003-LCTX</li> </ul> </li> </ul>
Fibre Optic Chassis (PC Sources)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Model:</li> <li>CHS-000004</li> </ul> </li> </ul>
Fibre Optic Transmitter (IPTV)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	12	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Model:</li> <li>VQM-AHR003-LCTX</li> </ul> </li> </ul>
Fibre Optic Chassis (IPTV)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	3	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Model:</li> <li>CHS-000004</li> </ul> </li> </ul>



Item	Criteria	Quantity	Notes
Fibre Optic Transmitter (Security Camera)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Model:</li> <li>VQM-0H0003-LCTX</li> </ul> </li> </ul>
Fibre Optic Chassis (Security Camera)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Model:</li> <li>CHS-000004</li> </ul> </li> </ul>
Universal Rack Shelf	<ul style="list-style-type: none"> <li>Ability to hold HD Video Decoder and PoE+ Injector</li> <li>Includes one eight, one quarter and one half false faceplates</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>Extron</li> <li>RSU 129</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
PoE+ Injector (Security Camera)	<ul style="list-style-type: none"> <li>802.3af/at compliant</li> <li>Delivers up to 30 Watts of power</li> <li>Gigabit Speeds (10/100/1000)</li> <li>Built in power supply</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>Luxul</li> <li>XPE-2500</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>

Item	Criteria	Quantity	Notes
H.265 Network Camera (Security Camera)	<ul style="list-style-type: none"> <li>• Extreme Super Dynamic technologies deliver 144 dB wide dynamic range</li> <li>• Intelligent Auto (iA) feature provides increased discernibility even in environments with poor visibility</li> <li>• High sensitivity with Day/Night function : 0.012 lx (Color), 0.006 lx (B/W) at F1.6</li> <li>• H.265 compression and Smart coding technology realize high image quality streaming at low bit rates</li> <li>• Intelligent Face Compression provides high picture quality at "Face best shot area" while reducing other non-important areas to save the network bandwidth and the disk space of recorder</li> <li>• Encryption and alteration detection functions enhanced the security.</li> </ul>	1	<ul style="list-style-type: none"> <li>• <b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>• Panasonic</li> <li>• WV-S2131L</li> </ul> </li> <li>• If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
HD Video Decoder (Security Camera)	<ul style="list-style-type: none"> <li>• Up to 256 cameras, including cameras connected to the i-Pro Network Video Encoder (WJ-NT304/WJ-NT314), can be registered</li> <li>• HDMI interface supporting 1,920 x 1,080 display size Each of VGA images can be displayed at 30 or 25 frames/sec. (NTSC/PAL)</li> <li>• Superior reliability and installation flexibility with an embedded OS and -10 to 50 °C operating temperature range</li> </ul>	1	<ul style="list-style-type: none"> <li>• <b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>• Panasonic</li> <li>• WJ-GXD400</li> </ul> </li> <li>• If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Set-Top Box	<ul style="list-style-type: none"> <li>• Not applicable</li> </ul>	12	<ul style="list-style-type: none"> <li>• <b>Government Furnished Equipment (GFE)</b> <ul style="list-style-type: none"> <li>• Make: Amino</li> <li>• Model: A140</li> </ul> </li> </ul>

### EQT\_5-7 (Racks 1 thru 3)

Item	Criteria	Quantity	Notes
CODEC	<ul style="list-style-type: none"> <li>CODEC #1: The Zone 4 organization has tested and approved the proposed CODEC to operate on the NET 4 network and has extensive training and the required certification to support the product.</li> <li>CODEC #2: The proposed CODEC is on the list of approved equipment to operate on NET 67.</li> </ul>	2	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b></li> <li>Make: Cisco</li> <li>Model: CTS-SX80-K9</li> <li>Includes SX80 CODEC, rack ears, and power cable</li> </ul>
Fibre Optic Transmitter (Camera and Logo Generator)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b></li> <li>Make: Thinklogical</li> <li>Model: VQM-0HV003-LCTX</li> </ul>
Fibre Optic Chassis (Camera and Logo Generator)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b></li> <li>Make: Thinklogical</li> <li>Model: CHS-000004</li> </ul>
Fibre Optic Transmitter (CODEC)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	2 each	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b></li> <li>Make: Thinklogical</li> <li>Models: VQM-0HV003-LCTX, VQM-HA0006-LCTX</li> </ul>

Item	Criteria	Quantity	Notes
Fibre Optic Receiver (CODEC)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	2 each	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Models: <ul style="list-style-type: none"> <li>VQM-0HV003-LCRX</li> <li>VQM-HA0006-LCRX</li> </ul> </li> </ul> </li> </ul>
Fibre Optic Chassis (CODEC)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	2	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Model: <ul style="list-style-type: none"> <li>CHS-000004</li> </ul> </li> </ul> </li> </ul>
Fibre Optic Matrix Switch (Chassis)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Model: <ul style="list-style-type: none"> <li>TLX-MSC-000080</li> </ul> </li> </ul> </li> </ul>
Fibre Optic Matrix Switch (Cards)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	12	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Model: <ul style="list-style-type: none"> <li>TLX-MSD-M00005</li> </ul> </li> </ul> </li> </ul>

Item	Criteria	Quantity	Notes
Fibre Optic Matrix Switch (Controller Card)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Model:</li> <li>TLX-MSM-C00080</li> </ul> </li> </ul>
SMP Appliance	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Model:</li> <li>SMP-A000080</li> </ul> </li> </ul>
SMP Client Module	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Model:</li> <li>SMP-C000001</li> </ul> </li> </ul>
Fibre Optic Chassis (SMP Client Module)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Model:</li> <li>CHS-000004</li> </ul> </li> </ul>

Item	Criteria	Quantity	Notes
Fibre Optic Matrix Switch (9-inch Touch Panel)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Model:</li> <li>VXM-000016</li> </ul> </li> </ul>
Fibre Optic Receiver (Breakout Audio)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Model:</li> <li>VQM-HA0006-LCRX</li> </ul> </li> </ul>
Fibre Optic Chassis (Breakout Audio)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Model:</li> <li>CHS-000004</li> </ul> </li> </ul>
Integrated Controller	<ul style="list-style-type: none"> <li>Eight RS-232 ports</li> <li>Eight relay ports</li> <li>Eight IR ports</li> <li>LAN port to connect to AV network</li> <li>Four port switch to extend network over a secure isolated Ethernet network</li> <li>Ability to communicate to other integrated controllers throughout the SJS facility</li> <li>PoE Power Output = 70W</li> <li>Height: 1 RU</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>AMX</li> <li>NX-4200</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>

Item	Criteria	Quantity	Notes
Power Controller (NET 4 VTC)	<ul style="list-style-type: none"> <li>Ability to provide one switched outlet for 120 VAC power control with up to 1200 W of equipment power</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>AMX</li> <li>PC1</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Power Controller Mounting Panel (NET 4 VTC)	<ul style="list-style-type: none"> <li>Ability to hold up to three power controllers</li> <li>Height: 1 RU</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>AMX</li> <li>AC-RK</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Power Controller (NET 67 VTC)	<ul style="list-style-type: none"> <li>Ability to provide one switched outlet for 120 VAC power control with up to 1200 W of equipment power</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>AMX</li> <li>PC1</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Power Controller Mounting Panel (NET 67 VTC)	<ul style="list-style-type: none"> <li>Ability to hold up to three power controllers</li> <li>Height: 1 RU</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>AMX</li> <li>AC-RK</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
3G-SDI to HDMI Converter	<ul style="list-style-type: none"> <li>Accepts 3G-SDI, HD-SDI and SDI signals up to 2.97 Gbps</li> <li>3G-SDI, HD-SDI and SDI to HDMI video scaling</li> <li>Height: 1 RU</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>Extron</li> <li>DSC 3G-HD A</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>

Item	Criteria	Quantity	Notes
Universal Rack Shelf	<ul style="list-style-type: none"> <li>• 3G-SDI to HDMI converter to mount to the underside of rack shelf</li> <li>• Includes one eight, one quarter and one half false faceplates</li> </ul>	1	<ul style="list-style-type: none"> <li>• <b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>• Extron</li> <li>• RSU 129</li> </ul> </li> <li>• If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Media Converter (NET 4 VTC)	<ul style="list-style-type: none"> <li>• One 10/100/1000BaseT electrical port</li> <li>• One 100/1000BaseX optical SFP port</li> <li>• Signal strength bar graph indicating received optical power</li> <li>• 1310 nm wavelength</li> <li>• 50/125 µm fibre size</li> <li>• Rack mountable</li> </ul>	1	<ul style="list-style-type: none"> <li>• <b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>• Luxcom</li> <li>• OM1001J-1000-LX</li> </ul> </li> <li>• If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Media Converter Mounting Panel (NET 4 VTC)	<ul style="list-style-type: none"> <li>• Ability to hold up to three media converters</li> <li>• Height: 1 RU</li> </ul>	1	<ul style="list-style-type: none"> <li>• <b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>• Luxcom</li> <li>• MP05</li> </ul> </li> <li>• If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Media Converter (NET 67 VTC)	<ul style="list-style-type: none"> <li>• One 10/100/1000BaseT electrical port</li> <li>• One 100/1000BaseX optical SFP port</li> <li>• Signal strength bar graph indicating received optical power</li> <li>• 1310 nm wavelength</li> <li>• 50/125 µm fibre size</li> <li>• Rack mountable</li> </ul>	1	<ul style="list-style-type: none"> <li>• <b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>• Luxcom</li> <li>• OM1001J-1000-LX</li> </ul> </li> <li>• If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>



Item	Criteria	Quantity	Notes
Media Converter Mounting Panel (NET 67 VTC)	<ul style="list-style-type: none"> <li>Ability to hold up to three media converters</li> <li>Height: 1 RU</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>Luxcom</li> <li>MP05</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Fibre Optic Serial Data Modem	<ul style="list-style-type: none"> <li>Ability to isolate and extend RS-232 signalling</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>Luxcom</li> <li>OM10C-DTE-MM-ST</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Fibre Optic Serial Data Modem Mounting Panel	<ul style="list-style-type: none"> <li>Ability to hold up to six fibre optic serial data modems</li> <li>Height: 1 RU</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>Luxcom</li> <li>MP-3</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
23-port Optical Electrical Switch	<ul style="list-style-type: none"> <li>Three 10/100/1000BaseT electrical ports</li> <li>18 100BaseFX optical ports</li> <li>Two 1000BaseFX optical ports</li> <li>1310 nm wavelength</li> <li>50/125 µm fibre size</li> <li>Rack mountable</li> <li>Height: 1 RU</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>Luxcom</li> <li>OM124</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Small Form-factor Pluggable (SFP) Transceiver	<ul style="list-style-type: none"> <li>1310 nm wavelength</li> <li>50/125 µm fibre size</li> <li>LC connectors</li> </ul>	10	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>Luxcom</li> <li>SFP-100-FX</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>

Item	Criteria	Quantity	Notes
AV Switch	<ul style="list-style-type: none"> <li>• Rear panel ports</li> <li>• Front facing LED lights</li> <li>• Eight PoE+ ports</li> <li>• PoE Power Output: 130W</li> <li>• Two Gigabit RJ-45</li> <li>• Two Gigabit SFP</li> </ul>	1	<ul style="list-style-type: none"> <li>• <b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>• Luxul</li> <li>• AMS-1208P</li> </ul> </li> <li>• If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Rackmount Console	<ul style="list-style-type: none"> <li>• 19-inch rackmount LCD monitor, keyboard and integrated touchpad</li> <li>• Screen size: 17.3-inch</li> <li>• Native screen resolution: 1,920 x 1,080p</li> <li>• 16:9 aspect ratio</li> <li>• 1 x HDMI female</li> <li>• 1 x DVI-D female</li> <li>• Height: 1 RU</li> </ul>	1	<ul style="list-style-type: none"> <li>• <b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>• Middle Atlantic</li> <li>• RM-KB-LCD17HD</li> </ul> </li> <li>• If alternate product proposed, please provide manufacturer's specification sheet</li> <li>• DND will supply a rack-mounted NET 3 PC</li> </ul>

Item	Criteria	Quantity	Notes
Power Amplifier (Meeting Room 2)	<ul style="list-style-type: none"> <li>The power amplifier shall be a four-channel network-processing amplifier</li> <li>The power amplifier section shall consist of four amplifier channels, fed by digital audio streams over the network</li> <li>Total power provided shall be of up to 1600 W (continuous) and shall utilize a method to distribute that power across one, two, three, or all four channels</li> <li>An independent input section shall provide four inputs to the system</li> <li>The power amplifier section shall combine a class-D power amplifier with a custom power stage</li> <li>The amplifier front panel shall also include input and output LED metering, a 400 x 240 TFT color display, navigation buttons, an LED power button/indicator, a fault indicator, control knob, and cast aluminum handles</li> <li>The amplifier back panel shall provide a dual RJ-45 jack for connection to the system network, enabling integration into the processing system for bi-directional passage of digital audio, control signals, and status monitoring data</li> <li>The back panel shall also provide four analog audio mic/line inputs with phantom power, using 3-pin phoenix connectors that are routed to the central system processor via the network</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>QSC</li> <li>CXD4.2Q</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>

Item	Criteria	Quantity	Notes
System Processor (Meeting Room 2)	<ul style="list-style-type: none"> <li>The audio, video and control system processor shall be an Intel based centralized processor and control engine. It shall be a single-chassis processor with no internal or external audio busses to other processors. The system shall operate on a native gigabit Ethernet, employs DiffServ quality of service, IEEE 1588 time reference, UDP/IP data transport, and floating point format audio data representation. The overall system latency from analog input to synchronized analog outputs shall be 2.5 microseconds or less. For routed networks, the end to end system latency shall be 3.2 microseconds or less.</li> <li>The system shall have the capability of being completely redundant. The processor shall be able to support a second synchronized backup processor with complete automatic failover in ten seconds or less. Each processor and I/O peripheral shall have redundant network connections for seamless audio stream failover.</li> <li>The system processor shall have a minimum network channel capability of 128 channels inputs an, an end node capacity of 128 channels, and 24 total on-board channels of 32-bit (internal processing) audio. I/O capacity shall be 8 input channels, 8 output channels, and 8 channels that can be individually selected as input or output.</li> <li>The system processor shall provide a single POTS telephone line connection</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>QSC</li> <li>Q-SYS Core-110F</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>

Item	Criteria	Quantity	Notes
System Processor (Meeting Room 2)  (CONTINUED)	<ul style="list-style-type: none"> <li>The system processor shall store a single design which can be comprised of components, wiring, links, text, and graphics on a single or multiple schematic pages. Designs shall include but not limited to any of the following DSP functions, test and measurement components, control components, and layout components: Acoustic Echo Cancellers, Audio Players, Audio Streaming components, Delay components, Auto Gain control elements, Ambient Noise Compensators, FIR Filters, Public Address Routers, Room Combiners, Tone Generators, Tone and Noise Generators, Dual Trace FFT Measurement Modules, Real Time Analyzers, Signal Injectors, and Signal Probes.</li> <li>The system processor shall support custom user control interfaces either on proprietary touch screen controllers, or network computers utilizing a control application, or iOS devices on Wi-Fi. Custom control interfaces shall be capable of having multiple user-selectable pages with different controls on each.</li> </ul>		
Logo Generator	<ul style="list-style-type: none"> <li>Not applicable</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Government Furnished Equipment (GFE)</b> <ul style="list-style-type: none"> <li>Extron</li> <li>MGP 462 or MGP 464</li> </ul> </li> </ul>

## ZONE 4

Item	Criteria	Quantity	Notes
Fibre Optic Transmitter (Cubicle A)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1 each	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Models: <ul style="list-style-type: none"> <li>VTM-H00004-LCTX</li> <li>VTM-H00024-LCTX</li> <li>VTM-H00024-LCTX</li> <li>VQM-AH0003-LCTX</li> </ul> </li> </ul> </li> </ul>
Fibre Optic Receiver (Cubicle A)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1 each	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Models: <ul style="list-style-type: none"> <li>VQM-0HV003-LCRX</li> <li>VQM-HAP001-LCRX</li> </ul> </li> </ul> </li> </ul>
Fibre Optic Chassis (Cubicle A)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1 each	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Models: <ul style="list-style-type: none"> <li>VTM-004200</li> <li>CHS-000004</li> </ul> </li> </ul> </li> </ul>
Fibre Optic Transmitter (Office 1)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1 each	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Models: <ul style="list-style-type: none"> <li>VTM-H00004-LCTX</li> <li>VTM-H00024-LCTX</li> <li>VTM-H00024-LCTX</li> <li>VQM-AH0003-LCTX</li> </ul> </li> </ul> </li> </ul>

Item	Criteria	Quantity	Notes
Fibre Optic Receiver (Office 1)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1 each	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Models: <ul style="list-style-type: none"> <li>VQM-0HV003-LCRX</li> <li>VQM-HAP001-LCRX</li> </ul> </li> </ul> </li> </ul>
Fibre Optic Chassis (Office 1)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1 each	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Models: <ul style="list-style-type: none"> <li>VTS-004200</li> <li>CHS-000004</li> </ul> </li> </ul> </li> </ul>
Fibre Optic Receiver (Offices)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	2	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Model: <ul style="list-style-type: none"> <li>VEL-0H0003-LCRX</li> </ul> </li> </ul> </li> </ul>
Fibre Optic Receiver (Collaboration Areas)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	2	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Model: <ul style="list-style-type: none"> <li>VEL-0H0003-LCRX</li> </ul> </li> </ul> </li> </ul>

Item	Criteria	Quantity	Notes
Touch Panel (Cubicle A)	<ul style="list-style-type: none"> <li>• 7-inch capacitive multi-touch</li> <li>• No camera</li> <li>• No microphone</li> <li>• No “SMART” buttons</li> <li>• No Bluetooth capability</li> <li>• No Wireless capability</li> <li>• No Near Field Communication</li> </ul>	1	<ul style="list-style-type: none"> <li>• <b>Recommended make and model:</b></li> <li>• AMX</li> <li>• MXT-700-NC</li> <li>• If alternate product proposed, please provide manufacturer’s specification sheet</li> </ul>
Touch Panel (Office 1)	<ul style="list-style-type: none"> <li>• 7-inch capacitive multi-touch</li> <li>• No camera</li> <li>• No microphone</li> <li>• No “SMART” buttons</li> <li>• No Bluetooth capability</li> <li>• No Wireless capability</li> <li>• No Near Field Communication</li> </ul>	1	<ul style="list-style-type: none"> <li>• <b>Recommended make and model:</b></li> <li>• AMX</li> <li>• MXT-700-NC</li> <li>• If alternate product proposed, please provide manufacturer’s specification sheet</li> </ul>
Mount (Office 1)	<ul style="list-style-type: none"> <li>• Support displays up to 47 inches</li> <li>• Weight capacity: 125 lbs (57 kg)</li> <li>• VESA compliant 400 x 400 mm mounting pattern</li> </ul>	2	<ul style="list-style-type: none"> <li>• <b>Recommended make and model:</b></li> <li>• Chief</li> <li>• MTM1U</li> <li>• If alternate product proposed, please provide manufacturer’s specification sheet</li> </ul>
Mount (Collaboration Areas)	<ul style="list-style-type: none"> <li>• Support displays up to 63 inches</li> <li>• Weight capacity: 200 lbs (91 kg)</li> <li>• VESA compliant 400 x 400 mm mounting pattern</li> </ul>	2	<ul style="list-style-type: none"> <li>• <b>Recommended make and model:</b></li> <li>• Chief</li> <li>• LSM1U</li> <li>• If alternate product proposed, please provide manufacturer’s specification sheet</li> </ul>
Media Converter and Mounting Clip (HD Display)	<ul style="list-style-type: none"> <li>• Ability to convert 100BaseFX fibre optic signal to 10BaseT or 100BaseTX electrical signal</li> <li>• ST connections</li> </ul>	4 each	<ul style="list-style-type: none"> <li>• <b>Recommended make and models:</b></li> <li>• Luxcom</li> <li>• OM101-MM-ST</li> <li>• MC-OM101</li> <li>• If alternate product proposed, please provide manufacturer’s specification sheet</li> </ul>



Item	Criteria	Quantity	Notes
HD Display (Office 1)	<ul style="list-style-type: none"> <li>• 41.9-inch</li> <li>• Aspect ratio: 16:9</li> <li>• 24 x 7 operation</li> <li>• Native resolution: 1920 x 1080p</li> <li>• Brightness: 700 cd/m2</li> <li>• Contrast ratio: 1300:1</li> <li>• HDMI inputs: 2</li> <li>• DisplayPort input: 1</li> <li>• DVI-D input: 1</li> <li>• Serial: RS-232</li> <li>• Built-in speakers: 10W + 10W</li> <li>• Power consumption: 135 W</li> <li>• Bezel width: 7.8 mm</li> <li>• Fanless architecture</li> <li>• Mounting: VESA, 400mm</li> <li>• No Bluetooth capability</li> <li>• No wireless capability</li> <li>• No near field communication</li> </ul>	2	<ul style="list-style-type: none"> <li>• <b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>• Sharp</li> <li>• PN-R426</li> </ul> </li> <li>• If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
HD Display (Collaboration Area)	<ul style="list-style-type: none"> <li>• 48.5-inch</li> <li>• Aspect ratio: 16:9</li> <li>• 24 x 7 operation</li> <li>• Native resolution: 1920 x 1080p</li> <li>• Brightness: 700 cd/m2</li> <li>• Contrast ratio: 1300:1</li> <li>• HDMI inputs: 2</li> <li>• DisplayPort input: 1</li> <li>• DVI-D input: 1</li> <li>• Serial: RS-232</li> <li>• Built-in speakers: 10W + 10W</li> <li>• Power consumption: 155 W</li> <li>• Bezel width: 7.8 mm</li> <li>• Fanless architecture</li> <li>• Mounting: VESA, 400mm</li> <li>• No Bluetooth capability</li> <li>• No wireless capability</li> <li>• No near field communication</li> </ul>	2	<ul style="list-style-type: none"> <li>• <b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>• Sharp</li> <li>• PN-R496</li> </ul> </li> <li>• If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>

## MEETING ROOM 2

Item	Criteria	Quantity	Notes
Fibre Optic Receiver (Host Wall)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1 each	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Models: <ul style="list-style-type: none"> <li>VQM-0HV003-LCRX</li> <li>VQM-0H0003-LCRX</li> </ul> </li> </ul> </li> </ul>
Fibre Optic Chassis (Host Wall)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Model: CHS-000002</li> </ul> </li> </ul>
Fibre Optic Transmitter (Operator's Desk)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1 each	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Models: <ul style="list-style-type: none"> <li>VTM-H00004-LCTX</li> <li>VQM-AH0003-LCTX</li> </ul> </li> </ul> </li> </ul>
Fibre Optic Receiver (Operator's Desk)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1 each	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Models: <ul style="list-style-type: none"> <li>VQM-0HV003-LCRX</li> <li>VQM-HAP001-LCRX</li> </ul> </li> </ul> </li> </ul>

Item	Criteria	Quantity	Notes
Fibre Optic Chassis (Operator's Desk)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1 each	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Models: <ul style="list-style-type: none"> <li>VTS-004200</li> <li>CHS-000004</li> </ul> </li> </ul> </li> </ul>
Fibre Optic Receiver (Table)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Model: <ul style="list-style-type: none"> <li>VQM-HAP001-LCRX</li> </ul> </li> </ul> </li> </ul>
Fibre Optic Chassis (Table)	<ul style="list-style-type: none"> <li>The video switching system has been tested and approved to operate in this environment. The Thinklogical system has undergone the Security Assessment and Authorization (SA&amp;A) process and obtained Authorizations to Operate (ATO).</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Product cannot be substituted</b> <ul style="list-style-type: none"> <li>Make: Thinklogical</li> <li>Model: <ul style="list-style-type: none"> <li>CHS-000002</li> </ul> </li> </ul> </li> </ul>
Touch Panel	<ul style="list-style-type: none"> <li>10-inch capacitive multi-touch</li> <li>No camera</li> <li>No microphone</li> <li>No "SMART" buttons</li> <li>No Bluetooth capability</li> <li>No Wireless capability</li> <li>No Near Field Communication</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>AMX</li> <li>MXT-1000-NC</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>

Item	Criteria	Quantity	Notes
VTC Table	<ul style="list-style-type: none"> <li>High pressure laminate panel finish</li> <li>Medium conference table support podium</li> <li>Recessed storage in work surface with lift off cover</li> <li>Conference table work surface with ergonomic soft urethane edge</li> <li>Wire basket tray; 4" (102mm) wide</li> <li>North America power bar with mounting bracket; 120V/15A, 6 outlets, 6' power cord, CSA/UL</li> <li>MHO desktop power unit; (2) RJ-45</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>Evans Consoles</li> <li>CT-MW</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Speaker (Surface mount)	<ul style="list-style-type: none"> <li>6.5" Woofer</li> <li>1" tweeter</li> <li>White</li> <li>Ability to install speaker onto host wall mount</li> </ul>	1 (pair)	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>Extron</li> <li>SM26 (60-1308-03)</li> <li>SMK P SM 26/28 (70-978-03)</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet and graphical representation of how proposed speakers meet the performance of above wall speakers</li> </ul>
Fibre Optic Multiplexer – Ethernet Card (HD Displays)	<ul style="list-style-type: none"> <li>2-slot chassis</li> <li>Extends a 4-port 10BASE-T / 100BASE-TX Ethernet switch over a single pair of fibre</li> <li>Height: 1 RU</li> </ul>	1 each	<ul style="list-style-type: none"> <li><b>Recommended make and models:</b> <ul style="list-style-type: none"> <li>Luxcom</li> <li>OM200-CH2</li> <li>OM200-OCA1-MM-LC-00-R</li> <li>OM200-ETHERNET</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>

Item	Criteria	Quantity	Notes
Mount (Host Wall)	<ul style="list-style-type: none"> <li>VisionFrame</li> <li>Ability to support two 70-inch HD displays</li> <li>Freestanding</li> </ul>	See Notes	<ul style="list-style-type: none"> <li><b>Recommended makes and models:</b> <ul style="list-style-type: none"> <li>Middle Atlantic</li> <li>VFMS-F-250910   01 VF (qty 1)</li> <li>VFMS-41x63T (qty 3)</li> <li>PDT-2015C-NS (qty 1)</li> </ul> </li> <li>The Chief XBM1U may be an alternative (subject to material beneath the raised floor)</li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Camera	<ul style="list-style-type: none"> <li>HD SDI video output</li> <li>RS-232C serial interface</li> <li>Supports resolutions up to 1,080p</li> <li>30x optical zoom</li> <li>The camera video and audio shall not be recordable at the unit</li> <li>Black</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>Panasonic</li> <li>AW-HE40HK-PJ9-NR</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
HD Display	<ul style="list-style-type: none"> <li>54.6-inch</li> <li>Aspect ratio: 16:9</li> <li>24 x 7 operation</li> <li>Native resolution: 1,920 x 1,080p</li> <li>Brightness: 700 cd/m2</li> <li>Contrast ratio: 1,300:1</li> <li>HDMI inputs: 2</li> <li>DisplayPort input: 1</li> <li>DVI-D input: 1</li> <li>Serial: RS-232</li> <li>Built-in speakers: 10W + 10W</li> <li>Power consumption: 175 W</li> <li>Bezel width: 7.8 mm</li> <li>Fanless architecture</li> <li>Mounting: VESA, 400mm</li> <li>No Bluetooth capability</li> <li>No wireless capability</li> <li>No near field communication</li> </ul>	3	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>Sharp</li> <li>PN-R556</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>

Item	Criteria	Quantity	Notes
Microphone	<ul style="list-style-type: none"> <li>The ceiling array microphone shall consist of eight highly directional pickup lobes to capture individual talkers and deliver discrete audio signals over a single network cable</li> <li>The microphone shall support 10 total channels (8 independent transmit channels, 1 automatic mixing transmit channel, and 1 echo reduction reference receive channel)</li> <li>The microphone shall provide built-in digital signal processing to deliver steerable coverage, echo reduction, automatic mixing, and equalization</li> <li>Audio routing shall be controlled through a computer on the Dante™ network</li> <li>Browser-based control software shall provide the ability to aim individual lobes based on participant seating, and control digital signal processing from any computer on the network</li> <li>Pickup lobe width shall be selectable, with narrow, medium, and wide settings</li> <li>Mounting options shall include ceiling tile, suspension mounting, and VESA mounting options</li> <li>The microphone dimensions shall be 24" x 24" x 2.23"</li> <li>The microphone shall be white in color</li> <li>The microphone shall be powered over PoE, with power consumption of 9 Watts maximum</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>Shure</li> <li>MXA910W</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>
Camera Mount	<ul style="list-style-type: none"> <li>Ability to support Panasonic AW-HE40HK-PJ9-NR camera</li> <li>Shelf to be deep enough to accommodate Telegartner STX IP20 connector with shielded CAT 6 cable</li> </ul>	1	<ul style="list-style-type: none"> <li><b>Recommended make and model:</b> <ul style="list-style-type: none"> <li>Vaddio</li> <li>535-2000-243</li> </ul> </li> <li>If alternate product proposed, please provide manufacturer's specification sheet</li> </ul>

## **APPENDIX F TO ANNEX A – STATEMENT OF WORK**

**SOLICITATION W8474-17-CA17**

**EVALUATION CRITERIA**

**December 2017**

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**EVALUATION PROCEDURES AND BASIS OF SELECTION**

Bids will be assessed in accordance with the entire requirement of the bid solicitation including the technical and financial evaluation criteria. All bids must be completed in full and provide all of the information requested in the bid solicitation to enable full and complete evaluation.

The Bidder must achieve a minimum score of 50% in each section of the Points Rated Technical Criteria, and a minimum overall score of 60% (300 points) out of the 500 available points.

**1. Mandatory Technical Criteria**

Simply stating compliancy to a criterion is insufficient. Bidders must present a clearly organized proposal that includes all necessary technical and descriptive information, in order to clearly demonstrate their compliancy to all items presented in the Audio Video Capabilities and related drawings. Responses will be evaluated on a simple, stringent pass/fail basis. Upon completion of the phased bid compliance process, proposals not meeting each mandatory requirement will be considered non-compliant and given no further consideration.

- a. Technical proposal must not include any financial data or prices.
- b. Technical compliance to Appendix A to Annex A – Statement of Work (Solicitation W8474-17-CA17) Audio Video Capabilities
- c. Technical compliance to Appendix E to Annex A – Statement of Work (Solicitation W8474-17-CA17) Equipment List
- d. Technical compliance to Appendix B to Annex A – Statement of Work (Solicitation W8474-17-CA17) Drawing Package
- e. The bidder must include a list of all proposed equipment, by zone, in the format outlined in the Audio Video Capabilities. In some instances, substitute equipment is acceptable but bidders must include the technical specifications of the “equivalent” product and clearly highlight how the product meets or exceeds the project requirements as stated in the Audio Video Capabilities. Any substitute equipment not meeting the stated requirements shall be considered as non-compliant.
- f. Provide a Commissioning and Acceptance Test Plan, based on ANSI/INFOCOMM 10:2013, detailing on how the Strategic Joint Staff AV system in the will be commissioned and acceptance tested (maximum five pages).
- g. Provide a Change Management Plan including how changes will be proposed, accepted, monitored and controlled (maximum two pages).
- h. Provide details on the Contractor will support the Strategic Joint Staff AV system, including how the response time requirements will be met (maximum one page).
- i. Provide details on how the bidder will perform quality assurance and control quality processes during the project (maximum one page).

## 2. Point Rated Technical Criteria

### a. Key Personnel on Project (200 points)

- (1) Provide CV for the Project Manager who will be assigned to this project (assuming contract awarded on June 29, 2018)
  - Maximum three pages
  - 60 points total
- (a) Name of Project Manager (as it appears on the GoC Security Screening Certificate and Briefing Form) including security clearance expiry date and file/certification number in order for DND to verify with PSPC
  - No partial points awarded
  - 15 points
- (b) Is the assigned Project Manager a Project Management Professional (PMP) in good standing order? Provide PMP number and expiry date. (5 points)
- (c) Number of years of experience in this role:
  - i. 0 - 4 years= 5 points
  - ii. 5 - 9 years= 10 points
  - iii. 10 - 14 years = 15 points
  - iv. 15 or more years = 20 points
- (d) Demonstrate experience working as a Project Manager on audio visual projects worth more than \$1M:
  - i. 1 project = 5 points
  - ii. 2 projects = 10 points
  - iii. 3 - 4 projects = 15 points
  - iv. 5+ projects = 20 points
- (2) Provide CV for the Lead Technician who will be assigned to this project (assuming installation to start on October 1, 2018)
  - Maximum three pages
  - 80 points total (max)
- (a) Name of Lead Technician (as it appears on the GoC Security Screening Certificate and Briefing Form) including security clearance expiry date and file/certification number in order for DND to verify with PSPC
  - No partial points awarded
  - 15 points
- (b) Does the assigned Lead Technician have Thinklogical – Level 300 certification? (5 points)
- (c) Does the assigned Lead Technician have QCS Q-SYS Training Level 2 certification (or an equivalent certification from the proposed manufacturer)? (5 points)

- (d) Does the assigned Lead Technician have Shure Microflex Advance certification (or an equivalent certification from the proposed manufacturer)? (5 points)
  - (e) Does the assigned Lead Technician have Dante Level 1 certification? (5 points)
  - (f) Does the assigned Lead Technician have a CompTIA Network+ or Cisco CCNA certification? (5 points)
  - (g) Number of years of experience in this role:
    - i. 0 - 4 years= 5 points
    - ii. 5 - 9 years= 10 points
    - iii. 10 - 14 years = 15 points
    - iv. 15 or more years = 20 points
  - (h) Demonstrate experience working as a Lead Technician on audio visual projects worth more than \$1M:
    - i. 1 project = 5 points
    - ii. 2 projects = 10 points
    - iii. 3 - 4 projects = 15 points
    - iv. 5+ projects = 20 points
- (3) Provide CV for the Control System Programmer who will be assigned to this project (assuming installation to start on October 1, 2018)
- Maximum three pages
  - 60 points total (max)
- (a) Name of Control System Programmer (as it appears on the GoC Security Screening Certificate and Briefing Form) including security clearance expiry date and file/certification number in order for DND to verify with PSPC
    - No partial points awarded
    - 15 points
  - (b) Does the Control System Programmer have AMX Programmer 2 certification (or an equivalent certification from the proposed manufacturer) (5 points)
  - (c) Number of years of experience in this role:
    - i. 0 - 4 years= 5 points
    - ii. 5 - 9 years= 10 points
    - iii. 10 - 14 years = 15 points
    - iv. 15 or more years = 20 points
  - (d) Demonstrate experience working as a Control System Programmer on audio visual projects with multi-room control:
    - i. 1 project = 5 points
    - ii. 2 projects = 10 points
    - iii. 3 - 4 projects = 15 points
    - iv. 5+ projects = 20 points

**b. Project Schedule (300 points)**

- (1) Provide a detailed project schedule assessing the risk management elements that may affect the project. The following assumption shall be taken into consideration:

- Contract award date: 29 June 2018
- Installation start date: 01 October 2018
- Facility fully operational: 30 November 2018

Points will be awarded if the bidder can fast track and/or crash the proposed schedule in order to deliver a fully operational facility. The bidder must provide a detailed explanation, including a project schedule, on how it intends to meet the new timeline.

- (a) Fully operational facility by 30 November 2018 (25 points);
  - (b) Fully operational facility by 23 November 2018 (50 points);
  - (c) Fully operational facility by 16 November 2018 (75 points); and
  - (d) Fully operational facility by 09 November 2018 (100 points).
- (2) Provide details on the project team the bidder foresees to deploy to meet project deadlines. The bidder shall include:
- (a) Names of On-site Technicians (as they appear on the GoC Security Screening Certificate and Briefing Forms) including security clearance expiry date and file/certification number in order for DND to verify with PSPC
    - Bidder to list the names and information of as many security cleared On-site Technicians that will be required to meet its proposed project schedule
    - 20 points per On-site Technician
    - No partial points awarded per On-site Technician
    - 200 points maximum



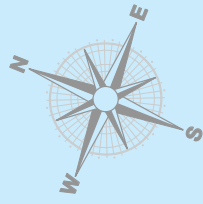
Item #	Make	Model	Quantity	Price
1	Cisco	CTS-SX80-K9	6 ea	
2	Thinklogical	VQM-0HV003-LCTX	12 ea	
3	Thinklogical	VQM-0HV003-LCRX	34 ea	
4	Thinklogical	VQM-HA0006-LCTX	8 ea	
5	Thinklogical	VQM-HA0006-LCRX	11 ea	
6	Thinklogical	VQM-0H0003-LCTX	1 ea	
7	Thinklogical	VQM-0H0003-LCRX	6 ea	
8	Thinklogical	VQM-A0HR003-LCTX	12 ea	
9	Thinklogical	VQM-U00001-LCTX	2 ea	
10	Thinklogical	VQM-U00001-LCRX	1 ea	
11	Thinklogical	VQM-AH0003-LCTX	16 ea	
12	Thinklogical	VQM-HAP001-LCRX	26 ea	
13	Thinklogical	VTM-H00004-LCTX	32 ea	
14	Thinklogical	VTM-H00024-LCTX	20 ea	
15	Thinklogical	VEL-0H0003-LCRX	25 ea	
16	Thinklogical	CHS-000001	4 ea	
17	Thinklogical	CHS-000002	6 ea	
18	Thinklogical	CHS-000004	43 ea	
19	Thinklogical	VTM-004200	23 ea	
20	Thinklogical	TLX-MSC-000080	1 ea	
21	Thinklogical	TLX-MSC-000320	1 ea	
22	Thinklogical	TLX-MSD-M00005	12 ea	
23	Thinklogical	TLX-MSM-C00080	1 ea	
24	Thinklogical	TLX-MSM-C00320	1 ea	
25	Thinklogical	VXM-D00T16	20 ea	
26	Thinklogical	VXM-000016	2 ea	
27	Thinklogical	SMP-A000080	1 ea	
28	Thinklogical	SMP-A000320	1 ea	
29	Thinklogical	SMP-C000001	5 ea	
30	AMX	NX-2200	* 3 ea	
31	AMX	NX-4200	* 2 ea	
32	AMX	PSR5.4	* 4 ea	
33	AMX	EXB-COM2	* 2 ea	
34	AMX	PC1	* 6 ea	
35	AMX	AC-RK	* 6 ea	
36	AMX	TPI-PRO-DVI-2	* 1 ea	
37	AMX	MXT-700-NC	* 9 ea	
38	AMX	MXT-1000-NC	* 4 ea	
39	Chief	LSM1U	* 8 ea	
40	Chief	MCM1U	* 8 ea	
41	Chief	MTM1U	* 9 ea	
42	Digital Display Systems	BTZ-42425-6ERG	* 1 ea	
43	Draper	116454	* 2 ea	
44	Epiphan	Pearl2 Rackmount Twin	* 2 ea	

45	Evans Consoles	AVM-RE	*	1 ea	
46	Evans Consoles	CT-MW	*	2 ea	
47	Evans Consoles	PD-VN	*	1 ea	
48	Evans Consoles	TECH-SX	*	1 ea	
49	Extron	DSC 3G-HD A	*	5 ea	
50	Extron	RSU 129	*	5 ea	
51	Extron	SM26 (pair)	*	2 ea	
52	Extron	SMK P SM 26/28 (pair)	*	2 ea	
53	Fostex	6301NX	*	1 ea	
54	Luxcom	OM10C-DCE-MM-ST	*	2 ea	
55	Luxcom	OM10C-DTE-MM-ST	*	2 ea	
56	Luxcom	OM101-MM-ST	*	38 ea	
57	Luxcom	OM124	*	3 ea	
58	Luxcom	OM200-CH2	*	4 ea	
59	Luxcom	OM200-CH4	*	1 ea	
60	Luxcom	OM200-OCA1-MM-LC-00-R	*	6 ea	
61	Luxcom	OM200-RS232	*	2 ea	
62	Luxcom	OM200-ETHERNET	*	4 ea	
63	Luxcom	OM1001J-1000-LX	*	7 ea	
64	Luxcom	OM1006A-0-0-0-0	*	1 ea	
65	Luxcom	82-230-A	*	1 ea	
66	Luxcom	LTIPS-56-1.07-U-2	*	1 ea	
67	Luxcom	SFP-100-FX	*	35 ea	
68	Luxcom	MB-CH2	*	1 ea	
69	Luxcom	MB-CH4	*	1 ea	
70	Luxcom	MC-OM101	*	38 ea	
71	Luxcom	MP-3	*	3 ea	
72	Luxcom	MP05	*	5 ea	
73	Luxul	AMS-1208P	*	6 ea	
74	Luxul	XPE-2500	*	1 ea	
75	Middle Atlantic	PDT-2015C-NS	*	5 ea	
76	Middle Atlantic	RM-KB-LCD17HD	*	2 ea	
77	Middle Atlantic	VFMS-41x63T	*	3 ea	
78	Middle Atlantic	VFMS-64x80T	*	8 ea	
79	Middle Atlantic	VFMS-F-250836/01 VF	*	1 ea	
80	Middle Atlantic	VFMS-F-250851/01 VF	*	1 ea	
81	Middle Atlantic	VFMS-F-250863/01 VF	*	1 ea	
82	Middle Atlantic	VFMS-F-250910/01 VF	*	1 ea	
83	Panasonic	AW-HE40HK-PJ9-NR	*	5 ea	
84	Panasonic	TH-98LQ70U	*	2 ea	
85	Panasonic	WJ-GXD400	*	1 ea	
86	Panasonic	WV-S2131L	*	1 ea	
87	Planar	PCT2235	*	1 ea	
88	Planar	PLL2250MW	*	1 ea	
89	QSC	AD-C6T-LP	*	12 ea	
90	QSC	CXD4.2Q	*	2 ea	
91	QSC	CXD4.3Q	*	1 ea	

92	QSC	Q-SYS CIML4	*	3 ea	
93	QSC	Q-SYS COL4	*	4 ea	
94	QSC	Q-SYS Core-110F	*	2 ea	
95	QSC	Q-SYS Core 510i	*	1 ea	
96	QSC	Q-SYS I/O-8 Flex	*	2 ea	
97	Sharp	PN-R426	*	9 ea	
98	Sharp	PN-R496	*	8 ea	
99	Sharp	PN-R556	*	11 ea	
100	Sharp	PN-R706	*	6 ea	
101	Shure	522	*	1 ea	
102	Shure	MX400DP	*	13 ea	
103	Shure	MX405/C	*	13 ea	
104	Shure	MX418D/C	*	1 ea	
105	Shure	MXA910W	*	4 ea	
106	Vaddio	535-2000-243	*	5 ea	
107	Installation Zone 1	Control Booth, Conference room		1 lot	
108	Installation Zone 2	Meeting Room 1, Meeting Room 2		1 lot	
109	Installation Zone 3	Special Purpose Space		1 lot	
110	Installation Zone 4	Zone 1, Zone 2, Zone 3, Zone 4		1 lot	
111	Installation Zone 5	EQT_5-6; EQT_5-7 and External Feeds		1 lot	
112	optional 3 year extended	warranty (note 21.b in Annex A, SOW		1 lot	
		and reference Part 6, 6.4.2)			
	<u>Notes:</u>				
1	*denotes = or equivalent	products acceptable			
2	no installation required	for EQT_5-1 and EQT_5-2			
3	items 1 - 106 price is ea/	unit			
4	items 107 - 112 price is	lot			



# NDHQ (Carling)



Carling Avenue

North Ring Road

Carling Avenue

Pavilion

10 East

10 West

5 West

5 East

Entrance B

Moodie Drive

South Ring Road

Entrance A

Security perimeter (fence)



Visitor parking and taxi stand



Carpool parking



Accessible and visitor parking



Shuttle bus Para-Transpo



Canada Post



Canex retail store



Pedestrian access to fitness facility (building 6)



Fitness facilities



Food services



Guardhouse  
- Visitor processing through Guardhouse 2  
- Bike access through Guardhouse 1 and 2



Bus shelters



Drop-off lane



Pedestrian access control point

Security perimeter (fence)

To highways 416 & 417

60 Moodie Drive

Valid as of February 1, 2018