August 6, 2019

Re: NJ TRANSIT Invitation for Bid No. 19-024X
   Maplewood Bus Operations Center
   Addendum No. 3

To Whom it May Concern:

The following constitutes Addendum No.3 and must be acknowledged with each bid. Prospective bidders are advised of the following clarifications, additions and/or revisions to the above referenced Invitation for Bid:

- The bid due date has been extended to 2:00 pm on Thursday, August 22, 2019.
- Responses to questions received are included.
- Please make the following revision to the Special Provisions SP.7 Time of Completion-Delay-Liquidated Damages (2.1)

Replace Sub Article 2.1.2 in the Special Provisions with the following:

2.1.2 The time of completion shall complete 1st floor work area between Columns I-K, 5-7 and obtain a TCO within one hundred twenty (120) calendar days of Notice to Proceed (NTP). The Contractor shall perform all improvements to Room 141 within one hundred twenty (120) calendar days of Notice to Proceed (NTP). The contractor will have access to the 2nd floor one hundred forty (140) calendar days after Notice to Proceed (NTP).

The Completion of the 2nd floor build out is five hundred sixty five (565) calendar Days from Notice to Proceed (NTP).

The time of completion for all work under the Contract shall be five hundred sixty five (565) calendar days after the date of Notice to Proceed.

This concludes Addendum No. 3. An authorized representative of your organization shall acknowledge receipt of this Addendum in the Exhibit provided with its bid. Failure to acknowledge receipt of all Addenda may cause the rejection of the Bid as non-responsive.

Sincerely,

[Signature]
Maggie Sotolongo
Principal Contract Specialist
Contracts Unit/Procurement Department
1. We would like to be an approved manufacturer on the plastic lockers. I would appreciate it if you could take the time to review our materials and let me know if we could be approved as an equal on this project. (See Attachments)

This substitution is rejected.

2. Has the DCA reviewed the plans yet?

Yes, the drawings were reviewed by DCA except for fire protection as this will be a design/build project by the Contractor.

3. Section 8 Price Form Item List – Please confirm that the plumbing & hvac costs are to be combined for Div 15.

Yes.

4. What is the DBE Goal Percentage?

A race neutral DBE goal has been set for this project.

5. Please identify the Work that must be done on 2nd Shift and Weekends so that OT provisions can be carried by the respective trades and all GC’s will have a level playing field with regard to bid calculations.

Any construction that will cause excessive noise shall be performed on the 2nd shift. The Contractor shall coordinate this work with the Construction Manager.

6. Section 8 Price Form Item List – What line should the GC’s General Conditions, Overhead & Profit be entered on?

Those items are to be distributed within the line items. There are no separate line items for GC’s Overhead, and Profit.

7. Residential Appliances 11310 – Specs state that the Architect will provide the model # for the Microwave. Based on the dimensions and description in the specs please confirm that GE Profile Series Model PEM31SFSS will be acceptable.

GE Profile Series Model PEM 31SFSS is an acceptable microwave model

Drawing A-8 has been revised. Details 7/A-8 revised notes to "(11)" double stacked lockers. Detail 8/A-8 revised notes to "(6)" Double Stacked Lockers. Drawing A-8 is included in this Addendum.

9. Carpet Tile 09681 – Spec section 1.1 B lists Carpet Type C-1 & C-2. Dwg A-12 Partial 1st & 2nd Floor Finish Plans also lists Carpet Tile Type C-3 & C-4. Please provide info for Type C-3 & C-4.

Page 09681-1 of Specification Section 09681 Carpet Tile revised. Section 1.1,B has been revised to "Section includes: 1. Conductive fiber carpet tile, C1,C-3 and C-4. 2. Carpet Tile, C-2." Revised specification page 09681-1 is included in this Addendum.

10. Dwg A-14 Furniture Schedule – Please confirm that the GC is only furnishing and installing the Prodigy 911 Direct Products and not the other listed furnishings.

Confirmed.

11. Dwg A-14 Furniture Schedule – Bottom line of the description column is Blank, yet there are dimensions and the Note states “Furniture to be provided by GC”. Please clarify & revise drawing.

Last line of schedule revised with no notes. Drawing A-14 has been revised and is included in this Addendum.

12. I would like to submit the following as a substitution to the 911-Direct product.

This substitution is rejected.

13. Under the General Liability and Umbrella sections. The General Conditions request limits of $2,000,000 Each Occurrence / $4,000,000 Aggregate & Umbrella limits of $8,000,000. Will NJT accept our current $1,000,000 Each Occurrence / $2,000,000 Aggregate limits with our $25,000,000 Umbrella limits to meet the requirements of the GL and Umbrella limits required?

NJ TRANSIT accepts these limits.
14. **Will the existing Pendent Sprinklers need to be changed to Upright Sprinklers to provide temporary Fire Sprinkler protection during construction, as the plans & specs indicate the existing Fire Sprinkler piping is to be removed as part of the demolition work?**

Yes, the entire sprinkler system heads (in all of the work areas indicated in the bid drawings) will be replaced with flexible, 4'-0" fire sprinkler hose assemblies and turned up during construction and then turned down and located in ceiling tiles per Contractor’s fire engineer’s design.

15. **Please confirm the total quantities of A/V equipment shown on drawing CM-1, also confirm if we can exclusively use these quantities to price the parts & smarts for the A/V system.**

1/CM-1 shows the quantity, description, manufacturer, and part number for the components of the video wall system equipment schedule. The Contractor to use the schedule, system diagram and layouts for overall pricing.

16. **Please provide the complete symbol legend with description for the symbols used on the CM drawings, as some of the symbols used on the drawings are not shown on the symbol list.**

The complete symbols in the legend are provided in this Addendum.

17. **Please confirm if all devices (Parts & Smarts) for CCTV camera system will be furnished and installed by the contractor per the schedule shown on drawing CM-1.**

The Contractor shall furnish and install all CCTV components and wiring noted on the plan (1/CM-4) layouts, 2/CM-6 wiring diagram and CM-7 rack elevations. Contractor shall comply with SOW noted in Division 13750 Video Surveillance Specification.

18. **Please confirm if all devices (Parts & Smarts) for Public Address System will be furnished and installed by the contractor per the schedule shown on drawing CM-1.**

The Contractor shall furnish and install all PA and Activu Speaker System components and wiring noted on 1/CM-1 Schedule, the plan (1/CM-4) layouts, 1/CM-7 Common Area PA wiring diagram, 1/CM-14 Speaker Integration and CM-7 rack elevations.
19. The specs state that the Fire Alarm is a Design-Build. Is there an existing system in the building that the new system needs to be tied into? If yes, please provide the manufacturer and model of the existing system.

The panel is a Johnson Controls Panel. The Contractor is advised to have his fire engineer do a detailed survey of the existing panel within 30 days of the Notice to Proceed (NTP).

20. Are we allowed to use Flexible conduit (ie: Greenfield/Seal Tight) under the raised floor?

Not allowed for communications. Please refer to Dwg E-19. Permitted to make connections to power up bus bars.

21. Please confirm the contractor will be performing the end termination at the head end and the device for the security, CCTV, Paging (PA) and telecommunication system.

The Contractor shall do all end terminations for related systems noted on the plans and in the specifications. The contractor shall refer to the Division 16 Specifications for additional details.

22. Please confirm all demolition will be performed after 5:00 PM in the 2nd shift hours.

Any construction that will cause excessive noise shall be performed on the 2nd shift. The Contractor shall coordinate this work with the Construction Manager.

23. Please confirm all loading will be performed after 5:00 PM in the 2nd shift hours.

Deliveries do not have to be performed after 5:00 p.m. Most deliveries can be delivered during the day and will need to be coordinated with the Construction Manager.

24. Please define what portion of the scope of work needs to be completed off hours.

Any construction that will cause excessive noise shall be performed on the 2nd shift. The Contractor shall coordinate this work with the Construction Manager.

25. Can contractor utilize existing power and water for construction without metering?

Yes.
26. **Bid advertisement lists asbestos abatement as part of project scope.**
Drawing A-3 notes NJ Transit will address prior to construction. **Please Clarify.**

The asbestos abatement is not part of this project scope. It has been completed by NJ TRANSIT.

27. **Note 18/A-4 references engineering, temporary and permanent support.**
Extent of temporary and permanent support is unknown as engineering is not done. **How are to address this cost in bid price?**

Masonry walls slated for removal do not appear to be load bearing, but access is limited. The wallboard should be removed to allow for inspection by NJ TRANSIT prior to demolition of the CMU walls. A $10,000 allowance is included in the bid in the event that a new steel header is needed to replace CMU wall.

28. **What is the material for the hand rail (detail 6/A9)**

Handrail detail is added to Drawing A-11 Architectural Details. Handrail shall be stainless steel. Drawing A-11 revised and is included in this Addendum.

29. **Who is responsible for furniture on A-15, that is not noted "provided by GC"**

All other furniture listed on Furniture Schedule on A-15 that is not noted "provided by GC" is NIC and is by NJ TRANSIT.

30. **Is existing roof under warranty?**

Yes, modifications must be made by Jottan.

31. **Please provide existing BMS, fire alarm, security, tele/data vendors.**

Fire Alarm is maintained by Confires Fire Protection Services, South Plainfield, NJ (908) 822-2700.

32. **Please provide existing fire sprinkler drawings.**

Available existing fire sprinkler drawings are issued in this addendum, for reference purposes only. Contractor shall survey existing system in contract work areas and create existing conditions drawings as part of this contract work.
33. **What is the expected duration for NJT to relocate Radio Support Group from Area "F" to Area "A"?**

Relocations will take approximately one month.

34. **On the door schedule, many of the hardware sets are not given. Please provide.**

Doors 101, 102, 103, and 219 : Hardware Set 4  
Doors 105, 109 and 227: Hardware Set 7  
Doors 210, 230, 231, 232, 234, 235 and 236 : Hardware Set 2  
Door 212: Hardware Set 8  
Doors 217 and 224: Hardware Set 1  
Door 222: Hardware Set 8A  
Door 223: Hardware Set 9

Door schedule and hardware sets revised on Drawing A10 which is included in this Addendum.

35. **What is the thickness of the existing floor slabs?**

The thickness of the existing floor slabs in areas within the scope of work cannot be determined. Second floor slab thickness, if needed, to be determined by use of non-destructive testing, such as ground-penetrating radar (GPR) to be performed by the Contractor prior to demolition. The Contractor shall submit the results to NJ TRANSIT prior to the commencement of work.

36. **Will it be possible to have another site visit?**

An additional site visit is not possible.

37. **Is NJT open to wireless locks for the card access?**

No.

38. **It is understood that we can submit the required DBE forms thru Bid Express with our bid or mail them for receipt by NJ Transit within 7 days after the bid opening. Is it possible to submit the required DBE forms thru Bid Express after the bid opening?**

As stated in the Special Provisions, SP-3 Disadvantaged Business Enterprises ("DBE") Goal Assignment, the DBE forms can be submitted with your bid at the time of your bid submission. The DBE forms cannot be uploaded to Bid Express after the bid due date. The DBE forms can be emailed directly to the Contracting Officer, Maggie Sotolongo and must be received within five (5) calendar days after bid opening.
39. **Who services the Building Management System (BMS) in the building?**

The BMS is Andover maintained by Albireo Energy, Edison NJ, with Anthony Nobile account executive at 732-243-4860 office / 732-407-6082 mobile.

40. **Who is the Fire Alarm Vendor for the building?**

The fire alarm is maintained by Confires Fire Protection Services, South Plainfield, NJ (908) 822-2700.

41. **1.2 System Description A.2 Conference Space (Room 201) Video Wall**

Description states 1 wall (4) 2 rows high cx 2 rows long – Drawing A-5 shows 2 Video Walls (Left Side & Right side) – Please confirm 2 Video Walls (left and right side) in Room 201.

There are 2 video walls (left and right side) in Room 201.

42. **1.2 System Description A.5 Other Spaces – Lists Room 211 as having a single 55-inch x 3.5 mm Ultra Thin Bexel but Drawing A-5 shows (2) 55 inch x 3.5 mm Ultra-Thin Bezel on the floorplan – please confirm that it is (2) 55 inch x 3.5 mm Ultra-Thin Bezel panels.**

There are (2) 55 inch panels in Room 211.

43. **1.2 System Description A.5 does not List Room 216 TRAINING OFFICE but Drawing A-5 shows (2) 55 inch x 3.5 mm Ultra-Thin Bezel on the floorplan – please confirm that it is (2) 55 inch x 3.5 mm Ultra-Thin Bezel panels 1 row high X 2 rows wide.**

There are (2) 55 inch panels in Room 216.

44. **1.2 System Description A.5 Other Spaces – Lists Room 223 as having a single 55-inch x 3.5 mm Ultra Thin Bexel but the floorplan lists Room 223 as the locker room. Please confirm that this panel will not be required in Room 223 Locker Room and provide if needed what room it should be installed?**

There are no panels in the locker room.
45. **1.2 System Description** B.1 Conference Room (Room 235) (Existing T.I.C. Conference) Video Wall requires (4) 55-inch x 3.5 Ultra-thin Bexel – 2 rows high x 2 rows long – but drawing A-5 does not show it on the drawing or shows needed backing for wall mount or ceiling mount. Please confirm this requirement. Also is there any requirement for processing or interface equipment for this room to allow sources to be displayed on this video wall?

There are no panels in the T.I.C Conference Room.

46. **2.4 System Architecture** B. Hardware 3. Lists the following “Configure the core system hardware and video display processor for automatic failover in the event of primary system failure” This appears to be a new requirement as the Activu line drawings do not show clustering or mirroring of the core system hardware and video display processor and would also require additional duplicate equipment, cabling and software licensing. Please confirm this is a requirement.

This is not a requirement and will be removed from the project specification.

47. **Drawing A-14:** Please confirm that only furniture in the schedule with the note ”furniture to be provided by GC” is part of the contract and therefore, other pieces of furniture are to be supplied and installed by others.

Confirmed.

48. **Please provide specifications on the raised floor system shown on A-12.**

Please see Specification Section 09693-Low Profile Access Floor of Technical specifications in the bidding documents.

49. **Detail 14/A-11 called out on sheet A-12 does not exist. Please provide.**

Detail called out as 14/A-11 on sheet A-12 has been revised to "13/A-11". Revised drawing A12 is included in this Addendum.

50. **Please confirm that the only rooms receiving an FM-200 clean agent fire suppression systems are UPS room # 101 and IDF room # 210 and that no fire suppression work to be performed on the first floor with the exception of room # 101.**

FM-200 shall be installed in UPS room # 101 and IDF room # 210. On the first floor, in areas where there will be alteration of partitions and removal of ceiling tiles under this contract (see Architectural Drawings), existing heads will be replaced with flexible, 4'-0" Fire Sprinkler Hose Assemblies, and turned up during
construction and then turned down and located in ceiling tiles per Contractor's Fire Engineer's design.

51. Please confirm that all movable furniture within the contract limits will be relocated by NJ Transit before Contractor mobilization.

NJ TRANSIT will remove all existing furniture before the Contractor commences work.

52. Please specify the areas that need to worked nights and weekends.

Please refer to Special Provisions SP-8

53. Please confirm that the only temporary partition on the project is the one on the second floor, shown on drawing A-3, which runs west parallel to grid line 3 and turns north parallel to grid line F. See below:

Temporary partition on the first floor has been added shown around the two sides of the UPS room. Note "Construct Temporary Protection Partition from Floor to Structure above to allow for Construction of fire Rated Partition" added to Plan 1/A-3. Revised drawing A-3 is included in this Addendum.
54. Is there a requirement to provide an annual support plan for the Activu System and if so how many years should be quoted in the final proposal?

5 years of Gold Level Support is a requirement.

55. Preliminary A/V planning for this site required costs for 5 years of Gold Level Support. Is that still a requirement?

5 years of Gold Level Support is a requirement.

56. Please confirm that only furniture ID numbers T-1, WS-2, WS-3, WS-10, WS-11 and WS-12 as listed on drawing A-14 are the responsibility of the General Contractor to provide.

Confirmed.

57. As referenced in Special Provisions article SP-3, please confirm that there are no DBE documentation or forms required to be submitted along with the bid.

The DBE forms are due no later than five (5) calendar days after the bid due date.

58. Please provide longitudinal and transverse section views of the roof framing surrounding HVAC-4 and HVAC-11 on Dwg. S-1 with all new members (beams, grating, handrail, etc.) clearly labeled. Also confirm if all members presented in bold on Dwg. S-1 are new.

NJ TRANSIT has prepared revised framing plans to include demo and proposed steel along with sections. Bolded members are intended to delineate beams required to be demolished or proposed as new on those respective sketches. Sketches showing revised framing plans area included in this Addendum.

59. Please provide additional details for the “New Grating and Handrail” in addition to the information presented on Dwg. S-2. What is the finish of steel exposed to weather, galvanized or painted? Similarly, what is the finish of steel not exposed to weather, galvanized or painted?

Drawings S2 provides all member and tubing sizes and welds for construction of the platform and handrails. Location is shown on plans. All exposed and miscellaneous steel should be Hot Dipped Galvanized per ASTM A123. The Contractor is responsible to detail handrails and platforms on shop drawings.
60. Refer to attached Dwg. S-1 and S-2 for additional clarifications.
Please see responses to Question Nos 58 and 59.

61. **2.4 System Architecture B. Hardware 3.** Lists the following “Configure the core system hardware and video display processor for automatic failover in the event of primary system failure” This appears to be a new requirement as the Activu line drawings do not show clustering or mirroring of the core system hardware and video display processor and would also require additional duplicate equipment, cabling and software licensing. Please confirm this is a requirement.

This is not a requirement and is removed from the project specification.

62. **Is there a requirement to provide an annual support plan for the Activu System and if so how many years should be quoted in the final proposal?**

Preliminary A/V planning for this site required costs for 5 years of Gold Level Support. Is that still a requirement?

5 years of Gold Level Support is a requirement.
63. **What is the smoke detector resolution?**

Removal of Smoke Detectors within areas of renovation, all existing ceiling mounted smoke detectors were removed under approval of DCA, as they are not required per NJAC 5:23-3.4, Chapter 9, Section 907 and are not to be replaced.

64. **Has atrium wall scope and allowance been determined?**

Allowance of $25,000.00 is included for the refurbishing of the mirrored window Wall at the Atrium wall immediately outside of proposed Bus Operation Control Center on the second floor. Scope to include: 1. Remove tinting film at inside of glazing. 2. Clean all glass surfaces. 3. Sand all oak mullions, frame and sills inside and outside. 4. Perform any needed repairs to the mullion system. Use Wood Putty to fill any gaps in the wood. 5. Stain all oak mullion and frame surfaces with Minimax wood Finish Penetrating Stain in Golden Oak or approved equal. 6. Remove and replace all water damaged sheetrock. Tape and spackle. Paint to match existing adjacent walls. 7. Install mirror finishing tinting film. 8. Clean.

65. **Please provide a specification for aluminum door and hardware listed as door #223.**

Please see response to Question No. 34 for Door 223 Hardware.

66. **What is the model of the existing roof top units?**

Pictures have been included in this Addendum to show the model numbers of the roof top unit.

According to the attached existing unit photos (McQuay) unit plate photos:

- HVAC-4 is model no. RPS030BW
- HVAC-11 is model no. RPS030BW

The existing units that will be removed are McQuay’s. The newer units are AAON units.

67. **Please verify that the overall console requirement for this project is as follows:**

- a. 20- chairs at the console control (FN # CH 8)
- b. 2 - Control Center Work Stations (chief) console (FN # WS 1)
- c. 1 - Control Center Work Station console (chief) (FN # WS 2)
- d. 2 - Training Office Workstation consoles (FN # WS 3)
- e. 5 - Work Station consoles at Control Center (FN # WS 10)
- f. 1 - Work Station console (FN # WS 11)
- g. 20 Cockpit Style consoles at the console control (FN #WS 12)

The complete console requirements are found in the new A-14 drawing.
68. **Details of each type of console from "a" to "g" above.**

   a. Do chair arms need to be both up/down & in/out adjustable (if guns are worn could be important)?
   b. Should chairs be high back?
   c. Should chairs have head rests?
   d. Should chairs have pneumatic lifts?
   e. Do any chairs have a required weight tolerance?
   f. Required work surface depth of each type of console?
   g. Required length of each type of console?
   h. Is each type of console to be electric sit stand?
   i. If so range of height from lowest to highest?
   j. For CPU's to be stored below in module are they to be on fixed shelf, pull out shelf or door mounted shelf?
   k. Locks on module doors?
   l. If so each door to be keyed separate?
   m. Should a ventilation grill be provided in underside module?
   n. Are we to provide a rear beam for mounting monitors?
   o. Are we to provide monitor arms?
   p. If so piston or post?
   q. Should we provide double stacking monitor arms?
   r. Are any equipment turrets required?
   s. Are slide out keyboard drawers required?
   t. Or will they be articulating arm keyboard trays?
   u. Are pedestal files to be included for each console?
   v. If so what is the drawer configuration (File File or Box Box File)?
   w. Are any consoles to have data power ports on desktops?

The control center console drawings are included in the Addendum. Please refer to furniture drawings Prodigy/911 Direct.

69. **Other general questions to determine proper design for size to determine accommodation for operator items.**

   a. Phone? - (yes or no)
   b. Monitors? - how many per position and size
   c. Printers / fax?
   d. CPU quantity per type of console?
   e. Are CPU's to be standard size or to be form factors?
   f. Keyboard / mouse(s) Quantity per type of console?

The control center console drawings are included in the Addendum. Please refer to furniture drawings Prodigy/911 Direct.
70. Site questions:
   a. Security Documents required?
   b. Loading dock?
   c. Street parking / offload?
   d. Pallet Jack needed?
   e. Freight elevator available?
   f. Reservation for use of freight elevator?
   g. Forklift needed?
   h. Is site training required? If so how long a session?
   i. Is protective clothing required. (i.e. hard hat, steel toed shoes, gloves, hearing protection, Nomex clothing, safety glasses?)

   a. All Contractor and Subcontractor personnel are required to carry, and display a NJ TRANSIT photo ID, to be coordinated with NJ TRANSIT.
   b. Loading dock in the back of the Building can be used. To be coordinated through the Construction Manager.
   c. Contractor to investigate.
   d. To be discussed in the Pre-Construction meeting and written in the Site Specific Health and Safety Plan.
   e. Freight elevator available near the loading dock.
   f. Freight elevator use to be coordinated with the Construction Manager.
   g. Means and method of the Contractor.
   h. An online contract safety training is required by Contractor and employees who will be on the job site. The online course can be completed in the approximately a couple hours.
   i. Contractor and employees are required to have all necessary PPE on at all times while on the job site.

71. Temporary Area of Relocation Eliminated from Drawings

Temporary area of relocation eliminated from first floor. Plan 1/A-3 revised. Notes "AREA "E" see notes 8, 10 & 14" and "Area "D" SEE NOTES 7, 11 & 14" removed. Phasing and Work Area Notes 7 and 8 shown as omitted. On drawing A-6 bottom two plans referencing these areas deleted. On drawing A-13 this area of work omitted from First Floor Furniture Plan. Dwgs A3, A-6 and A-13 revised and are attached.

72. Is the Roof Covered by a Warranty? If so, please provide details.

Yes, modifications shall be performed by Jottan/Tremco.
73. Please provide more info on the type of roof. Manufacturer, specs, scope, etc.

Modifications shall be performed by Jottan/Tremco.

74. The Signage specifications reference the “LATEST NJ TRANSIT SIGN MANUAL BY HILLIER AND CAROL DRAZEN”. Can you please provide a copy of this manual?

Please reference Section 10440 for signage specifications.

75. Please clarify if the $50,000.00 allowance listed under Item 600 – Temporary Cooling is for all work described under General Note P on Drawing M-1. See the attached drawing.

Yes, the $50,000.00 allowance item is for the work described on Drawing M-1.
76. **Drawing S-1 Grid G/2.6-3.5** indicates both side top & bottom horizontal dark line. There appears to be new beams sizes written in light print. Are these new beams required to install or existing beams that stay and are utilized?

Yes, these new beams are required to be installed.

77. **Drawing S-1 Grid G/2.6-3.5** indicates horizontal light line in the center of the opening with column without indicating removal. Please confirm it stay as it is.

Yes, the column will stay as is.

78. **Drawing S-1 Grid J.6/6** indicates platform with stair. Please provide supporting details as no column found to support the grating platform indicated.

Platform to be replaced in kind as noted on drawings.

79. **Shall contractor remove existing smoke detectors in areas of work and associated wires.**

Yes, the Contractor will have to remove existing smoke detectors in areas of work and associated wires.

80. **Please specify hardware sets for openings #101, 102, 103, 104, 109, 210, 212, 217, 219, 222, 224, 227, 230, 231, 232, 234, 235, and 236.**

The hardware sets for the following openings are provided in the revised Drawing A-10 included in this Addendum.
QUESTION 1 SUBSTITUTION REQUEST
Partition Systems Incorporated of South Carolina guarantees its PolyLife® Lockers and Locker Benches when properly maintained, against defects in workmanship and defects in the materials to include corrosion and delamination for a period of (25) twenty five years from date of invoice.

This warranty also guarantees that the hardware provided for the Columbia PolyLife® Lockers to be free from defects and to operate accordingly for a period of (2) two years from date of invoice.

This warranty excludes damage from acts of vandalism, misuse, improper installation, inadequate maintenance, use of acid products or improper handling of the product.

This warranty is in lieu of any other warranties expressed or implied by representatives, dealers or employees without the written consent of Partition Systems Incorporated of South Carolina

Very truly yours,
Partition Systems Incorporated of South Carolina

Kenneth A. Bass
CEO
Also known as HDPE (High Density Polyethylene), PolyLife® is created from 100% recyclable solid plastic material. It is an excellent option for high-traffic areas and is resistant to damage from graffiti, along with a non-porous surface. PolyLife® is the same color throughout the material.
LOCKER & PARTITION COLOR GUIDE

Color matching is limited by printing process. Actual samples available and recommended prior to color selections.

PL-280 Black Paisley*  
PL-290 Midnight  
PL-300 Deep Blue  
PL-340 Slate

PL-200 Cement*  
PL-220 Taupe  
PL-320 Forest  
PL-130 Slate Speckle

PL-180 Cream*  
PL-330 Sandstone  
PL-210 Garnet  
PL-120 Sand Speckle

*Not available for the manufacturing of lockers

Made from high density polyethylene (HDPE), this durable material is recommended for high-traffic facilities. Non-porous & will not delaminate, crack, or break.
<table>
<thead>
<tr>
<th></th>
<th>Scranton-Comtec Products</th>
<th>Columbia PolyLife Lockers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solid Plastic Panels - Lockers</td>
<td>Duralife and &quot;Tufftec&quot;</td>
<td>Same</td>
</tr>
<tr>
<td>Recycled Content</td>
<td>Minimum 25 percent</td>
<td>Same</td>
</tr>
<tr>
<td>Locker Doors and Frames</td>
<td>1/2&quot; Thick - Door/Frame shall be machined from a single piece. Door/Frame attached with fasteners to locker body.</td>
<td>1/2&quot; Thick - Locker Door shall be the full width of the Locker Uni-Box® and shall be frameless allowing access to the entire width of the locker</td>
</tr>
<tr>
<td>Sides, Tops, Bottoms and Shelves</td>
<td>1/2&quot; Thick</td>
<td>3/8&quot; Thick</td>
</tr>
<tr>
<td>Latch</td>
<td>Continuous Type manufactured form HDPE, capable of accepting various locking mechanisms, fastened to entire length of door.</td>
<td>Patented Latching Mechanism with multiple contact points that provides maximum security. Capable of accepting various locking mechanisms.</td>
</tr>
<tr>
<td>Locking Mechanism</td>
<td>Standard - Hasp for padlock Optional - Key Locks, Mechanical &amp; Digital Combination Locks.</td>
<td>Same</td>
</tr>
<tr>
<td>Assembly Profile</td>
<td>Locker Box Enclosure shall be assembled by means of machined joints, pins and tamper resistant fasteners.</td>
<td>Uni-Box Locker Body Construction. The Uni-Box incorporates Mortise &amp; Tenon Construction and is mechanically fastened to the Locker Side, Top, Bottom, and Shelves with 304 S/S Torx Head Fasteners This assembly method provides the strongest and most durable Locker Frame available in Solid HDPE Plastic Lockers.</td>
</tr>
<tr>
<td>Coat Hooks</td>
<td>Zinc plated forged steel, ball ends.</td>
<td>(2) Type 304 Stainless Steel Coat Hooks attached to the side of the locker body with S/S Theft Proof Thru Bolts.</td>
</tr>
</tbody>
</table>

Columbia Lockers are made from the same materials, some of the major differences are: Uni-Box construction and larger face openings which provides access to accommodate Helmets, Basketballs, Back Packs, Computer Bags, Duffel Bags and other large items.
# Comparison of Bradley Lenox Lockers to Columbia PolyLife Lockers

<table>
<thead>
<tr>
<th></th>
<th>Bradley Lenox Lockers</th>
<th>Columbia PolyLife Lockers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solid Plastic Panels -</td>
<td>HDPE formed under high</td>
<td>Same</td>
</tr>
<tr>
<td>Lockers</td>
<td>pressure into solid plastic components with homogenous color throughout.</td>
<td></td>
</tr>
<tr>
<td>Recycled Content</td>
<td>Minimum 25 percent</td>
<td>Same</td>
</tr>
<tr>
<td>Locker Doors and Frames</td>
<td>1/2&quot; Thick - Door/Frame - Consists of molded fused/welded together to provide opening. The Frame reduces door opening</td>
<td>1/2&quot; Thick - Locker Door shall be the full width of the Locker Uni-Box® and shall be frameless, allowing access to the entire width of the Locker.</td>
</tr>
<tr>
<td>Sides, Tops, Bottoms and Shelves</td>
<td>3/8&quot; Thick</td>
<td>Same</td>
</tr>
<tr>
<td>Latch</td>
<td>Continuous Type manufactured form HDPE, capable of accepting various locking mechanisms, fastened to entire length of door.</td>
<td>Patented Latching Mechanism with multiple contact points that provides maximum security. Capable of accepting various locking mechanisms.</td>
</tr>
<tr>
<td>Locking Mechanism</td>
<td>Standard Hasp for Padlock</td>
<td>Same</td>
</tr>
<tr>
<td>Door Hinge</td>
<td>Heavy duty extruded aluminum, full length, assembled onto door and locker front.</td>
<td>Heavy Duty Patented Full Length Aluminum Uni-Hinge® with Stainless Steel Pivotal Pin. Mechanically attached to Uni-Box Locker Body Construction. The Uni-Box incorporates Mortise &amp; Tenon Construction and is mechanically fastened to the Locker Side, Top, Bottom and Shelves with 304 S/S Torx Head Fasteners. This assembly method provides the strongest and most durable Locker Frame available in Solid HDPE Plastic Lockers.</td>
</tr>
<tr>
<td>Assembly Profile</td>
<td>Locker box from a single sheet of HDPE solid plastic with corners fused together. Weld frames and shelves to box assembly.</td>
<td>(2) Type 304 Stainless Steel Coat Hooks attached to the side of the locker body with S/S Theft Proof Thru Bolts</td>
</tr>
<tr>
<td>Coat Hooks</td>
<td>Two-prong, high-impact plastic, mounted to bottom of shelf or divider, one per door opening.</td>
<td>(2) Type 304 Stainless Steel Coat Hooks attached to the side of the locker body with S/S Theft Proof Thru Bolts</td>
</tr>
</tbody>
</table>

Columbia PolyLife Lockers are made from the same materials, some of the major differences are: **Uni-Box Locker Body construction** and **larger face openings** which provides access to accommodate Helmets, Basketballs, Back Packs, Computer Bags, Duffel Bags and other large items.
Standard HDPE Locker

MATERIALS
General: Material shall be Columbia PolyLife® Plastic HDPE. Surface and edges shall be nonporous. Provide material which has been selected for uniform color, surface flatness and even texture. Exposed surfaces which exhibit discolorations, pitting, seam marks, roller marks, stains, telegraphing, or other imperfections on finished units are not acceptable. Locker materials shall contribute LEED® Certification credits for New Construction, Existing Buildings and Schools. MR 4.1, 4.2, 5.1 & 5.2, and EQ 4.

SPECIFICATIONS
Locker Doors: Locker Door shall be the full width of the Locker Uni-Box® and shall be frameless, allowing access to the entire width of the Locker. Framed Doors are unacceptable. Perimeter ventilation shall provide superior ventilation properties to traditional framed doors. Doors shall be attached to the Uni-Hinge® with Stainless Steel Theft Proof Torx Head with Pin, Tri-Lobular Screws.

Locker Body: Locker Body shall incorporate the Uni-Box® Locker Construction to allow for multiple Locker configurations within the same Locker Body. The Locker Body shall be .375” (10 mm) thick and shall be white in color. Homogenous natural color is not acceptable. The Uni-Box® shall incorporate mortise and tenon construction and shall be mechanically fastened together with Stainless Steel fasteners. Locker Shelves shall be mortised into side walls of the Uni-Box® at location determined by Architect. Relocation of Shelves in the field shall be possible without the need for special tools or welders. The Uni-Hinge® shall be attached to the Uni-Box® with Stainless Steel Theft Proof Torx Head with Pin, Through Bolts. Lockers shall arrive at construction site fully assembled.

The manufacturer reserves the right, without formal notification, to implement changes to the design and dimensions.
Edition: PolyLife® 1831L /002
Standard HDPE Locker

**SPECIFICATIONS (continued)**

**Locker Hinges:** Provide one (1) Uni-Hinge® for each Locker Frame. Uni-Hinge® shall be made of continuous Heavy Duty Extruded 6063-T5 Aluminum. Pivot Pin shall be made of Type 304 Stainless Steel. Pivot Pin shall be .1875” (5 mm) in diameter and shall be made in two parts and shall extend the length of the Locker Body. Hinge knuckles shall be separated with two nylon washers. Hinge leaf that attaches to Locker Body shall be continuous and shall extend the full height of the Locker Body. Single to Six Tier Lockers shall use one Uni-Hinge®. Uni-Hinge® shall be attached to the Locker Uni-Box® with Stainless Steel Theft Proof Torx Head with Pin, Tri-Lobular Screws. Uni-Hinge® shall be powder coated to match Locker Door.

**Locker Handle:** Locker Handle shall be made of injection molded HDPE or similar material and shall have an Antimicrobial efficacy rating of 4.0 or greater. Handle shall move up and down in a vertical movement and shall require less than 5 lbs. of lifting force to operate in accordance with ADA requirements. When used in conjunction with Lock Hasp, handle shall have an integral 11 Gauge Type 304 Stainless Steel Hasp Bar that shall align with the Locker Hasp Bar when in the lower or closed position. Locker Hasp Bar is to be used with padlocks (padlocks are not included).

**Latching Mechanism:** The Latching mechanism shall consist of an Activation Bar and multiple Slide Bars made of the same or similar materials as the Locker Uni-Box® and Door. Security of locker contents will be assured by use of multiple latching points and an additional 11 Gauge Type 304 Stainless Steel Hasp Bar mounted to the Locker Body that extends through the face of the Door in alignment with the Locker Handle Hasp for use with a padlock (padlocks not included). Door will close and latch without the need for manually raising the Locker Handle. Latch mechanism shall withstand a sudden impact (slamming) force of 300 lbs.

**Coat Hooks:** Coat Hooks shall be fabricated of 11 Gauge Type 304 Stainless Steel with a Satin Finish. All edges shall be polished and smooth. Coat Hooks shall be attached to the Locker Body with Stainless Steel Theft Proof Torx Head with Pin, Tri-Lobular Screws or Through Bolts. Provide two (2) Coat Hooks for Single Tier Lockers and two (2) for Double Tier and “Z” Lockers. Plastic and aluminum Coat Hooks are unacceptable.

**Number Plates:** Provide a Number Plate for each Door or opening, in the sequence as indicated on the drawings. Number Plate shall be engraved from the back side to prevent the accumulation of dirt and grime and shall be recessed into the Locker Door Handle. Surface mounted Number Plates are unacceptable.

**Locker Legs:** Provide Locker Legs for all Lockers except recessed and base mounted Lockers. Locker Leg assembly shall be structural and shall be fully adjustable to provide for leveling and plumbing of Locker Body. Provide Toe Kick Plates with all necessary hardware for attaching to the Locker Leg.

**INSTALLATION**

1. Comply with manufacturer’s written installation instructions. Install Lockers rigid, straight, plumb and level.
2. Through Bolt Locker Boxes together with Stainless Steel Theft Proof Torx Head with Pin, Through Bolts.
3. Anchor Locker Boxes to the wall with provided anchor devices.
4. Install Slope Tops, End Panels, Filler Strips and accessories in accordance with written instructions.

The manufacturer reserves the right, without formal notification, to implement changes to the design and dimensions.

Edition: PolyLife® 1831L /002

© 2008 Columbia Lockers®, A Division of PSISC®
Standard HDPE Locker

QUALITY STANDARDS

**Screw Holding Strength:** When tested in accordance with ASTM D1037, Direct Screw Withdrawal Test, Locker materials shall withstand a direct pull force that exceeds 1,100 lbs per fastener.

**Water Absorption Requirements:** When tested in accordance with ASTM D570, Locker materials shall have a Water Absorption Rate of less than 0.09%.

**Tensile Strength:** When tested in accordance with ASTM D638, Locker materials shall have a Tensile Modulus of 339,000 PSI, a Tensile Strength at Yield of 4500 PSI, and a Tensile Strength at Break of 2030 PSI.

**Flexural Properties:** When tested in accordance with ASTM D790, Locker materials shall have a Flexural Modulus of 235,000 PSI.

**Environmental Stress-Crack Resistance:** When tested in accordance with ASTM D1693, Locker material shall exceed 15.0 HR.

**LEED® Contribution Requirements:** Locker materials shall contribute LEED® Certification credits for New Construction, Existing Buildings and Schools. MR 4.1, 4.2, 5.1 & 5.2, and EQ 4.

FABRICATION

**General:** Provide factory pre-assembled Locker units. Lockers shall be complete with all hardware and accessories listed above. Knock down units are unacceptable.

**Slope Tops and End Panels:** Provide Slope Tops and End Panels as required to complete the installation of the Lockers.

<table>
<thead>
<tr>
<th>STANDARD SIZE OPTIONS</th>
<th>Widths</th>
<th>9”</th>
<th>12”</th>
<th>15”</th>
<th>18”</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Depths</td>
<td>12”</td>
<td>15”</td>
<td>18”</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Heights</td>
<td>60”</td>
<td>72”</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The manufacturer reserves the right, without formal notification, to implement changes to the design and dimensions.

Edition: PolyLife® 1831L /002
QUESTION 12 SUBSTITUTION REQUEST
Control Room Solutions for
TRAFFIC MANAGEMENT &
RAIL CONTROL CENTERS

At Adaptaspace, we understand how proper integration of technology with operations and personnel is imperative in critical 24/7 traffic management and rail control centers where efficiency, reliability, performance and safety of personnel, are paramount to public safety.
Adaptaspace designs & manufactures a full range of 24/7 ‘Mission Critical’ console systems in standard and fully custom configurations, responding to the evolving needs of today’s Traffic Management and Rail Operations Control Center environments.

Our Human-Centred design approach applies best practices and knowledge of Ergonomics and Human Factors to ensure our workstation solutions contribute toward the creation of an optimized work environment, promoting operator attentiveness, wellness, and job satisfaction to maximize operational efficiency and performance.
Product Offerings:
- Custom Console Workstations
- Panel Wall Systems
- Rear Beam and Slat-wall Equipment Mounting Systems
- Display Arms & Mounts
- Personal Environment Controls
- Custom Cabinetry for Meeting & Training Rooms; Personal Storage; Printer Cabinets; Binder & Reference Material Storage; and more...

Adaptaspace’s transit console solutions are based on our GENESIS Console System custom configured for each unique operations center.

Every project is designed to meet the specific equipment requirements and layout constraints of each facility, yet all consoles incorporate the following common elements:
- human factors requirements, for increased comfort and reduced physical stress;
- equipment and accessory mounting flexibility, to satisfy the needs of each user;
- extensive cable management, for easy installation and access;
- product durability, for 24/7 operation backed by an industry leading lifetime warranty;
- room layout flexibility, to cater for any space constraint;
- modularity, to allow future equipment and room layout re-configurations;
- high aesthetics, to reflect corporate identity and image.

The GENESIS Transit Console has been tested to exceed ANSI/BIFMA Standard X5.5-2008 and is compliant with ergonomic standards established by ADA; ANSI; CSA; OSHA; BIFMA; UL / CSA
Adaptaspace has a proven history responding to the unique design and planning demands of traffic management and rail control work-environments by providing collaborative design support for room layout design, work flow analysis, console development, and user and equipment requirements.

Standard project support services include:

- Planning Support — concepts, budgeting
- Requirements Analysis — criteria & constraints, key success factors
- Detailed Drawings and Specifications
- Conceptual Design Development — renderings, mock-up consoles
- Delivery & Installation Planning

Our project experience includes some of the most prominent Traffic Operations and Rail Control Centers in North America and internationally including...
INTRODUCTION

The GENESIS Console has been designed to withstand the rigors of 24/7, intensive use environments while incorporating the latest ‘best practices’ in ergonomic design in a flexible, highly durable and aesthetically appealing console system.

The GENESIS Console System provides Adaptaspace with the flexibility to respond to project specific requirements at time of initial design, configuration, and installation; while providing our customers with the potential to adapt to future growth resulting from evolving operational and technological requirements. Our cost effective, modular approach ensures our customers realize the best value for their control room furniture investment during the operational life of the control room facility.

GENERAL PRODUCT INFORMATION

Standard Dimensional Information:
Console Depth: worksurface front to rearmost point = 38" (965 mm)
Console Height: Floor to top of worksurface = 28 1/2" (724 mm)
Console Height: Floor to top of single monitor = 46 1/2" (1,181 mm)

The GENESIS Console is fully compliant with and has been successfully tested to ANSI/BIFMA X5.5-2008 standard. Test report is available upon request.

Processor Space

Maximum processor size:

<table>
<thead>
<tr>
<th>Shelf Type</th>
<th>Fixed Width</th>
<th>Door Mounted Depth</th>
<th>Slide-out Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>12&quot; (305 mm)</td>
<td>8 1/2&quot; (216 mm)</td>
<td>17 1/2&quot; (445 mm)</td>
<td>20 1/2&quot; (521 mm)</td>
</tr>
<tr>
<td>20 1/2&quot; (521 mm)</td>
<td>12&quot; (305 mm)</td>
<td>18 1/2&quot; (470 mm)</td>
<td>20 1/2&quot; (521 mm)</td>
</tr>
</tbody>
</table>

Note: the above information represents typical dimensions. The cross-sectional dimensions and components of the GENESIS™ console can be extended to match any equipment requirements.

Monitor Space

Maximum monitor size is limited only by the desired console module length (ex. if 72" (1,830 mm) module length is required then maximum monitor case width would be 3 @ 21" (533 mm) diagonal or 4 @ 18" (457 mm) diagonal).
MATERIAL AND PERFORMANCE SPECIFICATION

Console Structure
Typical GENESIS console system consists of the following components:

Extrusions (Aluminum Alloy)
The structural extrusions are constructed of thick wall, custom profile extruded aluminum. The structural extrusions are cut to length with a manufacturing tolerance of: linear +/-1/32", angular +/- 0.25 degrees.

Structural Sheet Metal Components
Precision-tooled cold-rolled steel is used for structural components such as processor cabinet frames and structural gussets. All surfaces are finished with a highly durable electrostatic powdercoat finish. Manufacturing tolerances on the structural sheetmetal components are linear: +/- 0.020" angular +/- 0.25 degrees.

TYPICAL COMPONENTS:

Accessory Beam:
Adaptaspace’s rear accessory mounting beam is constructed of thick wall, custom profile extruded aluminum. It is mounted at the back of the console frame and supports all accessories such as monitor arms, tasklights and telephone shelves. Accessories may be installed anywhere along the beam and may easily be moved after installation. It also supports optional slatwalls and privacy panels.

Processor Shelves:
Material:       Fixed:                  14 gauge cold rolled steel (CRS)
               Door Mounted: 14 gauge CRS
               Slide-out: 14 ga CRS + Industrial Accuride Slides
Capacity: Fixed: 100 lbs. (per std 24" module)
               Door Mounted: 50 lbs. (per shelf)
               Slide-out: 90 lbs. (per shelf)
Finish: Black Powder Coat

Worksurface Support Arm
Material: 10 gauge Cold Rolled Steel
Finish: Black Powdercoat

Console Support Foot
Material: 10 gauge Cold Rolled Steel
Finish: Black Powdercoat

TYPICAL CONSOLE ATTACHMENTS

Removable Cable Access Panel:
Removable to provide access to the cable trays
Material: 1" MDF with high pressure laminate surfaces
Capacity: 300 lbs

Power Bars (Domestic):
Standard: 15 amps - 125VAC; 6 Outlets with 6’ Cord,
Optional: 20 amps - 125VAC with NEMA 5-20P or L5-20P outlets

Cable management:
Each GENESIS console module has built-in cable management that provides continuous cable management along the entire length of the console.

The standard built-in cable management system is designed to accommodate one 1” x 4 1/2” (25 x 114 mm) wiring run.

Rackmount Kits: (19" - 483 mm wide rackmount)
Internal kit (inside cabinet) = 10 Rack Units (17 1/2" - 445 mm)
Full Upper rackmount kit = 8 RU (14" - 356 mm)
Partial Upper rackmount kit = 2 RU (3 1/2" - 89 mm)
Material: 12 gauge cold rolled steel
Finish: Black Powdercoat
CLADDING OPTIONS (PANELS)

Hinged door panels:
Standard: 11/16” (17.5 mm) particle board with high pressure laminate faces & edges.
Optional: 18 gauge steel, wood veneer or other finish materials as may be specified.

End Gables:
Standard: 11/16” (17.5 mm) particle board with high pressure laminate faces & edges.
Optional: 14 gauge steel, wood veneer or other finish materials as may be specified.

Privacy Panel Options:
6” to 18” (152 mm to 457 mm) high Privacy Panel:
Standard: 11/16” (17.5 mm) particle board with high pressure laminate faces
Optional: Front with Slatwall - Back with HPL
Front with Fabric - Back with HPL
Front and Back with Fabric
Front and Back with HPL
Glass or Plexiglas

Custom panel materials are available - curved 14 gauge steel, wood veneer or other finish materials as may be specified.

WORKSURFACES

The rigid GENESIS worksurface is designed to provide a smooth level workspace. It complies with accepted human factors criteria and all ergonomic standards have been taken into consideration including knee well space, view/reach distances and keyboard height. The optional sit/stand height adjustable worksurface provides further flexibility by allowing for variable height positioning within a 25 1/2” (648 mm) range (28 1/2” to 54” [724 mm to 1352 mm] from the nominal 28 1/2” [724 mm] high fixed worksurface position). Both fixed and height adjustable worksurface configurations comply with US Federal Government ADA accessibility regulations.

Materials:

1” particle Board with high pressure plastic laminate face surfaces
- nominal thickness: 1.2 mm (0.048”)
Front edge: waterfall molded high impact PVC (soft rubber) nosing.

Static Load: 50 lb./ linear ft. (74 kg / linear m)
Maximum per adjustable worksurface 540 lbs (245 kg) with 2 actuators, 810 lbs (367 kg) with 3 actuators and 1,080 lbs (190 kg) with 4 actuators.

Note: custom finishes and materials also available for worksurfaces
SIT/STAND WORKSURFACE

- The SIT/STAND electric height adjustable worksurface option is available for the base GENESIS console and retains the standard GENESIS desktop look.
- The workstations may be built in straight or radial modules.
- The modules may be stand-alone or be grouped together in work clusters as may be required.

ACTUATOR SYSTEM

- The system is capable of lifting a total of 540 lbs (245 kg) with 2 actuators, 810 lbs (367 kg) with 3 actuators and 1,080 lbs (190 kg) with 4 actuators.
- Worksurface may consist of a single deck or dual front and rear deck operating independently.
- Range of travel is 25 1/2” (648 mm): standard height setting of 28 1/2” (724 mm) above floor to 54” (1352 mm) above floor.
- Speed of travel under load is 1 1/2” per second (38mm per second). Lift system operation is virtually silent.

CABLE MANAGEMENT

- Cable capacity is same as the standard GENESIS module. The vertical travel of monitor and desktop accessory cables is managed via flexible vertical cable chains.

EQUIPMENT CAPACITY

- Lower processor cabinet equipment capacity is the same as standard GENESIS console.
- For single worksurface option, the Rear Accessory Mounting Beam is attached to the back of the worksurface. Monitor support arms and accessories (such as tasklight, phone shelf) are attached to and may be positioned anywhere along the Rear Accessory Beam.

SAFETY ERGONOMICS

- Sufficient space has been allowed between passing objects such that pinch points do not exist.
- The range of travel is appropriate to accommodate 95% of the standard north American population (5th percentile female to 95th percentile male).
- The optional “memory button” switch allows end-users to program preferred sitting and standing positions.
- The SIT/STAND worksurface option provides for a suitable ADA working environment.
INTRODUCTION

The PROCESS Console has been designed to withstand the rigors of 24/7, intensive use environments while incorporating the latest 'best practices' in ergonomic design in a flexible, highly durable and aesthetically appealing console system.

The PROCESS Console System provides Adaptaspace with the flexibility to respond to project specific requirements at time of initial design, configuration, and installation; while providing our customers with the potential to adapt to future growth resulting from evolving operational and technological requirements. Our cost effective, modular approach ensures our customers realize the best value for their control room furniture investment during the operational life of the control room facility.

GENERAL PRODUCT INFORMATION

Standard Dimensional Information:
Console Depth: worksurface front to rearmost point = 38” (965 mm)
Console Height: Floor to top of worksurface = 28 1/2” (724 mm)
Console Height: Floor to top of single monitor = 46 1/2” (1,181 mm)

Processor Space
Maximum processor size:

<table>
<thead>
<tr>
<th>Shelf Type</th>
<th>Fixed Width</th>
<th>Door Mounted Depth</th>
<th>Slide-out Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>12” (305 mm)</td>
<td>8 1/2” (216 mm)</td>
<td>12” (305 mm)</td>
</tr>
<tr>
<td>Depth</td>
<td>20 1/2” (521 mm)</td>
<td>17 1/2” (445 mm)</td>
<td>18 1/2” (470 mm)</td>
</tr>
<tr>
<td>Height</td>
<td>22” (559 mm)</td>
<td>20 1/2” (521 mm)</td>
<td>20 1/2” (521 mm)</td>
</tr>
</tbody>
</table>

Note: the above information represents typical dimensions. The cross-sectional dimensions and components of the PROCESS™ console can be extended to match any equipment requirements.

Monitor Space
Maximum monitor size is limited only by the desired console module length (ex. if 72” (1,830 mm) module length is required then maximum monitor case width would be 3 @ 21” (533 mm) diagonal or 4 @ 18” (457 mm) diagonal).

The PROCESS Console is fully compliant with and has been successfully tested to ANSI/BIFMA X5.5-2008 standard. Test report is available upon request.
MATERIAL AND PERFORMANCE SPECIFICATION

Console Structure

Typical PROCESS console system consists of the following components:

Extrusions (Aluminum Alloy)

The structural extrusions are constructed of thick wall, custom profile extruded aluminum. The structural extrusions are cut to length with a manufacturing tolerance of: linear +/- 1/32”, angular +/- 0.25 degrees.

Structural Sheet Metal Components

Precision-tooled cold-rolled steel is used for structural components such as processor cabinet frames and structural gussets. All surfaces are finished with a highly durable electrostatic powdercoat finish. Manufacturing tolerances on the structural sheetmetal components are linear: +/- 0.020” angular +/- 0.25 degrees.

TYPICAL COMPONENTS:

Accessory Beam:

Adaptaspace’s rear accessory mounting beam is constructed of thick wall, custom profile extruded aluminum. It is mounted at the back of the console frame and supports all accessories such as monitor arms, tasklights and telephone shelves. Accessories may be installed anywhere along the beam and may easily be moved after installation. It also supports optional slatwalls and privacy panels.

Processor Shelves:

- **Material:**
  - Fixed: 14 gauge cold rolled steel (CRS)
  - Door Mounted: 14 gauge CRS
  - Slide-out: 14 ga CRS + Industrial Accuride Slides
- **Capacity:**
  - Fixed: 100 lbs. (per std 24” module)
  - Door Mounted: 50 lbs. (per shelf)
  - Slide-out: 90 lbs. (per shelf)
- **Finish:** Black Powder Coat

Worksurface Support Arm

- **Material:** 10 gauge Cold Rolled Steel
- **Finish:** Black Powdercoat

Console Support Foot

- **Material:** 10 gauge Cold Rolled Steel
- **Finish:** Black Powdercoat

TYPICAL CONSOLE ATTACHMENTS

Removable Cable Access Panel:

Standard on sit/stand configuration; Option on fixed configuration
Removable to provide access to the cable trays
Material: 1” MDF with high pressure laminate surfaces
Capacity: 300 lbs

Power Bars (Domestic):

Standard: 15 amps – 125VAC; 6 Outlets with 6’ Cord,
Optional: 20 amps - 125VAC with NEMA 5-20P or L5-20P outlets

Cable management:

Each PROCESS console module has built-in cable management that provides continuous cable management along the entire length of the console.

The standard built-in cable management system is designed to accommodate one 1” x 4 1/2” (25 x 114 mm) wiring run.

Rackmount Kits: (19” - 483 mm wide rackmount)

- Internal kit (inside cabinet) = 10 Rack Units (17 1/2” - 445 mm)
- Full Upper rackmount kit = 8 RU (14” - 356 mm)
- Partial Upper rackmount kit = 2 RU (3 1/2” - 89 mm)

- **Material:** 12 gauge cold rolled steel
- **Finish:** Black Powdercoat
CLADDING OPTIONS (PANELS)

Hinged door panels:
Standard: Standard: 11/16" (17.5 mm) particle board with high pressure laminate faces & edges.
Optional: 18 gauge steel, wood veneer or other finish materials as may be specified.

End Gables:
Standard: Standard: 11/16" (17.5 mm) particle board with high pressure laminate faces & edges.
Optional: 14 gauge steel, wood veneer or other finish materials as may be specified.

Privacy Panel Options:
6" to 18" (152 mm to 457 mm) high Privacy Panel:
Standard: Standard: 11/16" (17.5 mm) particle board with high pressure laminate faces
Optional: Front with Slatwall - Back with HPL
Front with Fabric - Back with HPL
Front and Back with Fabric
Front and Back with HPL
Glass or Plexiglas

Custom panel materials are available – curved 14 gauge steel, wood veneer or other finish materials as may be specified.

WORKSURFACES

The rigid PROCESS worksurface is designed to provide a smooth level workspace. It complies with accepted human factors criteria and all ergonomic standards have been taken into consideration including knee well space, view/reach distances and keyboard height. The optional sit/stand height adjustable worksurface provides further flexibility by allowing for variable height positioning within a 25 1/2" (648 mm) range (28 1/2" to 54 [724 mm to 1352 mm] from the nominal 28 1/2" [724 mm] high fixed worksurface position). Both fixed and height adjustable worksurface configurations comply with US Federal Government ADA accessibility regulations.

Materials:
1" particle Board with high pressure plastic laminate face surfaces
- nominal thickness: 1.2 mm (0.048")

Front edge: waterfall molded high impact PVC (soft rubber) nosing.

Static Load: 50 lb./ linear ft. (74 kg / linear m)
Maximum per adjustable worksurface 540 lbs (245 kg) with 2 actuators, 810 lbs (367 kg) with 3 actuators and 1,080 lbs (190 kg) with 4 actuators.

Note: custom finishes and materials also available for worksurfaces
SIT/STAND WORKSURFACE
- The SIT/STAND electric height adjustable worksurface option is available for the base PROCESS console and retains the standard PROCESS desktop look.
- The workstations may be built in straight or radial modules.
- The modules may be stand-alone or be grouped together in work clusters as may be required.

ACTUATOR SYSTEM
- The system is capable of lifting a total of 540 lbs (245 kg) with 2 actuators, 810 lbs (367 kg) with 3 actuators and 1,080 lbs (190 kg) with 4 actuators.
- Worksurface may consist of a single deck or dual front and rear deck operating independently.
- Range of travel is 25 1/2" (648 mm): standard height setting of 28 1/2" (724 mm) above floor to 54" (1352 mm) above floor.
- Speed of travel under load is 1 1/2" per second (38 mm per second). Lift system operation is virtually silent.

CABLE MANAGEMENT
- Cable capacity is same as the standard PROCESS module. The vertical travel of monitor and desktop accessory cables is managed via flexible vertical cable chains.

EQUIPMENT CAPACITY
- Lower processor cabinet equipment capacity is the same as standard PROCESS console.
- For single worksurface option, the Rear Accessory Mounting Beam is attached to the back of the worksurface. Monitor support arms and accessories (such as tasklight, phone shelf) are attached to and may be positioned anywhere along the Rear Accessory Beam.

SAFETY ERGONOMICS
- Sufficient space has been allowed between passing objects such that pinch points do not exist.
- The range of travel is appropriate to accommodate 95% of the standard north American population (5th percentile female to 95th percentile male).
- The optional “memory button” switch allows end-users to program preferred sitting and standing positions.
- The SIT/STAND worksurface option provides for a suitable ADA working environment.
NARRATIVE OF MODIFICATIONS TO THIS ADDENDUM
ADDENDUM #3 TO THE
CONSTRUCTION DOCUMENTS
For
Bus Operations Control Center

The modifications directed by this Addendum No 3 are described in this page and the following attachments:

1. Addendum Narrative 3 Pages
2. Drawing/Sketch Attachments:
   o Drawings: Architectural

   A:3:  Area of work at first floor omitted and related notes omitted. Temporary partition added at first floor around UPS area.

   A-6:  Area of work at first floor omitted and related bottom two plans deleted from drawing.

   A-5:  Plan of railing and ramp at entry to Admin Waiting Area 215 revised to be on high side of floor.

   A-8:  Elevation 7/A8 and 8/A8 notes modified.

   A-10: Door Schedule has been modified with missing Hardware sets noted and Hardware Sets revised with added door sets.

   A-11  Handrail detail 14/A-11 added to sheet.

   A-12: Detail reference 14/A-11 changed to Detail 13/A-11. First floor Finish plan eliminated scope of work area beyond grid line Ma. Added Contractor Note stating Low Profile Access Floor system to be installed in areas designated. Existing substrates are wood subflooring over concrete and concrete. Extent and exact area of substrates to be field verified. Low Profile floor may be installed over wood and/or concrete substrates. Thickness of existing floor slab in “areas within” the scope or work cannot be determined. If required contractor to include ground penetrating services to determine the flooring system. Contractor shall provide field measurements and shop drawings of the existing flooring system for review and approval by NJ TRANSIT design Team. “

A-14: Bottom line of schedule furniture notes have been eliminated and line left blank.

- **Drawings: Communications**

  CM-1: Updated Symbols List

  CM-2: Removed detail #2 and removed note #13

  CM-7: Removed Rooms 123 and 125 from Detail #1

- **Sketches: Structural**

  Structural Framing Scope and Drawings Changes: The original drawings required selective demo of steel roof dunnage and proposed installation of new members which would be cut and pieced in many small pieces. The drawings were revised to demolish more of the existing steel and allow for more shop fabrication and less field cutting and fitting of existing and new steel. It also provided a larger opening for the return air duct on HVAC # 11.

  SK -72319-1 Demolition Part Roof Framing Plan HVAC #4
  SK -72319-2 Proposed Framing Plan HVAC #4
  SK -72319-3 Section of Roof Framing HVAC #4
  SK -72319-5 Demolition Part Roof Framing Plan HVAC #11
  SK -72319-6 Proposed Framing Plan HVAC #11
  SK -72319-7 Section of Roof Framing HVAC #11

3. **Specification Attachments:**

   - **Specifications: Architectural**
     Table of Contents Revised to include new Section

     Section 0880, Page 08800-1 revised
     Section 0880, Page 08800-11 revised

     Section 08116 Aluminum Doors and Frames (New Section)

     Section 09653, Page 09653-1 revised

   - **Specifications: Communications**

     Section 16740

   - Updated 1.2 System Description, A Description:
• Detail 1 for clarification of location of single displays in back of control center
• Detail 2 for quantity of displays in conference room
• Detail 3 clarifies rooms with 2 screens
• Detail 5 removes 223 (Locker Room) display reference and moves 211 to note 3
  o 1.2 System Description, Part B removed
  o 1.9 Maintenance Service, Part A added reference to Gold Support
  o 2.4 System Architecture, Detail #3 removed.

4. Drawings: For Reference Only
  o Drawings: Existing Sprinkler Drawings
    Available existing Sprinkler Drawings are being provided for reference only, however they have not been verified. Contractor shall verify in field existing sprinkler locations and runs prior to start of work.
    SKP-4, GOB, FP North Wing, 2nd Floor
    SKP-7, GOB, FP South Wing, 1st Floor
    SKP-9, GOB, FP South Wing 2nd Floor

5. Photos: For Reference Only
  o Photos: Existing Roof Top Units
    Photos of Existing Roof top Units (model No) provided for Reference only.

6. ALLOWANCES/ASSIGNMENTS:
  o Architectural Allowance
    Include Allowance of $25,000.00 for the refurbishing of the Mirrored window wall at the second floor Hilton Bus Facility immediately outside the new Bus Operations Control Center Area. This allowance is to cover the following scope of work:
    1. Remove tinting film at inside face of glazing. Area designated on Drawing
    2. Clean all glass surfaces.
    3. Sand all oak wood mullions, frame and sills inside and outside.
    4. Perform any needed repairs to the mullion system. Use Wood Putty to fill any gaps or cracks in the wood.
5. Stain all oak wood mullion surfaces with Miniwax wood Finish Penetrating Stain in Golden Oak or approved equal.

6. Remove and replace all water damaged sheetrock. Tape and spackle and prepare surface for painting. Paint to match existing adjacent walls.

7. Install mirror finishing tinting film.

8. Clean

○ **Structural Allowance**
  Include an allowance of $10,000 in the event that a new steel header is needed to replace cmu walls.
<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Note</th>
<th>Chair</th>
<th>Note</th>
<th>Furniture</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Office Desk</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Conference Table</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Chair</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Side Table</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Lamp</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Literature</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Monitor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Printer</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Bookshelf</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Ring Light</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Please check with the procurement department for order details.
CONTRACTOR TO PROVIDE AND INSTALL THE FOLLOWINGS:
- DOORS AND TRIM
- OPTICS WILL HAVE KEYED LOCK DOORS
- CONTRACTOR TO FIELD MEASURE EXISTING OPENINGS

CONTRACTOR TO INSTALL THE FOLLOWING:
- CARPET TILES
- PATCH WALLS AND PAINT
- CEILING TILES
- PHONE AND NETWORK LINES FOR 2 OFFICES, 2 ADMIN. AND CONFERENCE ROOM

NJ TRANSIT TO PROVIDE FURNITURE:
- CONFERENCE ROOM
- 2 OFFICES
- 2 ADMIN. DESKS

FURNITURE TO BE PROVIDED BY NJ TRANSIT

NEW DOOR AND HARDWARE. CONTRACTOR TO FIELD VERIFY EXISTING OPENING.

CONTRACTOR INSTALL CARPET TILES. CARPET TILES PROVIDED BY NJ TRANSIT.

EXIST. ROOM

OFFICE #1

ADMIN #1 & 2

OFFICE #2

CONFERENCE ROOM

EXIST. ROOM 141 CONSTRUCTION PLAN

SCALE: 1/8" = 1'-0"
SUPervisors' Platform Perspective

SUPERVISORS' PLATFORM PLAN

CONFERENCE ROOM PLAN

CONFERENCE ROOM PERSPECTIVE
The custom Prodigy 86 Dispatch Console has been designed to meet and exceed the National Ergonomic Standards. This attractive free standing console offers state-of-the-art features such as “Prodigy Data Management System” and the advanced “Prodigy Personal Comfort System”.

By designing to the widest range of user sizes, 911 Manufacturing sets the bar for ergonomic adjustability. The flexibility of our furniture allows the user to personalize consoles individually based on today’s needs and reconfigure them in the future should needs change.

Features & Benefits of the Prodigy 86

**Work Surfaces:**

_**Selection of modular work surface designs.** Supports up to five 24” LCD monitors. Also able to support 10 monitors vertically._

_**Multi-functional keyboard surface.** Expansive input surface supports multiple keyboards, mouse devices and phones. The large cockpit shaped input surface improves ergonomic comfort by providing abundant space for daily workflow._

**Dual height adjustable work surfaces.** Fully independent keyboard and monitor surfaces provides height adjustability from ~23” to 50”.

**Table Features:**

_**Sit-to-stand.** One standard electric DC motor provides height adjustability of the monitor and keyboard surfaces from ~23” to 50” which complies with the proposed BSR/HFES 100 Ergonomic draft standard. A four memory position switch pad permits the user to save their preferred height adjustments._

_**Lift speed and weight handling capacity.** The independent front and rear heavy duty lift system travels a height range of 27” in ~14 seconds and lifts a static load up to 1000 lbs._

_**Center or Side CPU storage.** The center or side cabinet holds up to four CPU’s, is vented for cooling by using a mesh skin around the box allowing circulation all the way around the CPU._

For further INQUIRIES, contact us at our toll free number 866.898.4936, email sales@911direct.com, or fax 850.386.3190.

And visit our website at www.911direct.com. 911 Direct, Tallahassee, FL 850.386.3002.
Technical multi-use side cabinets. Side cabinets can be used for filing, trash, personal storage or CPU storage. They can be placed next to the base or stacked to create a side tower.

Cable Management:

Cable management. A snake tray and cable troughs eliminate cable stress while maintaining critical bend radius as the console moves from a seated to a standing position. Panel systems are not required for cable management which can significantly lower the cost of your console.

Optional Power Distribution Unit (PDU). The PDU provides quick disconnect and reconnect without having to gain access to the cabling below a raised floor. This “future ready” feature will significantly reduce downtime and cost associated to console relocation.

Safety Features on Sit-to-Stand Console:

On all Prodigy consoles safety goes into every design and we approve each design with UL. Safety features include protective shrouds that minimize potential pinch points and protect the user.

Overload Protection on all lift motors. Ensures longevity of motors and comes equipped with an automatic reset.

Prodigy Personal Comfort System:

Air Circulation. Compact and recessed personal desktop air diffusers offer both horizontal and vertical directional controls providing optimum user comfort without taking up valuable space on the work surface.

Circulating heat. A 250W circulating fan forced heater with LCD head up display control, assures personal comfort by providing warmth to the feet and legs.

Dashboard control unit. Includes 5-stage fan speed control for filtered air, with adjustable temperature Button control and On/off switch for heat, and task light dimmer control.

Panel Features:

Optional rear access panel system. Rear access pop-out panels (with recessed handles) allows technicians to access the CPU Cabinet from the rear, without interfering with the dispatcher.

Variety of panel styles. Allows seated eye contact with other individuals and visual access to projection screens. A variety of glass heights are available which helps minimize “voice bounce”.

Customized design/build options. Panels can be built with both tempered glass and fabric sections and configured in multiple heights to provide acoustical and visual benefits.

Lighting:

Lighting solutions. Optional dimmable task lighting and indirect lighting can be attached to the console to ensure the lighting can be relocated with little disruption and minimal cost. Indirect lamps provide energy efficiency with 75% up-light and 25% down-light.
TECHNICAL SPECIFICATIONS
G.O.B. - BUS OPERATIONS CENTER

TABLE OF CONTENTS

DIVISION 2 – SITE WORK
  02070 – SELECTIVE DEMOLITION

DIVISION 5 - METALS
  05120 – STRUCTURAL STEEL
  05500 - METAL FABRICATIONS

DIVISION 6 – WOOD AND PLASTICS
  06100 - ROUGH CARPENTRY
  06411- PLASTIC-LAMINATE-FACED-ARCHITECTURAL CABINETS

DIVISION 7 – THERMAL AND MOISTURE PROTECTION
  07213 - BATT AND BLANKET INSULATION
  07270 – FIRESTOPPING
  07620 - SHEET METAL FLASHING AND TRIM
  07920 - SEALANT AND CAULKING

DIVISION 8 – DOORS AND WINDOWS
  08100 – HOLLOW METAL DOORS AND FRAMES
  08116 - ALUMINUM DOORS AND FRAMES
  08141 - FLUSH WOOD DOORS
  08710 – DOOR HARDWARE
  08800 - GLAZING

DIVISION 9 – FINISHES
  09221 – NON-STRUCTURAL METAL FRAMING
  09250 - GYPSUM DRYWALL
09511 - ACOUSTICAL PANEL CEILING
09651 - RESILIENT BASE AND ACCESSORIES
09653 - STATIC CONTROL RESILIENT FLOORING
09681 - CARPET TILE
09693 - LOW PROFILE ACCESS FLOOR
09900 - PAINTS AND COATINGS

DIVISION 10 – SPECIALTIES
10440 – INTERIOR SIGNAGE
10512 –SOLID PLASTIC LOCKERS & BENCHES
10552 - FIRE EXTINGUISHERS, CABINETS, & ACCESSORIES

DIVISION 11 – EQUIPMENT
11310 – RESIDENTIAL APPLIANCES

DIVISION 12 – FURNISHINGS
12211 - HORIZONTAL LOUVER BLINDS
12241 - ROLLER WINDOW SHADES
12366 – SIMULATED STONE COUNTERTOPS
12720 - FREE STANDING COMPONENT SYSTEM FURNITURE

DIVISION 13 – SPECIAL CONSTRUCTION
13720 - SECURITY ACCESS
13750 - VIDEO SURVEILLANCE SYSTEMS
13850 - DESIGN-BUILD FIRE ALARM SYSTEMS
13900 – DESIGN-BUILD FIRE SPRINKLER SYSTEMS

DIVISION 15 – MECHANICAL
15000 – BASIC MECHANICAL REQUIREMENTS
15060 – HANGERS AND SUPPORTS
15070 – MECHANICAL SOUND VIBRATION SEISMIC CONTROL
15075 – MECHANICAL IDENTIFICATION
15080 – MECHANICAL INSULATION
15140 – DOMESTIC WATER PIPING
15150 – SANITARY WASTE AND VENT PIPING
15184 – REFRIGERANT PIPING
15410 – PLUMBING FIXTURES
15736 – PACKAGED ROOFTOP AIR CONDITIONING UNITS SMALL CAPACITY
15739 – SPLIT SYSTEM AIR CONDITIONING UNITS
15760 – TERMINAL HEATING & COOLING UNITS
15810 – DUCTS
15820 – DUCT ACCESSORIES
15830 – FANS
15850 – AIR OUTLETS AND INLETS
15905 – HVAC INSTRUMENTATION
15910 – DIRECT DIGITAL CONTROLS
15950 – TESTING, ADJUSTING AND BALANCING

DIVISION 16 – ELECTRICAL
16000 - BASIC ELECTRICAL REQUIREMENTS
16011 - SHORT CIRCUIT AND PROTECTIVE DEVICE COORDINATION STUDY
16060 - GROUNDING AND BONDING
16070 - ELECTRICAL HANGERS AND SUPPORTS
16075 - ELECTRICAL IDENTIFICATION
16095 - MINOR ELECTRICAL DEMOLITION
16123 - BUILDING WIRE AND CABLE
16130 - RACEWAY AND BOXES
16131 - CABINETS AND ENCLOSURES
16133 - CABLE TRAYS
16134 – UNDERFLOOR RACEWAY ASSEMBLIES AND FLOOR BOX
16140 - WIRING DEVICES
16141 – FLOOR BOXES
16150 - WIRING CONNECTIONS
16261 - STATIC UNINTERRUPTIBLE POWER SUPPLIES
16411 – ENCLOSED SWITCHES
16413 – ENCLOSED TRANSFER SWITCHES
16423 - ENCLOSED CONTACTORS
16442 - PANELBOARDS
16461 - DRY TYPE TRANSFORMERS
16491 - FUSES
16510 - INTERIOR LUMINAires
16530 - EMERGENCY LIGHTING
16710 - TELECOMMUNICATIONS SYSTEMS
16711 - LOCAL AREA NETWORK
16712 – TELEPHONE SYSTEM
16740 – AUDIO-VIDEO COMMUNICATIONS
16810 - SOUND AND VIDEO CIRCUITS
16811 - COMMUNICATIONS CABINETS, RACKS AND ENCLOSURES
16825 - TELECOMMUNICATIONS GROUNDING TEST AND DOCUMENTATION

END OF TABLE OF CONTENTS
SECTION 08116
ALUMINUM DOORS AND FRAMES

PART 1 GENERAL

1.1 RELATED SECTIONS

   A. Section 06100 – Rough Carpentry.
   B. Section 07920 - Sealant and Caulking.
   C. Section 08710 - Door Hardware.
   D. Division 16 – Wiring and conduit for electronic hardware.

1.2 REFERENCES

   A. American Architectural Manufacturers Association (AAMA)
      1. AAMA 609/610, Cleaning and Maintenance Guide for Architecturally Finished Aluminum.


1.3 SYSTEM DESCRIPTION

   1. Design frames and doors in exterior walls to:
      a. Accommodate expansion and contraction within service temperature range of -35°C to 35°C.
      b. Limit deflection of mullions to maximum 1/175th of clear span when tested to ASTM E330 under wind load of 1.2Kpa.
      c. Movement within system.
      d. Movement between system and perimeter framing components or substrate.

1.4 SUBMITTALS

   A. Submit one 300 x 300 mm corner sample of each type door and frame.
   B. Submit sample showing glazing detail, reinforcement, finish and location of manufacturer's nameplates.
   C. Frame sample to show glazing stop, door stop, jointing detail & finish.
   D. Manufacturer's Instructions:
      1. Submit manufacturer's installation instructions.
E. Indicate materials and profiles and provide full-size, scaled details of components for each type of door and frame. Indicate:
1. Interior trim and exterior junctions with adjacent construction.
2. Elevations of units.
3. Core thicknesses of components.
4. Type and location of exposed finishes, method of anchorage, number of anchors, supports, reinforcement, and accessories.
5. Location of caulking.
6. Each type of door system including location.
7. Arrangement of hardware and required clearances.

F. Submit catalogue details for each type of door and frame illustrating profiles, dimensions and methods of assembly.

G. Product Data:
1. Submit manufacturer's printed product literature, specifications and data sheets.
2. Submit two copies of Material Safety Data Sheets for door materials, adhesives and aluminum cleaner. Indicate VOC's for caulking materials during application and curing.

1.5 CLOSEOUT SUBMITTALS
A. Provide maintenance data for cleaning and maintenance of aluminum finishes for incorporation into Closeout Submittals manual.

1.6 WARRANTY
A. Provide a written warranty for work of this section from manufacturer for failure due to defective materials and from contractor for failure due to defective workmanship for ten (10) years respectively from the date of Substantial Completion.

1.7 DELIVERY, STORAGE AND HANDLING
A. Apply temporary protective coating to finished surfaces. Remove coating after erection. Do not use coatings that will become hard to remove or leave residue.
B. Leave protective covering in place until final cleaning of building.

PART 2 PRODUCTS
2.1 MATERIALS
A. Aluminum extrusions: Aluminum Association alloy AA6063-T5 anodizing quality.
B. Fasteners: stainless steel, finished to match adjacent material.

C. Door bumpers: black neoprene.

D. Glass in exterior and interior doors: as specified in Section 08800 - Glazing

E. Sealants: Section 07920 – Sealant and Caulking, colour as selected by Owner’s Representative.

2.2 ALUMINUM DOORS

A. Door stiles and rails: as indicated on drawings.

B. Reinforce mechanically-joined corners of doors to produce sturdy door unit.

C. Glazing stops: interlocking snap-in type for dry glazing.

D. Hardware: as per Section 08710 – Door Hardware.

2.3 ALUMINUM FRAMES

A. Frame members: Match adjacent existing.

2.4 ALUMINUM FINISHES

A. Finish exposed surfaces of aluminum components in accordance with Aluminum Association Designation System for Aluminum Finishes.

B. Appearance and properties of anodized finishes designated by the Aluminum Association as Architectural Class 1.

2.5 FABRICATION

A. Doors and framing to be by same manufacturer.

B. Fabricate doors and frames to profiles and maximum face sizes to match adjacent existing.

C. Provide structural steel reinforcement as required.

D. Fit joints tightly and secure mechanically.

E. Conceal fastenings.
F. Mortise, reinforce, drill and tap doors, frames and reinforcements to receive hardware using templates provided under Section 08710 - Door Hardware.

G. Isolate aluminum from direct contact with dissimilar metals, concrete and masonry.

PART 3 EXECUTION

3.1 MANUFACTURER’S INSTRUCTIONS

A. Compliance: comply with manufacturer’s written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions and data sheets.

3.2 INSTALLATION

A. Set frames plumb, square, level at correct elevation in alignment with adjacent work.

B. Anchor securely.

C. Install doors and hardware in accordance with hardware templates and manufacturer's instructions.

D. Adjust operable parts for correct function.

E. Make allowances for deflection of structure to ensure that structural loads are not transmitted to frames.

3.3 GLAZING

A. Glaze aluminum doors and frames in accordance with Section 08800 - Glazing.

3.4 CAULKING

A. Seal joints to provide weathertight seal at outside and air, vapour seal at inside.

B. Apply sealant in accordance with Section 07920 - Sealant and Caulking. Conceal sealant within the aluminum work except where exposed use is permitted by Owner’s Representative.
3.5 CLEANING


B. Perform cleaning as soon as possible after installation to remove construction and accumulated environmental dirt.

C. Clean aluminum with damp rag and approved non-abrasive cleaner.

D. Remove traces of primer, caulking, epoxy and filler materials; clean doors and frames.

E. Clean glass and glazing materials with approved non-abrasive cleaner.

F. Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

3.6 PROTECTION

A. Protect installed products and components from damage during construction.

B. Repair damage to adjacent materials caused by aluminum door and frame installation.

PART 4 COMPENSATION

4.1 MEASUREMENT AND PAYMENT

A. Measurement: The work of this section shall not be measured.

B. Payment: The cost of this section shall be included in the lump sum bid item for Division 8.

END OF SECTION
recommended in writing by glass manufacturer. Remove and replace glass that cannot be cleaned without damage to coatings.

C. Remove and replace glass that is damaged during construction period.

D. Wash glass on both exposed surfaces not more than four days before date scheduled for inspections that establish date of Substantial Completion. Wash glass as recommended in writing by glass manufacturer.

3.7 GLASS SCHEDULE

A. Glass Type #1-Monolithic clear fully tempered float glass.
   1. Minimum Thickness: 1/2-inch
   2. Safety glazing required.

B. Glass Type #2-Door glazing - monolithic clear fully tempered float glass.
   1. Minimum Thickness: manufacturer’s standard
   2. Safety glazing required.

PART 4 COMPENSATION

4.1 MEASUREMENT AND PAYMENT

A. Measurement: The work of this section shall not be measured.

B. Payment: The cost of this section shall be included in the lump sum bid item for Division 8.

END OF SECTION
SECTION 08800
GLAZING

PART 1  GENERAL

1.1 SUMMARY
A. Deliver, store, protect, and handle Products to site under requirements of General Provisions for Construction.

B. This Section includes the following:
   1. GL-1 for typical interior windows
   2. GL-2 for interior doors.
   3. Glazing and sealants and accessories.

C. Related Sections:
   1. Section 05500-Metal Fabrications

1.2 DEFINITIONS
A. Glass Manufacturers: Firms that produce primary glass, fabricated glass, or both as defined in referenced glazing publications.

B. Glass Thickness: Indicated by thickness designations in millimeters according to ASTM C 1036.

1.3 COORDINATION
A. Coordinate glazing channel dimensions to provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances.

1.4 SUBMITTALS
A. Submit under the requirements of the General Provisions for Construction.

B. Product Data: For each type of product.

C. Glass Samples: For each type of glass product other than clear monolithic vision glass; 12 inches square.

D. Glazing Accessory Samples: For sealants and colored spacers, in 12 inch lengths. Install sealant Samples between two strips of material representative in color of the adjoining framing system.

E. Glazing Schedule: List glass types and thicknesses for each size opening and location. Use same designations indicated on the Drawings.
F. Qualification Data: For installer, glass testing agency, and sealant testing agency.

G. Product Certificates: For glass.

H. Product Test Reports: For glazing sealants, for tests performed by a qualified testing agency.
   1. For glazing sealants, provide test reports based on testing current sealant formulations within previous 36-month period.

I. Preconstruction adhesion and compatibility test report.

J. Sample Warranties: For special warranties.

1.5 QUALITY ASSURANCE

A. Manufacturer: Company specializing in the manufacturing Products of this section with minimum three years documented experience.

B. Installer Qualification: Company specializing in performing work of this section with minimum of three years documented experience and who are certified under the National Glass Association’s Glass Installer Program.

C. Glass Testing Agency Qualifications: A qualified independent testing agency accredited according to the NFRC CAP 1 Certification Agency Program.

D. Sealant Testing Agency Qualifications: An independent testing agency qualified according to ASTM C1021 to conduct the testing indicated.

E. Mockups: Build mockups to demonstrate aesthetic effects and to set quality standards for materials and execution.

1.6 PRECONSTRUCTION TESTING

A. Preconstruction Adhesion and Compatibility Testing: Test each glass product, tape sealant, gasket, glazing accessory, and glass-framing member for adhesion to and compatibility with elastomeric glazing sealants.
   1. Testing is not required if data are submitted based on previous testing of current sealant products and glazing materials matching those submitted.
   2. Use ASTM C 1087 to determine whether priming and other specific joint-preparation techniques are required to obtain rapid, optimum adhesion of glazing sealants to glass, tape sealants, gaskets, and glazing channel substrates.
3. Test no fewer than eight samples of each type of material, including joint substrates, shims, sealant backings, secondary seals, and miscellaneous materials.

4. Schedule enough time for testing and analyzing results to prevent delaying the Work.

5. For materials failing tests, submit sealant manufacturer’s written instructions for corrective measures including the use of specially formulated primers.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, protect, and handle Products to site under requirements of General Provisions for Construction.

B. Protect glazing materials according to manufacturer’s written instructions. Prevent damage to glass and glazing materials from condensation, temperature changes, direct exposure to sun, or other causes.

1.8 FIELD CONDITIONS

A. Environmental Limitations: Do not proceed with glazing when ambient and substrate temperatures conditions are outside limits permitted by glazing material manufacturers and when glazing channel substrate are wet from rain, frost condensation, or other causes.

1. Do not install glazing sealants when ambient and substrate. Temperature conditions are outside limits permitted by sealant manufacturer or are below 40 deg F.

1.9 WARRANTY

A. Manufacturer’s Special Warranty for Coated –Glass Products: Manufacturer agrees to replace coated glass units that deteriorate within specified warranty period. Deterioration of coated glass is defined as defects developed from normal use that are not attributed to glass breakage or to maintain and cleaning coated glass contrary to manufacturer’s written instructions. Defects include peeling, cracking, and other indications of deterioration in coating.

1. Warranty Period: 10 years from date of Substantial Completion.

B. Manufacturer’s Special Warranty Laminated Glass: Manufacturer agrees to replace laminated glass units that deteriorate within specified warranty period. Deterioration laminated glass is defined as defects developed from normal use that are not attributed to glass breakage or to maintain and cleaning coated glass contrary to manufacturer’s written instructions. Defects include edge separation, delamination materially obstructing vision through glass, and blemishes exceeding those allowed by referenced laminated glass standard.

1. Warranty Period: 10 years from date of Substantial Completion.
C. The manufacturer of laminated glass assembly, single or double glazed, shall provide a 3-year warranty against electrical failure and/or delamination in material and workmanship of the switchable privacy glass panel.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. GL-1
   1. Pilkington North America
   2. PPG Industries, Inc.
   3. Or approved equal.

B. Source Limitations for Glass: Obtain from single source from single manufacturer for each glass type.
   1. Obtain tinted glass from single source from single manufacturer.
   2. Obtain reflective-coated glass from single source from single manufacturer.

C. Source Limitations for Glazing Accessories: Obtain from single manufacturer for each product and installation method.

2.2 PERFORMANCE REQUIREMENTS

A. General: Installed glazing systems shall withstand normal thermal movement and wind impact loads (where applicable) without failure, including loos or glass breakage attributable to the following: defective manufacture, fabrication, or installation; failure of sealants or gaskets to remain watertight and airtight, deterioration of glazing materials; or other defects in construction.

B. Safety Glazing: Where safety glazing is indicated, provide glazing that complies with 16 CFR 1201, Category II.

C. Thermal and Optical Performance Properties: Provide glass with performance properties specified, as indicated in manufacturer’s published test data, based on procedures indicated below.
   1. For monolithic-glass lites, properties are based on units with lites of thickness indicated,
   2. For laminated-glass lites, properties are based on products of construction indicated.
   3. Visible Reflectance: Center-of-glazing values, according to NFRC 300.
2.3 GLASS PRODUCTS, GENERAL

A. Glazing Publications: Comply with published recommendation of glass product manufacturers and organizations below unless more stringent requirements are indicated. See these publications for glazing terms not otherwise defined in this Section or in referenced standards.

B. Safety Glazing Labeling: Where safety glazing is indicated, permanently mark glazing with certification label of the SGCC. Label shall indicate manufacturer’s name, type of glass, thickness, and safety glazing standard with which glass complies.

C. Thickness: Where glass thickness is indicated, it is a minimum. Provide glass that complies with performance requirements and is not less than the thickness indicated.

D. Strength: Where annealed float glass is indicated, provide annealed float glass, heat strengthened float glass, or fully tempered float glass. Where heat-strengthened float glass is indicated, provide heat strengthened float glass or fully tempered float glass. Where fully tempered float glass is indicated provide fully tempered float glass.

2.4 GLASS PRODUCTS

A. Fully tempered Float Glass: ASTM C 1048, Kind FT (fully tempered), Condition A (uncoated) unless otherwise indicated, Type 1, Class 1 (clear), Quality –Q3.
   1. Fabrication Process: By horizontal (roller-hearth) process with roll-wave distortion parallel to bottom edge of glass as installed unless otherwise indicated.


2.5 GLAZING SEALANTS

A. General:
   1. Compatibility: Compatible with one and with other materials they contact, including glass products, seals of insulating-glass units, and glazing channel substrates, under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
   2. Suitability: comply with sealant and glass manufacturers’ written instructions for selecting glazing sealants suitable for applications indicated and for conditions existing at time of installation.
   3. Field-applied sealants shall have VOC content of not more than 250 g/L.
4. Sealants shall comply with the testing and product requirements of the California Department of Public Health’s (formerly, the California Department of Health Services’) “Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from indoor Sources Using Environmental Chamber.”

5. Colors of Exposed Glazing Sealants: As selected from manufacturer’s full range.

B. Glazing Sealant: Neutral-curing silicone glazing sealant complying with ASTM C920, Type S, Grade NS, Class 100/50, Use NT.

2.6 GLAZING TAPES

A. Back-Bedding Mastic Glazing Tapes: Preformed, butyl-based, 100 percent solids elastomeric tape; nonstaining and nonmigrating in contact with nonporous surfaces; with or without spacer rod as recommended in writing by tape and glass manufacturers for application indicated; and complying with ASTM C1281 and AAMA 899 for products indicated below:
   1. AAMA 804.3 tape, where indicated.
   2. AAMA 806.3 tape, for glazing applications in which tape is subject to continuous pressure.
   3. AAMA 807.3 tape, for glazing applications in which tape is not subject to continuous pressure.

B. Expanded Cellular Glazing Tapes: Closed-cell, PVC foam tapes; factory coated with adhesive on both surfaces; and complying with AAMA 800 for the following types:
   1. AAMA 810.1, Type 1, for glazing applications in which tape acts as the primary sealant.
   2. AAMA 810.1, Type 2, for glazing applications in which tape is used in combination with a full bead of liquid sealant.

2.7 MISCELLANEOUS GLAZING MATERIALS

A. General: Provide products of material, size, and shape complying with referenced glazing standard, with requirements of manufacturers of glass and other glazing materials for application indicated, and with a proven record of compatibility with surfaces contacted in installation.

B. Cleaners, Primers, and Sealers: Types recommended by sealant or gasket manufacturer.

C. Setting Blocks: Elastomeric material with a Shore, Type A durometer hardness of 85, plus or minus 5.
   1. Interior Windows: CR Laurence Co., (or approved equal), CRL 1/8–inch x 1/2–inch x 2- inch Neoprene Setting Blocks, 80 Durometer, SB562
2. Setting blocks for switchable privacy glass: follow manufacturer’s recommended system.

D. Interior Window Gaskets:
   1. CR Laurence Co., Inc. (or approved equal), CRL 1/2-inch Roll-in Glazing gasket, RG12100

E. Spacers: Elastomeric blocks or continuous extrusions of hardness required by glass manufacturer to maintain glass lites in place for installation indicated.

F. Edge Blocks: Elastomeric material of hardness needed to limit glass lateral movement (side wakening).

G. Cylindrical Glazing Sealant Backing: ASTM C 1330, Type O (open-cell material), of size and density to control glazing sealant depth and otherwise produce optimum glazing sealant performance.

2.8 FABRICATION OF GLAZING UNITS

A. Fabricate glazing units in sizes required to fit openings indicate for Project, with edge and face clearances, edge and surface conditions, and bite complying with written instructions of product manufacturer and referenced glazing publications, to comply with system performance requirements.
   1. Allow for thermal movements from ambient and surface temperature changes acting on glass framing members and glazing components.
      a. Temperature Change: 120 deg F, ambient; 180 deg F

B. Clean-cut or flat-grind vertical edges of butt-glazed monolithic lites to produce square edges with slight chamfers at junctions of edges and faces.

C. Grind smooth and polish exposed glass edges and corners.

PART 3 EXECUTION

3.1 PREPARATION

A. Examine framing, glazing channels, and stops, with Installer present, for compliance with the following:
   1. Manufacturing and installation tolerances, including those for size, squareness, and offsets at corners.
   2. Presence and functioning of weep systems.
   3. Minimum required face and edge clearances.
   4. Effective sealing between joints of glass-framing members.
B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION/INSTALLATION

A. Clean glazing channels and other framing members receiving glass immediately before glazing. Remove coating not firmly bonded to substrates.

B. Examine glazing units to locate exterior and interior surfaces. Label or mark units as needed so that exterior and interior surfaces are readily identifiable. Do not use materials that leave visible marks in the complete Work.

3.3 GLAZING, GENERAL

A. Comply with combined written instruction of manufacturers of glass, sealants, gaskets, and other glazing materials, unless more stringent requirements are indicated, including those in referenced glazing publications.

B. Protect glass edges from damage during handling and installation. Remove damaged glass from Project site and legally dispose of off Project site. Damaged glass includes glass with edge damage or other imperfections that when installed, could weaken glass, impair performance, or impair appearance.

C. Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction testing.

D. Install setting blocks in sill rabbets, sized and located to comply with referenced glazing publications, unless otherwise required by glass manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead.

E. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.

F. Provide spacers for glass lites where length plus width is larger than 50 inches.
   1. Locate spacers directly opposite each other on both inside and outside faces of glass. Install correct size and spacing to preserve required face clearances, unless gaskets and glazing tapes are used that have demonstrated ability to maintain required face clearances and to comply with system performance requirements.
2. Provide 1/8-inch minimum bite of spacers on glass and use thickness equal to sealant width. With glazing tape, use thickness slightly less than final compressed thickness of tape.

G. Provide edge blocking where indicated or needed to prevent glass lites from moving sideways in glazing channel, as recommended in writing by glass manufacturer and according to requirements in referenced glazing publications.

H. Set glass lites in each series with uniform pattern, draw, bow, and similar characteristics.

I. Set glass lites with proper orientation so that coatings face exterior or interior as specified.

J. Where wedge-shaped gaskets are driven into one side of channel to pressurize sealant or gasket on opposite side, provide adequate anchorage so gasket cannot walk out when installation is subjected to movements.

K. Square cut wedge-shaped gaskets at corners and install gaskets in a manner recommended by gasket manufacturer to prevent corners from pulling away; seal corner joints and butt joints with sealant recommended by gasket manufacturer.

3.4 TAPE GLAZING

A. Position tapes on fixed stops so that, when compressed by glass, their exposed edges are flush with or protrude slightly above sightline of stops.

B. Install tapes continuously, but not necessarily in one continuous length. Do not stretch tapes to make them fit opening.

C. Cover vertical framing joints by applying tapes to heads and sills first, then to jambs. Cover horizontal framing joints by apply tapes to jambs, then to heads and sills.

D. Place joints in tapes at corners of opening with adjoining lengths butted together, not lapped. Seal joints in tapes with compatible sealant approved by taped manufacturer.

E. Do not remove release paper from tape until right before each glazing unit is installed.

F. Apply heel bead of elastomeric sealant.

G. Center glass lites in openings on setting blocks, and press firmly against tape by inserting dense compression gaskets formed and installed to lock
in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings.

H. Apply cap bead of elastomeric sealant over exposed edge of tape.

### 3.5 GASKET GLAZING (DRY)

A. Cut compression gaskets to lengths recommended by gasket manufacturer to fit openings exactly, with allowance for stretch during installation.

B. Insert soft compression gasket between glass and frame or fixed stop so it is securely in place with joints miter cut and bonded together at corners.

C. Installation with Drive-in Wedge Gaskets: Center glass lites in openings on setting blocks, and press firmly against soft compression gasket by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings. Compress gaskets to produce a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended by gasket manufacturer.

D. Installation with Pressure-Glazing Stops: Center glass lites in openings on setting blocks, and press firmly against soft compression gasket. Install dense compression gaskets and pressure-glazing stops, applying pressure uniformly to compression gaskets. Compress gaskets to produce a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended by gasket manufacturer.

E. Install gaskets so they protrude past face of glazing stops.

### 3.6 SEALANT (WET)

A. Install continuous spacers, or spacers combined with cylindrical sealant backing, between glass lites and glazing stops to maintain glass face clearances and to prevent sealant from extruding into glass channel and blocking weep systems until sealants cure. Secure spacers or spacers and backings in place and in position to control depth of installed sealant relative to edge clearance for optimum sealant performance.

B. Protect glass from contact with contaminating substances resulting from construction operations. Examine glass surfaces adjacent to or below concrete and other masonry surfaces at frequent intervals during construction, but not less than once a month, for buildup of dirt, scum, alkaline deposits, or stains.
   1. If, despite such protection, contaminating substances do come into contact with glass, remove substances immediately as
recommended in writing by glass manufacturer. Remove and replace glass that cannot be cleaned without damage to coatings.

C. Remove and replace glass that is damaged during construction period.

D. Wash glass on both exposed surfaces not more than four days before date scheduled for inspections that establish date of Substantial Completion. Wash glass as recommended in writing by glass manufacturer.

3.7 GLASS SCHEDULE

A. Glass Type #1-Monolithic clear fully tempered float glass.
   1. Minimum Thickness: 1/2-inch
   2. Safety glazing required.

B. Glass Type #2- Door glazing - monolithic clear fully tempered float glass.
   1. Minimum Thickness: manufacturer's standard
   2. Safety glazing required.

PART 4 COMPENSATION

4.1 MEASUREMENT AND PAYMENT

A. Measurement: The work of this section shall not be measured.

B. Payment: The cost of this section shall be included in the lump sum bid item for Division 8.

END OF SECTION
SECTION 16740
AUDIO-VIDEO COMMUNICATIONS

PART 1 GENERAL

1.1 SUMMARY

A. Section includes LCD video wall displays, control equipment, video capture and accessories.

B. Related Sections:
1. Section 13750 - Video Surveillance.
2. Section 16130 - Raceway and Boxes: Conduits and boxes.
4. Section 16711 - Local Area Network.
5. Section 16810 - Sound and Video Circuits: Video cable.
6. Section 16811 - Communications Cabinets, Racks and Enclosures.

1.2 SYSTEM DESCRIPTION

A. Description: Video visualization and collaboration system integrated with the NJ TRANSIT WAN network and providing connectivity with the Newton Avenue Bus Operations Command Center, including multi-panel video walls and individual display systems as indicated on Drawings, expandable and upgradeable to accommodate future equipment additions, facility expansion and renovation.

1. Control Center (Room 204) Video Wall: (24) 55-inch x 3.5 mm Ultra-Thin Bezel integrated units, 2 rows high x 12 columns long; and, (6) individual 55-inch x 3.5 mm Ultra-Thin Bezel units in the back of the Control Center.
2. Conference Space (Room 201) Video Wall: There are two sets of 2x2 video walls. Each video wall consists of (4) 55-inch x 3.5 mm Ultra-Thin Bezel integrated units, 2 rows high x 2 columns long. One on the left and one on the right side of room.
3. Training Office (Room 216), Control Center Chiefs (Room 211) and Training Space (Room 215) Video Wall: (2) 55-inch x 3.5 mm Ultra-Thin Bezel integrated units, 1 row high x 2 columns long.
4. BOC Director Office (Room 202) Video Wall: (4) 55-inch x 3.5 mm Ultra-Thin Bezel integrated units, 2 rows high x 2 columns long.
5. Other Spaces (Rooms 203, 206, 207, 208, 211, 213, 214, 217, 223 and 232): (1) 55-inch x 3.5 mm Ultra-Thin Bezel individual unit in each.

B. The project will also include the following video wall installation which serves the Telephone Information Center, and is not integrated with the Bus Operations Center devices above:
1. Conference Space (Room 235) Video Wall: (4) 55-inch x 3.5 mm Ultra-Thin Bezel integrated units, 2 rows high x 2 rows long.
1.3 REFERENCES

A. Federal Communications Commission:

B. Institute of Electrical and Electronics Engineers:

C. National Fire Protection Association:

D. Telecommunications Industry Association/Electronic Industries Alliance:
   1. ANSI/EIA 310-D – Cabinets, Racks, Panels and Associated Equipment.
   2. TIA/EIA 568 – Commercial Building Telecommunications Cabling Standard.
   3. TIA/EIA 569 – Commercial Building Standard for Telecommunication Pathways and Spaces.
   4. TIA/EIA 607 – Commercial Building Grounding and Bonding Requirements for Telecommunications.

1.4 SUBMITTALS

A. Submit in accordance with General Provisions for Construction. All Manufacturer Certifications, Shop Drawings, Product Submittals, and system revisions must be reviewed by NJ TRANSIT Telecommunications and Network Planning Department prior to installation.

B. Work Plan: Provide within 60 days of Notice-to-Proceed. Include the following information:
   1. Work schedule specific to this section, indicating tasks and milestones, including but not limited to:
      a. Projected start and completion dates for installation of equipment.
      b. Projected purchase date for each piece of equipment.
      c. Projected start and completion dates for acceptance testing.
      d. Other milestones as deemed appropriate.
   2. Schedule of related work to be completed by NJ TRANSIT, with required completion dates.
   3. Indicate any power supply and/or cabling requirements that vary from the design plans and specifications.
   4. Quality assurance plan describing the policies, practices, procedures and methodologies proposed to ensure compliance with the Contract specifications.

C. Shop Drawings: Indicate system wiring diagram showing each device, electrical characteristics, and wiring connections; device layout; rack elevations; and sequence of operation.
D. Product Data: Submit catalog data showing electrical characteristics and connection requirements.

E. Test Plans and Reports:
   1. Indicate proposed procedures and expected results for specified field-testing and inspection. Describe tests to be performed on each component, indicating how the test will demonstrate compliance with specified requirements under all functional modes of system operation. Provide at least ten (10) days in advance of Pre-Installation Meeting specified in Article 1.7 below.
   2. Submit CAT5e cabling test results prior to A/V equipment installation.
   3. Following installation, report results with comparison made to required acceptance criteria.

F. Manufacturer's Field Reports: Indicate activities on site, adverse findings, and recommendations.

1.5 CLOSEOUT SUBMITTALS

A. Submit in accordance with General Provisions for Construction.

B. Project Record Documents: Record actual locations of security access equipment.

C. Operation and Maintenance Data: Submit manufacturer's standard operating and maintenance instructions.

1.6 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum ten years documented experience.

B. Installer: Company specializing in installing products specified in this section with minimum ten years documented experience, certification from all installed product manufacturers, service facilities within 100 miles of project; approved by NJ TRANSIT Telecommunications and Network Planning Department; and, certified to work with products specified herein and with existing NJ TRANSIT network infrastructure. Use qualified technicians thoroughly trained by the video wall system provider for all installation, configuration and setup of software and equipment.

C. Installation Support: Subcontract with NJ TRANSIT approved contractor to physically connect the cabling to the A/V system equipment; and to supervise testing and commissioning of the system.

1.7 PRE-INSTALLATION MEETINGS

A. Convene in accordance with General Provisions for Construction.

B. Convene minimum ten (10) days prior to commencing work of this section.
1.8 COORDINATION

A. Coordinate all work with the NJ TRANSIT Telecommunications and Network Planning Department personnel.

1.9 MAINTENANCE SERVICE

A. Furnish service and maintenance of video wall systems equipment for five years **Gold Support** from Date of Substantial Completion.

PART 2 PRODUCTS

2.1 SYSTEM MANUFACTURER/INTEGRATOR

A. Activu Corp., “ActivWare” or approved equal.

B. Substitutions: Submit requests for substitution in accordance with the General Provisions for Construction.

2.2 GENERAL REQUIREMENTS

A. General Description: Collaborative, integrated video wall system designed for commercial/industrial use in an around-the-clock operations control room environment, and comprised of a suite of video wall system management software modules using on a commercially available, off-the-shelf hardware platform and utilizing standard protocols for network communication.

1. Integration: Fully distributed and designed for multiple-site/multiple-server installations requiring continuous operation and support for devices from different vendors, and providing centralized management of all devices, servers and users. Refer to Contract drawings for complete A/V system architecture and connectivity.

2. Capacity: Allow an unlimited number of users and groups to be defined, and an unlimited number of displays to be connected to each system across multiple sites.

3. Compatibility: Support Microsoft Windows Server 2012 R2 64 Bit or Microsoft Windows 7, with the latest patches and service packs installed using the Microsoft.NET Framework.

4. Functionality: Technology and software components completely functional and operational as an implemented solution.

5. Source Control: Delivered system components as OEM products with no secondary branding. Refer to Contract drawings for A/V system equipment schedule, and provide all equipment indicated and as otherwise necessary to install a functionally complete and operational system.
2.3 CORE COMPONENTS

A. Control/Management Application: Provides primary administrative control over all system functions and resources; and, handles client login, system configuration, asset database and logging.
   1. Provides a management client from where an administrator can configure and manage all servers, system resources, and users.
   2. Can be installed on dual servers configured as a Windows Cluster so that the secondary server in the cluster automatically takes over in case of primary server failure.
   3. Allows discrete system software modules to communicate from any location within a local area network.
   4. Supports the display of standard video signal formats, applications, and industry-standard IP streaming video sources.
   5. Supports integrated audio systems to allow full user control of all audio sources audio defined in the system.
   6. Supports 256 bit AES encrypted transmission between software modules.

B. Video Display Processor: Generates visual information for all system displays under the control of the management application; allows the display processor software to be installed on dual servers in a failover configuration ensuring that the secondary processor server automatically takes over in case the first server fails; and, provides support capability for system scaling and expansion.

C. Graphical User Interface: Provide the user with an intuitive interface for control and management of the video wall system content in real time; and, provides support capability for system scaling and expansion.

D. Computer Desktop Transport and Remote Control: Support the transport, display, and remote control of computer desktops via Ethernet protocol.

E. IP Streaming Video Decoding: Provides the system with the capability to view multiple IP video streams from multiple IP camera/streaming video encoder vendors in all industry-standard formats and resolutions; and, provides support capability for system scaling and expansion.

2.4 SYSTEM ARCHITECTURE

A. Network: Standard Ethernet-based local area network (LAN) with all system communications via TCP/IP standards based except where external devices under system control are better communicated with via RS-232, RS-422, or infrared methods.

B. Hardware: Comprised of commercially available servers and workstations specified, configured, and provided by the system manufacturer.
   1. Servers and Workstations: 64-bit Windows OS, Windows Server 2012 R2 or Windows 7 compatible using the Microsoft .NET framework configured for
resilient 24/7/365 operation with redundant power supplies and RAID 1 or higher storage drive systems.

2. Video Display Processors: Capable of processing industry-standard video signals for display, to include DisplayPort, DVI, HDMI, VGA/RGBHV, Component Video and Composite Video.
   a. Graphics: Utilize high-performance graphics output cards to render the video image for distribution to display systems.
   b. Hardware: Capable of driving any commercially available display systems that utilize industry-standard video signals inputs, to include DisplayPort, DVI, HDMI, VGA/RGBHV, Component Video and Composite Video.

3. Configure the core system hardware and video display processor for automatic failover in the event of primary system failure.

C. Software Architecture: Modular and scalable in function, capable of residing on different host machines and communicating via encrypted TCP/IP transmissions within the LAN; supporting the use of multi-port network interface cards (NIC); capable of supporting the use of libraries provided within the Microsoft .NET framework; and capable of being configured for automatic failover in the event of primary system failure.

D. Sources: Capable of simultaneously or displaying multiple types of video signals, IP based streaming video formats, remote desktops, video graphics, web pages, graphics files, video files, and applications for simultaneous viewing on any system display via an unlimited amount of sources defined within the system and available to any authorized user.

E. Displays: Capable of displaying any available system source on any common commercially available display utilizing common standard video signal types via an unlimited amount display wall processors defined within the system and available to any authorized user. Allow remote displays to be driven via TCP/IP communications via a local display processor.

2.5 FUNCTIONALITY

A. Graphical User Interface (GUI): Windows-based software capable of managing all available system operational functions, displaying all defined system resources authorized for access by the current user profile.
   1. System Access: Via user authentication/login, with option for using Windows Authentication credentials for system login in Active Directory environments; and allowing multiple users to log in and control the system concurrently in accordance with their designated user rights.
   2. Display: Provide a graphical representation of all system displays, indicate all content available and currently displayed in the system, and provide an intuitive means for dynamically arranging content on any of the system displays.
   3. System Resources: Viewable as a list, resource tree, or searchable by typing the designation of the desired resource.
5. Annotation: Provide capability for whiteboard-like drawing over system images, and storage and recall of annotations.
6. Scripts: Create, store and recall multiple scripted actions, assignable to user-defined push button-like graphical controls, allowing the scripts to execute upon clicking.
7. Content Management Functions:
   a. Resource View: A list of all available resources available to the system.
   b. Resource Search: The capability to search system resources by typing the name of the resource.
   c. Video Wall Representation: The capability to see and manipulate a graphical representation of the video wall and/or displays along with the current content being displayed in real-time.
   d. Content Templates: The capability to store and recall image locations on the video wall display independently of actual content. New content added to the video wall is immediately aligned to content template boundaries.
   e. Presets: The capability to store and recall content along with their relative positions on the video wall.
   f. Crop: The capability to remove unwanted peripheral content from displayed content.
   g. Zoom: The capability to magnify areas of a displayed source on the video wall.
   h. Size: The capability to re-size content as it appears on the video wall; either preserving or modifying the original aspect ratio of the source.
   i. Layering: The capability to place content on top of (or underneath) other content on the video wall.
   j. Image Blending: The capability to make a displayed image partially transparent thereby making layered content underneath the primary image visible.
   k. Color Keying: The capability to make certain colors of a displayed image transparent thereby making layered content underneath the color visible.
   l. Snap: The capability to force displayed content to align with the boundaries of a display.
   m. Source Default Parameters: The capability to define default size and aspect ratio settings for a source.
   n. Event Scheduling: The capability to automatically call up predetermined content on the video wall by time-driven schedule.
   o. Multi-Views: The capability to create multiple alternate versions of displayed video wall content and toggle rapidly between them.
   p. Multi-Zone Audio Control: The capability to select audio source and control volume for all audio-capable sources and all audio zones defined within a system.
B. Administrative Application: Setup and configuration utility application for administrative functions not directly exposed to system users, providing full administrative control over all system configuration parameters for authorized users; and requiring additional login credentials independent from system user credentials.

C. Remote Desktop Transport Application: Lightweight application capable of being installed on host machines intended to be used as sources for the system, providing lossless transport of the host system’s desktop image via TCP/IP protocol; communicating with the core system via a FIPS compliant, AES 256-bit encrypted transport mechanism; and providing the capability to:

1. Transport desktops from hosts with multi-headed displays;
2. Reduce the active area of the desktop being transported to a smaller, user-defined area;
3. Enable remote Keyboard and Mouse (KM) control of the host machine;
4. Transport of the host machine audio output;
5. Control the rate at which desktop images are transmitted in order to meet network bandwidth limitations;
6. Notify the host machine user when the desktop transport is active and connected to the core system; and,
7. Allow authorized host machine operators to set control parameters for communication with the core system, and to disable KM or desktop transport if desired.

PART 3 EXECUTION

3.1 INSTALLATION

A. Install all materials and equipment in accordance with manufacturer’s instructions and IEEE 802.3.

B. Furnish install and test all equipment, terminals, hardware, wiring and cabling, conduits and fittings, and make all the connections and cross-connections required for a complete and operational installation of the equipment, including all required connections to the NJ TRANSIT corporate network.

1. Provide all necessary cabling and infrastructure to support equipment. Install wire and cable in accordance with Sections 16123 and 16710. Terminate all spare cabling.
2. Provide Ethernet Cat6A cabling to system devices as indicated on the Contract drawings.
3. Provide 120 VAC and/or low voltage circuits for system components to power equipment.
4. Carefully follow the instructions in the documentation provided by the video wall system provider to ensure that all steps have been taken to provide a safe, reliable, easy-to-operate system.

C. Test and configure all equipment in accordance with instructions provided by the video wall system provider prior to installation.
D. Ground and bond security access equipment and circuits in accordance with Section 16060.

3.2 MANUFACTURER'S FIELD SERVICES

A. Furnish services of technician to supervise installation, adjustments, final connections, system testing, and Owner training.

B. Conduct a site acceptance test, verifying system performance in the intended environment and commission the system use.

3.3 FIELD QUALITY CONTROL

A. Inspect and test equipment in accordance with manufacturer’s instructions.

B. Verify that equipment is properly installed, connected, and labeled and that interconnecting wires and terminals are identified. Conduct tests in accordance with test plans approved by NJ TRANSIT.

C. Align and adjust system and pretest components, wiring, and overall system function to verify compliance with specified requirements. Replace malfunctioning or damaged items at no additional cost to NJ TRANSIT. Retest until satisfactory performance and conditions are achieved.

D. Schedule final tests after pre-testing has successfully been completed and system has been in normal functional operation for at least fourteen (14) days. Coordinate testing schedule with Construction Manager, Engineer and manufacturer. Provide minimum of ten (10) days’ notice prior to proposed commencement of final tests.

E. Perform operational system tests to verify that system complies with specified requirements. Test equipment for proper operation in all functional modes of system operation. Document test results and submit to Engineer.

3.4 DEMONSTRATION AND TRAINING

A. Furnish eight (8) hours of instruction for up to ten (10) NJ TRANSIT staff, to be conducted at project site with manufacturer's representative. Coordinate training schedule with Construction Manager, Engineer and manufacturer. Provide minimum of ten (10) days’ notice prior to proposed commencement of training.

B. Instruct NJ TRANSIT staff on how to adjust, operate, and maintain equipment:
   1. Review procedures and schedules for troubleshooting, servicing, and maintaining equipment.
   2. Demonstrate methods of determining optimum alignment and adjustment of components and settings for system controls.
   3. Review data in maintenance manuals.
PART 4 COMPENSATION

4.1 MEASUREMENT AND PAYMENT

A. Measurement: The work of this section shall not be measured.

B. Payment: The cost of this section shall be included in the lump sum bid item [ELECTRICAL] [TELECOMMUNICATIONS SYSTEMS].

C. Changes in Technology: The equipment/systems specified herein may be impacted by changes in technology occurring during the course of construction. The lump sum bid price provided shall be based on the products specified; however, NJ TRANSIT may require product substitutions prior to purchase and installation based on changes in technology and/or operating systems. To account for this possibility:

1. Submit a schedule of equipment to be purchased under this Section for NJ TRANSIT review 60 days prior to the required purchase date.
2. Do not purchase equipment specified herein more than 6 months prior to project completion or sooner than required to meet the project schedule.
3. Where equipment specified herein must be purchased more than 6 months prior to the project completion date, submit written justification for same with the purchasing schedule.
4. Changes in costs due to product substitutions shall be fully documented relative to the original bid price, and shall be handled as a change order to the contract.

END OF SECTION
PART 1 GENERAL

1.1 SUMMARY

A. Drawings and general provisions of Contract, including General and Supplementary Conditions apply to this Section.

B. Section includes:
   1. Conductive fiber carpet tile, C-1, C-3 and C-4
   2. Carpet Tile, C-2.

C. Related Requirements:
   1. Section 02070 "Selective Demolition" for removing existing floor coverings and preparation of concrete floor surface for installation of tile carpeting.
   2. Section 09651 "Resilient Base and Accessories" for resilient wall base and accessories installed with carpet tile.
   3. Section 09681 “Carpet Tile”
   4. Section 09693 “Low-Profile Access Flooring”

1.2 SUBMITTALS

A. Submit under the requirements of the General Provisions for Construction.

B. Product Data: For each type of product.
   1. Include manufacturer's written data on physical characteristics, durability, and fade resistance.
   2. Include installation recommendations for each type of substrate.

C. Shop Drawings: Show the following:
   1. Columns, doorways, enclosing walls or partitions, built-in cabinets, and locations where cutouts are required in carpet tiles.
   2. Carpet tile type, color, and dye lot.
   3. Type of subfloor.
   4. Type of installation.
   5. Pattern of installation.
   6. Pattern type, location, and direction.
   7. Pile direction.
   8. Type, color, and location of insets and borders.
   9. Type, color, and location of edge, transition, and other accessory strips.
   10. Transition details to other flooring materials.