

SECTION 12 59 83 – CUSTOM SYSTEMS FURNITURE

1.01 SUMMARY

- A. **Scope:** This Section covers the performance requirements, design, supply, installation, and commissioning of complete custom systems furniture or consoles, as required for electronic equipment and process control system (PCS) hardware in control rooms of the Works. ^{A16}This section of the Employer's Requirements shall be read in conjunction with the sections listed in Table 12 59 83-1. ^{A16}

- B. **Related Sections:**

TABLE 12 59 83-1: RELATED SECTIONS			
1.	Section 01 81 26	-	Communications, Control, Safety, and Security Systems.
2.	Section 11 52 23	-	Video Walls.
3.	Section 25 11 00	-	Data Processing Equipment.
4.	Section 27 11 16	-	Cabinets, Racks, Frames, and Enclosures.
5.	Section 27 31 33	-	Radio-Telephone Communications Console Systems.
6.	Section 40 95 13	-	Process Control Hardware.

1.02 REFERENCE

- A. **Applicable Publications:** Refer to Section 01 81 26 (Communications, Control, Safety, and Security Systems), Paragraph 1.02.
- B. **Conceptual Drawings:**

Table 12 59 83-2: Process Integration ^{A17} Conceptual Design Drawings and Sub-Clause 5.1 of the Conditions of Contract ^{A17}	
ACP VF Number	Description
VF-1702-118-158 Sheet 1 of 2	Layout Central Control Room (2 sheets)
VF-1702-118-158 Sheet 2 of 2	Layout Central Control Room (2 sheets)
VF-1702-118-161	Control Room View

1.03 REQUIREMENTS

- A. **General Requirements:**

- The ^{A17}Contractor ^{A17} shall meet ergonomic and all applicable requirements of Section 01 81 26 (Communications, Control, Safety, and Security Systems), paragraph 1.03.
- Each console shall have ample space to hold the PCS equipment necessary for one LMCS operator per Section 40 95 13.13 (Locks Machinery Control Systems)

and a workstation for office software per Section 25 11 00 (Data Processing Equipment).

3. Any applicable rack spacing below working surfaces shall have nominal width of 483 mm (19") in accordance with Section 27 11 16 (Cabinets, Racks, Frames, and Enclosures).
4. Plastic laminated surfaces (i.e., Formica) for covers or table top finishes are unacceptable.

B. Equipment and Materials:

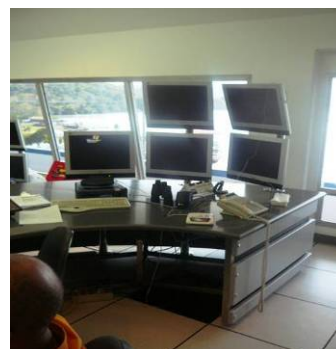
1. **Chairs:** Will be furnished by the Employer.
2. **Consoles:**
 - a. Each console shall accommodate one operator (regardless of what some photographs may show below).
 - b. ^{A17}Consoles shall be semi-circular, and as illustrated in Photographs 12 59 83-1, -2, and -3. Internal and external diameters shall be approximately 1.76 and 4.5 meters, respectively, and height shall be approximately 745 mm. ^{A17}



Photograph 12 59 83-1: Left hand side view of existing console.



Photograph 12 59 83-2: Center view of existing console, with clear sight of video wall.



Photograph 12 59 83-3: Right hand side view of existing console.

- c. Units shall have ample workspace and adequate space for the required number of computer screens and room to increase by no less than four (4) screens without obstructing the view towards the video wall. Work surfaces shall be smooth and level, and shall withstand the required loading.
- d. Consoles shall be of modular design so these can be easily transported and assembled on-site. Modules shall be rigid and self-supporting.
- e. Each unit shall be equipped with two ergonomic, slide in/out, adjustable keyboard/mouse trays.

- f. Consoles shall be provided with easily adjustable, manually operated leveling devices in all bases. Such leveling devices shall not scratch or damage raised access floor tiles.
- g. Units shall have provisions for horizontal and vertical cable management, including holes or slots to allow cables crossing between modules and from raised access floors in the most concealed and aesthetical way possible.
- h. Consoles shall be provided with switchable power outlets to supply reliable 120 VAC power to the installed equipment. These outlets shall have a network-grade surge and noise suppression, isolated filter banks to limit noise interaction among connected items, and status LEDs to indicate power, fault and protection.
- i. Finishes shall include baked enamel paint for metal and DuPont Corian or better approved material for working surfaces, for its durability and resistance to bacteria growth, heat, hot water, stains, and wear. Consoles shall include a stainless steel structure to support Corian surfaces and protect them from cracking.
- j. Finish styles and colors shall be as reviewed by the Employer's Representative, among the standard options.
- k. The Employer strongly prefers reconfigurable consoles that facilitate future equipment retrofits without requiring any major modifications to the structure or exterior elements.

2. **Monitor Pedestals:**

- a. Pedestals shall be made of polished stainless steel pipe big enough for cables to be installed inside, as illustrated in Photographs 12 59 83-4 and -5. Horizontal ends for video display monitors shall be suitable for adapting directly to monitor supports and allowing adjusting viewing angle.
- b. Units shall be capable of supporting one or two flat monitors as required, at two different viewing levels.



Photograph 12 59 83-4: Typical monitor pedestals.



Photograph 12 59 83-5: Close-up of monitor pedestal's horizontal end showing hidden cabling and monitor mount.

C. Installation:

1. Consoles:

- a. No less than two consoles shall be furnished for the control room in each main control building.
- b. Units shall be leveled.
- c. Units shall be located to have similar panoramic and orientation in the best viewing angle towards a video wall as specified in Section 11 52 23 (Video Walls), but at different floor levels, to avoid visual interference between them.
- d. Edges and transitions shall be rounded or smooth. There shall be no sharp corners or potential safety hazards. Bloated, broken, cracked, or otherwise irregular finishes are unacceptable.
- e. Console top shall be of one or more piece fabrication. If more than one piece, Corian pieces shall be chemically welded together and polished to make the joint indistinguishable.
- f. Metal structures shall be electrically grounded.

2. Monitor Pedestals:

- a. Pedestals shall be bolted to the floor and console top, and shall be secured through the raised access floor.
- b. All the hardware used to install and secure monitor pedestals shall be made of stainless steel.

1.04 DESIGN CRITERIA/SYSTEM PERFORMANCE

A. General:

1. **Problem to be Solved:** Custom systems furniture shall solve the following business needs:
 - a. Accommodate a variety of communications equipment, computers, display, and operator interface devices.
 - b. Provide switchable power outlets, surge and noise free to supply the installed equipment, plus an addition of 50%.
 - c. Provide a reliable, comfortable, durable, solid work station and appropriate work space for the new locks operators.
2. **Restrictions to be Considered:** (reserved)

B. Design Criteria:

1. Consoles shall meet all applicable requirements of [Americans with Disabilities Act \(ADA\), regardless of citizenship](#), and BIFMA guidelines and standards.
2. Consoles shall be designed following the guidelines of Figures 12 59 83-1 through -3 shown below (do not show as-built conditions), improved as specified herein.
3. Units shall be designed to be maintenance free, and with a minimum life span of 15 years.

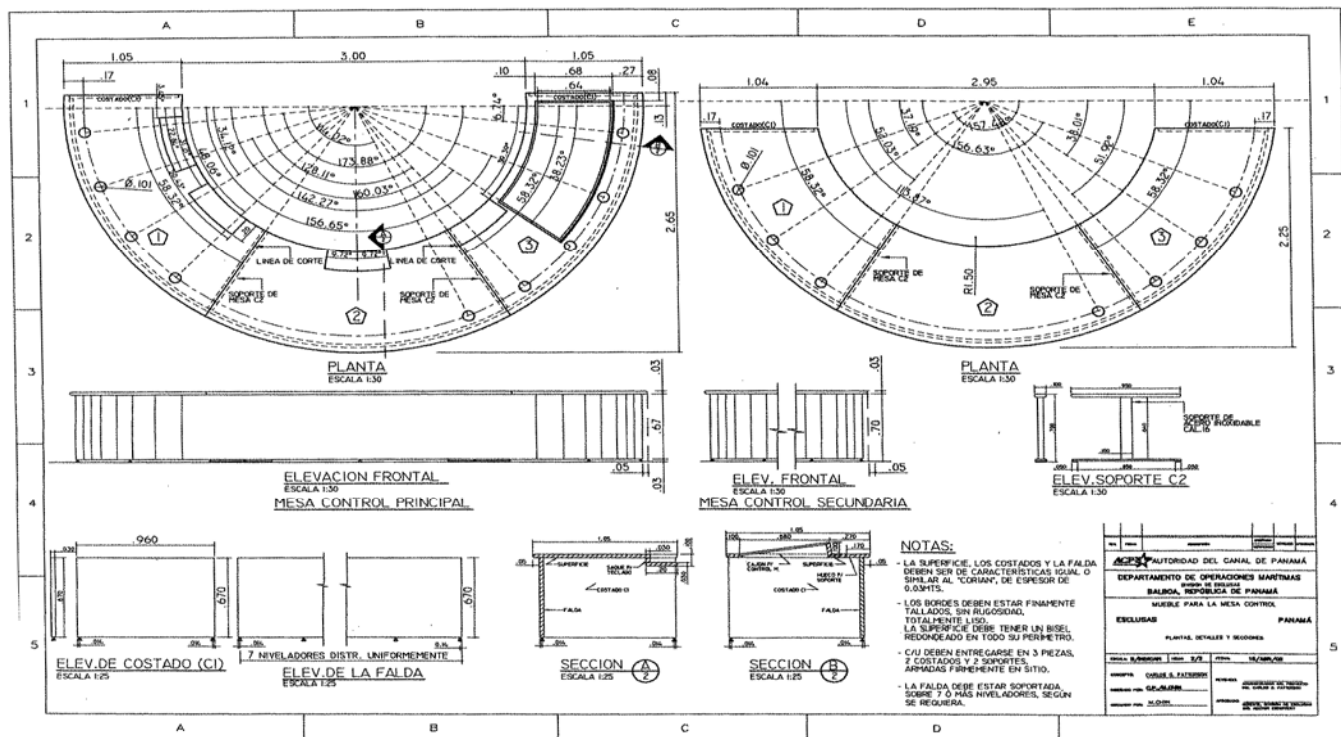


Figure 12 59 83-1: Elevations and Plan Views of Existing Consoles

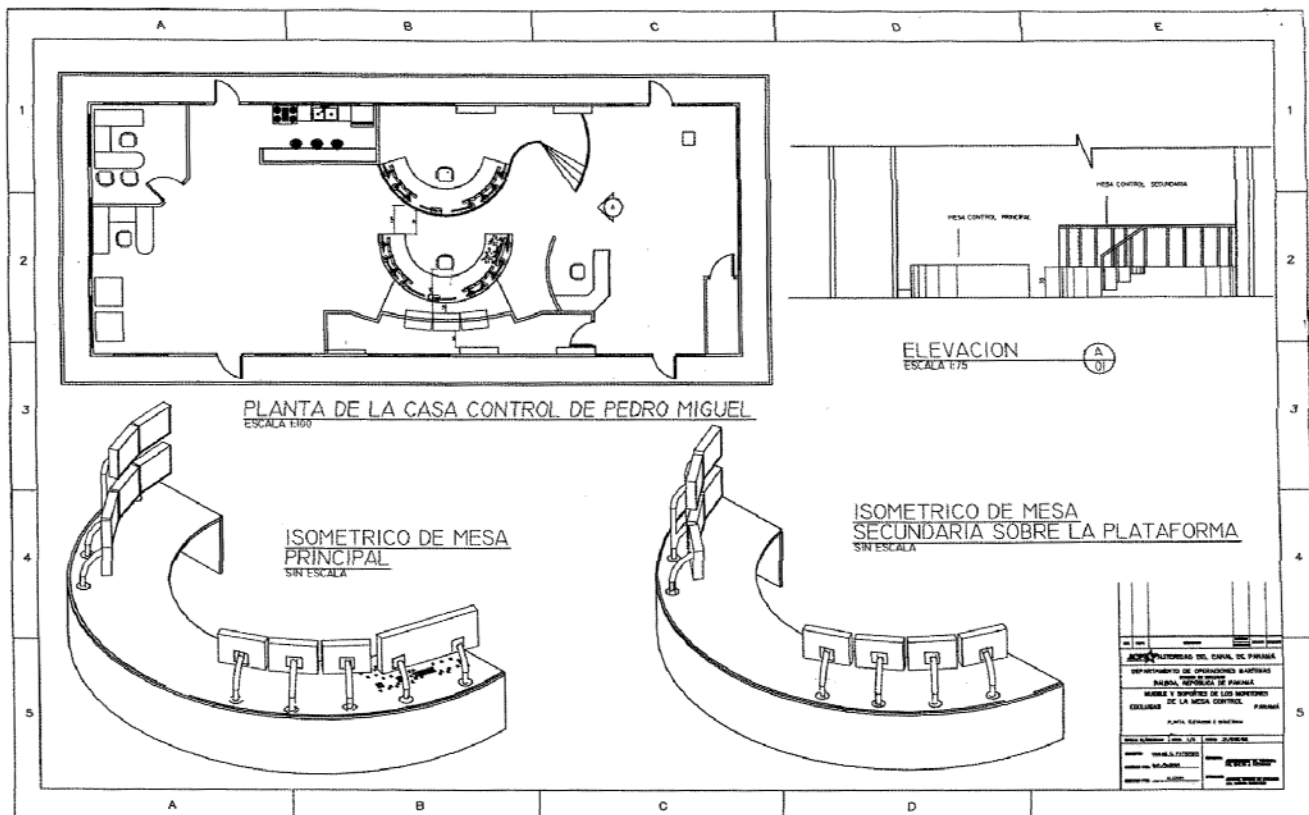


Figure 12 59 83-2: Elevation, overall plan view, and isometric views originally proposed for existing consoles

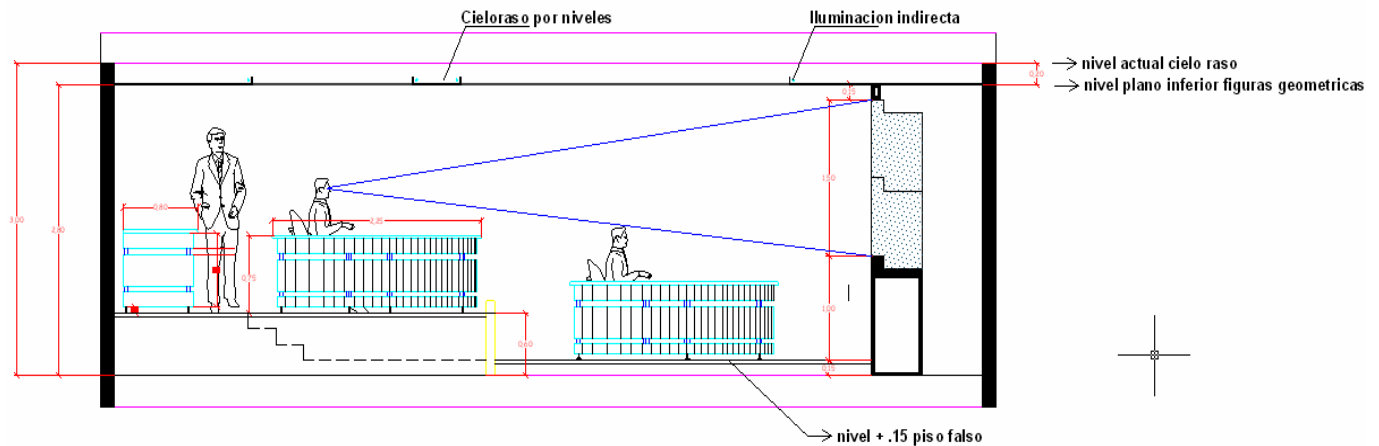


Figure 12 59 83-3: Conceptual perspective showing consoles, indirect lighting, raised access floor, and video wall

C. System Performance:

1. Units shall be aesthetically pleasant, providing ergonomic support, easy access and comfortable work surfaces and movement areas for the operators.
2. Units shall have selectable sources of illumination, so as to provide appropriate lighting conditions for day and/or night operations.

1.05 SUBMITTALS: The following shall be submitted for substantiation purposes:

A. Design: The following shall be in accordance with Section 01 81 26 (Communications, Control, Safety, and Security Systems), paragraph 1.05 D:

1. CPM diagram, with monthly updates.
2. Descriptive literature.
3. Illustrations on similar projects.
4. Proposed project management and organization details.
5. Protection methods for corrosion, ESD, fungus/humidity, and vibration.
6. Quality assurance and control plans.
7. Shop drawings, including assembly drawings.
8. Sample materials for finished surfaces.
9. Specifications
10. Any other data required for review.

B. Re-Submittals Just Prior to Purchasing Materials: All items in A. above that have changed from original submittal shall be resubmitted in a Design Conference in

accordance with Section 01 81 26 (Communications, Control, Safety, and Security Systems), Paragraph 1.05.

C. Upon Receipt of Shipped Items in Panama:

1. Instruction manuals for installation and maintenance.
2. Packing lists.

D. Prior to Issuance of Taking Over Certificate:

1. As-built drawings.
2. Instruction manuals for administration, installation, maintenance, and operation.
3. List of recommended spare parts.

1.06 QUALITY ASSURANCE: Shall include the following in accordance with Section 01 81 26 (Communications, Control, Safety, and Security Systems), Paragraph 1.06:

- A. Factory Quality Control Tests (FQCT).
- B. Warranty.

END OF SECTION