



## National Oilwell Varco Boardroom

Hiding a giant plasma display wasn't easy, but at least the big screen fit into the client's elevator. The custom lift required a crane. The results? Awesome.

The ability to hide AV systems, in deference to a room's aesthetics, is a constant challenge for AV pros, especially in high-end corporate boardrooms. Company executives usually want all the capabilities of modern AV technology but don't want to see blank screens and messy wires when it's not in use. AV integrators have figured out most of the tricks to hiding flat-panel displays, loudspeakers, and racks, but what happens when your client wants to hide the world's largest plasma display?

CCS Presentation Systems confronted this challenge when it was hired by oil and gas industry supplier National Oilwell Varco to design the

boardroom for its corporate headquarters. CCS had to turn the renovated top floor of the building into a functional but awe-inspiring boardroom—without a hint that it sported a 103-inch and two 65-inch plasmas.

"The size of the room dictated the need for that size of display. Previously a rear projection system was installed but even they knew it was becoming antiquated technology," says Kevin Salmon, CCS account manager, who worked with the architect and end-user to incorporate the AV into the room. "There is a classic feel to the boardroom but the magic is that it has cutting edge technology seamlessly integrated."



**Panasonic TH-103PF9UK** 103-inch plasma display. It weighs about 474 pounds and measures 95 x 60 x 5 inches (W X H X D). The 1,500-watt display delivers full high-definition TV pixel resolution of 1920 x 1080p.

**RGB Spectrum Quadview XL** image processor. From the rack, the processor supports up to four sources on one screen with dynamic window sizing. Its compact 1 RU chassis has inputs for RGB, HDTV, S-Video, and NTSC/PAL.

The camera for the **Tandberg** videoconferencing system is mounted on the plasma's lift because the client didn't want it installed in the wall.

**AMX MVP-8400 Modero ViewPoint.** The 8.4-inch wireless touch panel has a 4:3 aspect ratio and 800x600 screen resolutions. It offers wide viewing angles of +60 degrees horizontally and +40 degrees vertically.



**Panasonic TH-65PF9UK** 65-inch plasma display. Two of these 163-pound Professional Series 1080p HD screens flank the 103-incher. Each displays 2.07 million pixels with a contrast ratio of up to 5,000:1.

**Electro-Kinetics** custom swing lifts. All mechanisms were custom designed. Power and cables were integrated into the mounting frame for clean and easy operation

When closed, left, the custom swing lifts make the plasma displays disappear flush into the ceiling.

PDG Architects and general contractor Stone Construction played a bigger role in the AV design than you might normally expect. One of the biggest reasons: The Panasonic 103-inch plasma couldn't mount onto a traditional in-ceiling lift because there wasn't enough space above the top-floor ceiling. Therefore a creative solution was required. The team turned to Electro-Kinetics for a custom swing-hinge lift for the displays. Engineers working on the lift design had to ensure that the hinge and lift motor could support the nearly 500 pounds of the 103-inch plasma display as it moved the screen 90 degrees from vertical to horizontal, and back again.

It turned out the custom lift for the 103-inch display was so much larger than other hinge lifts the company has manufactured for CCS projects that it did not fit into the client's elevator. Stone Construction provided the crane that hoisted the lift up the outside of the building and through the seventh floor windows. "The plasma itself fit in the elevator with only 1 or 2 inches to spare," says Salmon.

A Tandberg Edge 95 MXP HD videoconferencing camera is also mounted on the custom lift because the client preferred not to hide the camera in the wall. In the closed position, the 103-inch display,

**Shure MX393/O** omnidirectional boundary microphones. Each has a built-in preamp and removable 12-foot cable. They work on phantom power only and have a pickup angle (-3 dB) of 360 degrees.

**Electro-Kinetics** custom motorized table insert. Designed with VGA/audio connection, data and power outlets, and USB input ports.

**AMX NXD-CV17 Modero** touch panel. The flush-mount video touch panel has 1280x768-pixel resolution and 170-degree horizontal and vertical viewing angles.

**AMX MVP-WDS** wall-mount docking station. The docking station houses and charges the 8.4-inch Modero ViewPoint wireless touch panel. It has an anti-theft security latch and magnet, plus two Type A USB ports for keyboard and mouse.

**AMX NI-4100 NetLinX** controller. It supports three communication networks—AxLink, ICSNet, and Ethernet (TCP/IP)—and comes with 64MB of onboard RAM and Duet-compatibility.

**ClearOne XAP800** 8-channel mic mixer. With distributed echo cancellation on every mic input, the mixer handles eight microphone/line inputs, with four additional line inputs and 12 outputs. Bandwidth support goes from -20 Hz to 20 kHz.

**Tandberg Edge 95 MXP** codec. Can handle up to 512 Kbps ISDN or external network (H.320), as well as 2 Mbps IP connections (H.323 or SIP). It offers high-level embedded encryption H.235 and IEEE 802.1x authentication.

**Middle Atlantic DRK19-44-36** rack. The 77-by-36-inch rack (H x D) has 44 spaces. Its vented rear door with top can accommodate a 10-inch fan.

videoconferencing camera, and mount are tucked in a horizontal alcove in the ceiling. The 65-inch displays on each side of the room fold up in similar fashion.

"The other 'wow' factor is the cascading inserts integrated into the conference table that are timed to open in sequence while the plasmas are retracting from the ceiling. This is everyone's favorite part of the room," says Todd Petree, technical services manager for CSS, who worked on the AMX programming to achieve this effect.

To illustrate the intricate level of detailed planning and coordination required for the project, the wood grain and unique V-shaped millwork pattern of the table is continuous once the table inserts are in their closed position. Electro-Kinetics custom-built the mechanisms for the

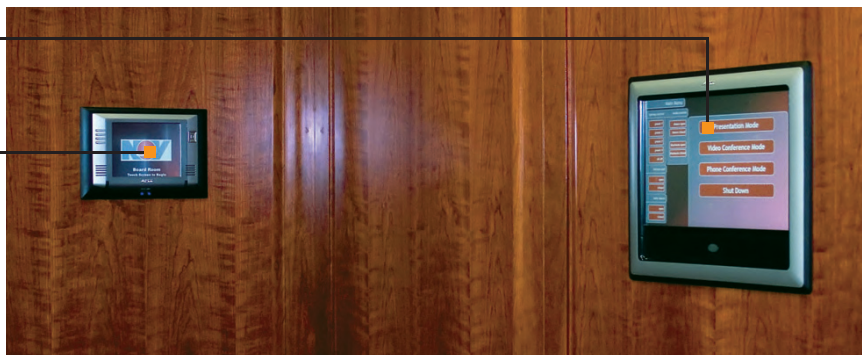


table inserts and sent CCS the motors in advance so they could be installed in the table. The motor for each insert resides in the table legs. Each table insert includes a Shure microphone, VGA with audio connection, four data and four power outlets, and a USB input for a thumb drive to the dedicated PC in the equipment room. "The thumb drive is for anyone who wants to run a presentation from the in-house PC rather than bringing in a laptop," says Salmon.

An integral part of cable management is the conference table itself. With built-in, concealed cable management and strategically placed floor cores, not a single wire is seen by the end-user. Multiple two-inch conduits run from the table to the rack room located in the former rear projection room.

The boardroom also needed to fill the role of a command room for the executives and board members during emergencies. The matrix switcher ensures that any input is routed to any display. Inputs include the Tandberg videoconference system, dedicated PC, five laptop connectors, three satellite TV receivers, and a Blu-ray player. For maximum utility, the 103-inch plasma image can be split into four 51-inch images using a RGB Spectrum Quadview.

All of the equipment is controlled by an AMX control system, including the plasmas and lifts, table inserts, a moveable wall that reveals the food serving space, Lutron GraphikEye lighting control system, and the curtain control system. One 17-inch Modero Touch Panel is hardwired into the corner wall, while an 8.4-inch Modero ViewPoint wireless tablet lives in a docking station on the adjacent wall. "The strategy behind the intuitive programming is that a user never presses more than two buttons to set up the AV," adds Salmon.



Custom AMX programming made it so that the cascading inserts in the boardroom's table open in sequence at the same time the plasmas are lowering from the ceiling.

## EQUIPMENT LIST

### CONTROL SYSTEM

AMX ([www.amx.com](http://www.amx.com))



- NetLinx NI-4100 integrated controller
- NXD-CV17 17-inch Modero touch panel
- MVP-8400 Modero ViewPoint 8.4-inch wireless touch panel
- MVP-WDS wall mount docking station for ViewPoint touch panel

### AUDIO SYSTEM

ClearOne ([www.clearone.com](http://www.clearone.com))



- XAP 800 audio conferencing/8-channel microphone mixer
- XAP TH2 telephone hybrid

Crown Audio ([www.crownaudio.com](http://www.crownaudio.com))

- CTs8200 8-channel audio amplifier

JBL Professional ([www.jblpro.com](http://www.jblpro.com))

- 10 Control 26C ceiling speakers



### VIDEO SYSTEM

Panasonic ([www.panasonic.com](http://www.panasonic.com))

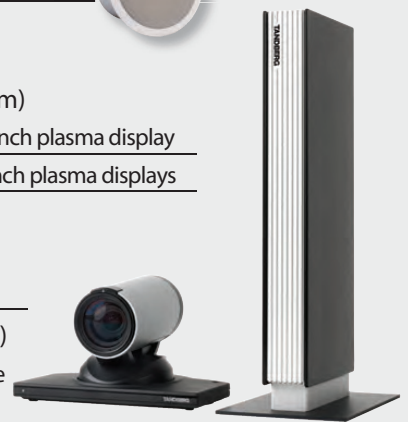
- Panasonic TH-103PF9UK 103-inch plasma display
- 2 Panasonic TH-65PF9UK 65-inch plasma displays

RGB Spectrum ([www.rgb.com](http://www.rgb.com))

- QuadView XL real-time image processor

Tandberg ([www.tandberg.com](http://www.tandberg.com))

- Edge 95 MXP video conference codec with HD camera



### LIGHTING SYSTEM

Lutron ([www.lutron.com](http://www.lutron.com))

- Graphik Eye 3000 lighting control/dimming system



**INFRASTRUCTURE** Middle Atlantic ([www.middleatlantic.com](http://www.middleatlantic.com))

- DRK19-44-36 44-space equipment rack
- 6 U1 rack shelves 2 UD2 rack drawers



- SurgeX ([www.surgex.com](http://www.surgex.com))
- 2 SX2120 15-outlet power conditioners