SCR-PRO: Simple Collaboration Room, PRO

1) Room _____ will be enhanced with the AV Engineering Standard SCR-PRO – Simple Collaboration Room, PRO system with a _____ display.

2) Design Intent

    a. The purpose of the system is to provide a collaboration conference space for a group of people. The system will allow for local presentations (via remote Skype "screen sharing") onto the system display, as well as an HDMI cable at the conference table. The system will also allow users to make Skype video calls.

3) System Specifications

    a. Video

        i. Sources will be displayed on one main display in the space.

            1. The display will be an LCD display large enough for all participants to easily see and read material on. The size of the display will be dependent on the size of room, more specifically, the distance to the furthest viewer in the space.

                a. 65" LCD Displays: The height of the image for a 65" display will be roughly 32" (813mm). Preferred viewing for this size screen will be less than 10.7' (3.2m) from the screen, and acceptable viewing will be 16' (4.5m) from the screen.
                b. 75" LCD Displays: The height of the image for a 75" display will be roughly 37" (939mm). Preferred viewing for this size screen will be less than 12.3' (3.7m) from the screen, and acceptable viewing will be 18.5' (5.6m) from the screen.
                c. 86" LCD Displays: The height of the image for an 86" display will be roughly 42" (1.1m). Preferred viewing for this size screen will be less than 14' (4.2m) from the

screen, and acceptable viewing will be 21’ (6.4m) from the screen.

d. 98” LCD Displays: The height of the image for a 98” display will be roughly 48” (1.2m). Preferred viewing for this size screen will be less than 16’ (4.8m) from the screen, and acceptable viewing will be 24’ (7.3m) from the screen.
e. 119” Projection Screen: The height of the image for a 119” screen will be roughly 58” (1.5m). Preferred viewing for this size screen will be less than 19.3’ (5.9m) from the screen, and acceptable viewing will be 29’ (8.8m) from the screen.

2. The display must have a resolution of at least 1920x1080 (1080P), and at least two HDMI inputs.
3. (SCR119-PRO only) The projector must be bright enough to provide a 15:1 contrast ratio for basic decision-making viewing tasks in typical lighting conditions. For a 5,000 Lumen projector (NEC NP-502HL), the ambient light falling on the screen surface should be less than 8 fc (80 lux).
4. (SCR119-PRO only) The projection screen will be an electric, tab-tensioned, roll-down screen with integrated low voltage controller. A wall switch will be installed in the space for manual operation, but a Cresnet extender module connected to the COMM system will also provide relay control of the screen.
5. The system EDID will be set 1080P as the preferred resolution for viewability purposes.
6. The display must support bi-directional TCP/IP control communication that can fully respond to 3rd party control systems (on, off, volume, input select).
7. The display’s power save functionality shall be disabled.
8. For SCR65-PRO, SCR75-PRO, and SCR86-PRO systems, the display will be mounted on a low-profile mount with a pull-out accessory for easy maintenance.
9. For SCR98-PRO systems, the display will be mounted to a large, custom scissor wall mount with a custom camera shelf.
10. For SCR119-PRO systems, the projector will be mounted in the ceiling with a small equipment ceiling box nearby to house and power some peripheral AV devices.

ii. The system will support local presentations through Wireless Collaboration (via Skype Screen Sharing)

1. Users can present their device wirelessly by sharing it in a Skype call.
2. Wireless collaboration will allow users to present from a portable device if connected to the room on a Skype call.

iii. An HDMI connection will be available at the table in the space for SCR-PRO systems.

1. The HDMI connection will be extended to the conferencing video unit (Polycom Visual Pro or GS310) located by the display/projector and connected to the HDMI input for local presentations.
2. Users will be able to select the table HDMI input from the desktop conferencing control unit (Polycom Trio) for local presentations without being in a video call.

b. Audio

i. All system audio will be distributed by the desktop conferencing device(s) (Polycom Trio).

1. (SCR98-PRO and SCR119-PRO only) The SCR98-PRO and SCR119-PRO systems will include two desktop units that will be paired together and distribute audio in the room.

c. Video Conferencing

i. The Speakerphone (Polycom Trio) will act as a Skype endpoint, and include features such as:

1. One-touch-to-join meetings, by pressing the join button next to the meeting on the touch screen after the room has been invited to the meeting.
2. Dialing with Skype Meeting ID, Skype username, or a phone number.
3. Show Skype content, as well as picture-in-picture with far-side camera layouts.
4. (SCR98-PRO and SCR119-PRO only) The SCR98-PRO and SCR119-PRO will include two desktop conference units, paired, where act in parallel. Users will be able to control the system from either unit in the room.

ii. Additionally, the system will have a high definition conferencing camera.

1. For SCR98-Pro, SCR85-PRO, SCR75-PRO, and SCR65-PRO rooms, the system will have a high definition conferencing USB camera.
    a. The camera will provide connection to devices using USB 3.0.
    b. The camera will have a 120^{o} wide horizontal field of view to provide users with crisp image capture for the far end.
    c. The camera provides automatic group framing and speaker tracking within its field of view.
    d. The camera supports 4K resolution and 5x zoom.
    e. The camera can be controlled with Universal Video Class (UVC) drivers supported in Windows and Mac OS, as well as compatible with most UC conferencing applications.
    f. The camera will be mounted below the main display on a camera shelf connected to the display mount.
        i. Note: The goal of the camera placement is to have less than a 7^{o} tilt and/or 15^{o} pan to the users' eyes in the default shot. There may be instances where mounting the camera above the display results is less severe angles. Whichever location (above or below the display) provides the most conversation-

like camera shot shall be where the camera is mounted.

2. For SCR119-PRO systems, the camera will be a Polycom Eagle Eye IV PTZ camera.

    a. (SCR119-PRO only) The video and control from Polycom Eagle Eye camera will be extended from the front wall of the room to a Polycom Group Series 310 codec housed in the ceiling near the projector. The Polycom GS310 codec will be paired with the Polycom Trios in the room in Trio mode.
    b. The camera will have a 74^{o} wide horizontal field of view to better capture a longer room.
    c. The camera PTZcan will be controlled from the Trio desktop unit(s) control interface.
    d. The camera will be mounted below the screen.

        i. Note: The goal of the camera placement is to have less than a 7^{o} tilt and/or 15^{o} pan to the users' eyes in the default shot. There may be instances where mounting the camera above or to the side of the screen results is less severe angles. Whichever location (above or below the display) provides the most conversation-like camera shot shall be where the camera is mounted.

iii. Local screen sharing will be supported from the Table HDMI input, as well as from other users connected to the Skype meeting.

iv. For SCR119-PRO systems, the desktop conferencing units (Polycom Trio) will be paired to a Polycom Group Series 310 mounted near the system display. The GS310 will operate in Trio Mode and will allow for dual display video conferencing and/or camera extension (if either is required).

d. Control

i. There will be no user-accessible controller for the space. The room functionality will rely on an automated back-end control system.
ii. Once occupancy is detected, the display will power on.
iii. The conferencing video source shall be selected from the display source selections.
iv. If no occupancy is detected for 15 minutes, the display will power off.

e. Equipment Housing/Notes

i. The system does not require the housing of equipment. However, several small devices will be mounted directly to the display on a component panel. Cables to/from these devices shall be neatly dressed, and no cables shall be seen from behind the display.
ii. There is no need for an in-wall equipment box mounted behind the display.
iii. (SCR119-PRO only) The systems that include projectors will have a small equipment ceiling box installed near the projector location. This ceiling box will house and power several small devices for the system.

f. Room Scheduling/Occupancy Status

i. A 7” POE touch screen will be mounted outside the room.

1. This will show the room’s meeting schedule.
2. Users will also be able to schedule Walk-Up meetings from the panel, as well as extend reservations or end reservations early.
3. The panel will connect to the client scheduling system and will provide real-time status updates from the scheduling system and/or meetings set on the panel itself.
4. The edge of the panel’s user interface will have a colored border to reflect the room’s status: red is “scheduled/occupied”, green is “free”.

5. Mounting Details

    a. The touch screen will be mounted close to the door at 48”.
    b. The touch screen can be mounted to drywall using a 2-gang junction box to secure the panel to the wall. (Configs 1 & 2 in the standard drawings).
    c. The touch screen can be mounted to glass next to a mullion using a mullion kit. It can be mounted to the front or side of the mullion. In that case, no junction box is required (Configs 3, 4, 5, & 6).

ii. In addition to the scheduling touch screen, the room will have an engraved occupancy sign installed above the touch screen. This occupancy sign will allow users waiting to use the space to see if the room is available quickly and easily by observing the sign.

1. The sign will show colored LEDs to reflect the room’s status: red is “scheduled/occupied”, green is “free”.
2. The sign will be connected to the floor’s COMM system via Cresnet, which will act as a bridge for information flow from Cresnet to network.
3. If the room’s door is not in front of an open area or a “bullpen”, and only opens to a corridor, a sign will not be required. In place of a sign, a light bar attachment will be installed to let users know the room occupancy status down the corridor.
4. Mounting Details
    a. The sign will be mounted close to the door, immediately above the scheduling touch screen, at 96”.
    b. The sign can be mounted to drywall using a 1-gang junction box to secure the sign to the wall. (Configs 1 in the standard drawings).
    c. The touch screen can be mounted to glass next to a mullion using a mullion kit. It can be mounted to the front or side of the mullion. In that case, no junction box is required (Configs 3 & 5).

iii. The room will also have an occupancy sensor to detect when the room is occupied.

1. The occupancy status will be monitored by a backend support control system, and the status immediately shown on the LED sign outside the room, as well as reported to the remote monitoring solution (i.e. Fusion).
2. (Future) Meetings will be cancelled if no one arrives within 15 minutes of the scheduled start time, and the touch screen and sign will have their statuses updated.

    a. This feature is referred to as “Decline-for-no-show”. This will only affect meetings two hours in length or less.

3. If a meeting is released early, the occupancy sensor will reflect the current room status on the touch screen and the sign as well.

    a. This feature is referred to as “End Early” and is only triggered if the user ends the meeting early from the touch screen. This feature does not yet occur automatically from Fusion.

4. The occupancy sensor must be configured to successfully provide accurate occupancy status in the room.

    a. The occupancy sensor will be connected to the floor’s COMM system via Cresnet.
    b. It may be advisable, especially in small rooms, to place the occupancy sensor close to the door/hallway wall of the room, away from the door. The intent would be to prevent the sensor from sensing motion from outside the room when the door is open. Integrators can use PIR filters to effectively disable half the sensor’s field of sensing. This may improve the sensor’s accuracy. By disabling half the

sensor, it can focus on only the room and ignore the door as well as sounds and motion from the corridor.

c. The occupancy sensor shall use both ultrasonic and passive infrared technologies to determine occupancy.

    i. In order for the room to change status from empty to occupied, both the PIR and US sensors must be triggered.
    ii. In order for the room status to remain occupied, either the PIR or US sensors must be triggered.
    iii. In order for the room status to change from occupied to empty, both the PIR and US sensors must not be triggered for five minutes.

d. The sensitivity shall be adjusted to avoid false occupancy triggers from adjacent hallway movement and/or noise, while ensuring the occupant is accurately detected.
e. The back-end provisioning control system (Fusion/VC4) shall provide an enable/disable option for the occupancy sensor in the event that a room's environment cannot reliably be monitored.

    i. In the event that an occupancy sensor must be disabled, the power save mode of the room's display will be turned on to sense when a video source or conference begins.

g. Room Acoustical Requirements

    i. In order to effectively use the equipment specified for this system type, certain architectural and acoustical criteria must be met:

        1. Reverberation: For the room to send intelligible audio to the far end during conferencing, the room RT60 must be less than 0.8 s.

2. Ambient Noise: For the room to send intelligible audio to the far end, and to assure users of the room can clearly hear audio from the far end, the room must have a Noise Criterion of less than NC35.
3. Privacy/Disruption: For audio from the room to be attenuated to neighboring spaces to maintain some level of privacy for conversations within the room, as well as preventing disruptions to other spaces adjacent to the room, the wall construction and doors should offer sound transmission class of at least STC 40.
4. Intelligibility: For audio to be understood in the room, the STIPA measured from a local loudspeaker to listener locations must be larger than 0.7.

h. Room Lighting Requirements

i. In order to effectively use the camera and projection systems specified in this document, certain lighting criteria must be met:

1. In order to participants to be captured accurately, there should be between 400 to 500 lux (37 to 46 fc) on their faces.

ii. To keep participants comfortable while viewing display content on the screen and looking at their notes on the table, the task lighting to display brightness should be within a 1:3 or 3:1 ratio.

1. For example, if the brightness of the projector is 90 fc on the projection screen, the task lighting should be between 30 and 270 fc to avoid eye fatigue.
2. For example, if the brightness of a display is 1200 lux, the task lighting should be between 400 and 3600 lux.

iii. In order to create an optimized viewing environment, the light falling on the projection screen for SCR-119PRO systems should be less than 80 lux (7 fc).

1. To facilitate this requirement, the lights near the projection should be placed on their own dimmable lighting zone to reduce ambient light on the projection screen.

i. Options

i. Dual Display Option

1. Some rooms may require two displays for enhanced conferencing performance. A second display of the same type and size can be installed next to the main display and be integrated into the system.
2. The SCR-PRO systems include a Polycom GS310 or Visual PRO video conferencing codec which supports dual display outputs. This will allow users to view presentations on one screen (primary) and the far end camera on the other screen (secondary).
3. The left display will be the “main output” display. The right display will be the “secondary output” display in the system.
4. Systems with dual displays will be designated with a “DUAL” suffix after the display size. Note: A dual 75” display system would be denoted as an “SCR75-PRO-DUAL” system. A dual 98” display system would be denoted as an “SCR98-PRO-DUAL”.

ii. Kiosk Laptop Option

1. A kiosk laptop will be available for local presentations and conferences. Users can sign into the laptop to access to their files and software from their own workstations.
2. This kiosk laptop will reside in the room to be used with the system so that users do not have to bring their own laptop/computer to the meeting room.

j. Supported Simple Conference Room-PRO (SCR-PRO) Options

i. SCR65-PRO

1. 65” LCD display video conference system with wired HDMI input at conference table, as well as wireless presentation/sharing only

ii. SCR75-PRO
1. 75” LCD display video conference system with wired HDMI input at conference table, as well as wireless presentation/sharing only

iii. SCR86-PRO
1. 86” LCD display video conference system with wired HDMI input at conference table, as well as wireless presentation/sharing only

iv. SCR98-PRO
1. 98” LCD display video conference system with wired HDMI input at conference table, as well as wireless presentation/sharing only

v. SCR65-PRO-DUAL
1. Dual (2x) 65” LCD display video conference system with wired HDMI input at conference table, as well as wireless presentation/sharing only

vi. SCR75-PRO-DUAL
1. Dual (2x) 75” LCD display video conference system with wired HDMI input at conference table, as well as wireless presentation/sharing only

vii. SCR86-PRO-DUAL
1. Dual (2x) 86” LCD display video conference system with wired HDMI input at conference table, as well as wireless presentation/sharing only

viii. SCR98-PRO-DUAL
1. Dual (2x) 98” LCD display video conference system with wired HDMI input at conference table, as well as wireless presentation/sharing only