ROOM PREPARATION GUIDE

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Polycom® RealPresence Centro™

Draft

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Before You Begin

This Room Preparation Guide for the Polycom® RealPresence Centro™ system defines the room characteristics (such as the room size, wall color, and power outlets), delivery requirements, and network requirements needed to successfully deploy the room system.

Audience and Purpose

This document is intended for Polycom Partners, resellers, and installers who are planning to purchase or have purchased a RealPresence Centro system and are in the process of preparing their room for the system's installation.

IT administrators, Polycom technicians and installers, and Video Network Operations Center (VNOC) conference producers should also review the *Polycom RealPresence Centro Administrator Guide*, available Polycom Support.

Get Help

For more information about installing, configuring, and administering Polycom products, refer to Documents and Downloads at Polycom Support.

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Room Requirements and Recommendations

Following the requirements, recommendations, and considerations listed in this section will provide the best meeting experience for in-room and far end participants when using the RealPresence Centro system.

This section includes the following topics:

- Recommended Room Dimensions
- LAN Ports and Power Outlet Placement
- Lighting Recommendations
- Wall Recommendations
- Acoustic Recommendations
- General Room Recommendations

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Recommended Room Dimensions

The RealPresence Centro system is designed for closed spaces from 120 ft^2 (11 m^2) up to 387ft^2 (36 m^2). Polycom recommends that you choose a dedicated room no larger than 387ft^2 (36 m^2) to house the system. See the section Room Layouts and Product Recommendations for examples of room sizes and capacity.

The following table includes the minimum room dimensions of a dedicated room for the RealPresence Centro system.

Minimum Room Dimensions

1- 4 seats	6 - 8 seats	12 - 16 seats
Dimensions 120 ft^2 (11 m^2) 10 ft x 12 ft (3.0 m x 3.6 m)	**Dimensions** 193 ft^2 (18 m^2) 12 ft x 16 ft (3.6 m x 4.8 m)	**Dimensions** 387 ft^2 (36 m^2) 16 ft x 24 ft (4.8 m x 7.3 m)

Note: Alternative room options

If your room does not meet the size requirements, call your Polycom sales representative for assistance or speak to your Polycom Project Manager, if one has been assigned to you, for alternative options.

LAN Ports and Power Outlet Placement

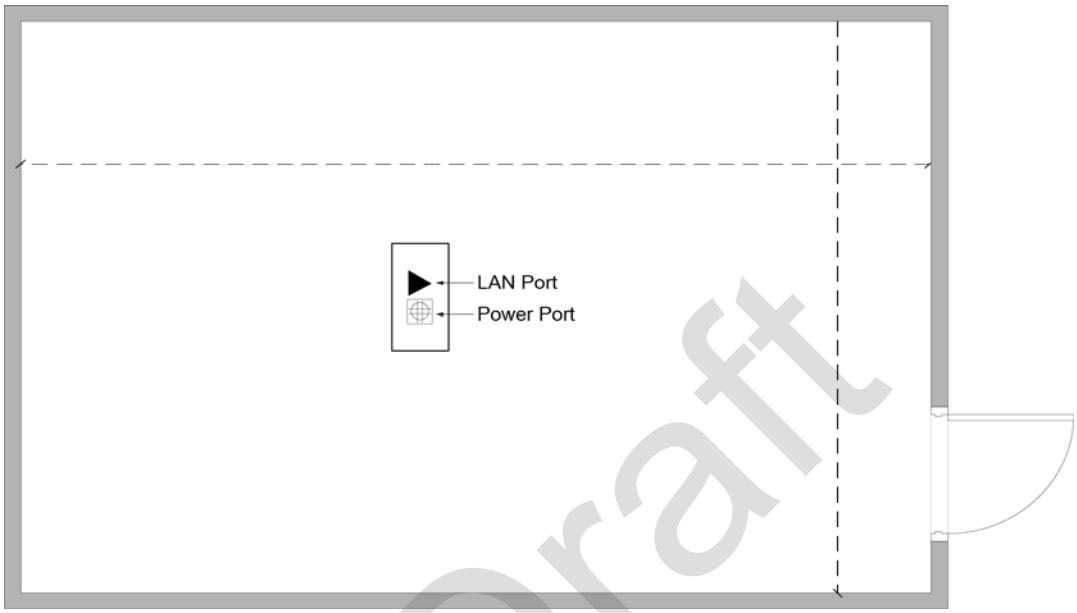
The RealPresence Centro system is a center of the room device that requires LAN ports and power outlets in the middle of the room for the best installation experience. The base of the system has a 1.5 in (3.8 cm)

clearance, Polycom recommends running all cables underneath the floor to avoid tripping or falling incidents.

If you are not able to run cables underneath the floor, consider using an in-carpet solution or an over-the-floor cable cover.

The following graphic shows LAN and Power ports in the center of a medium-sized room.

Power and LAN port placement



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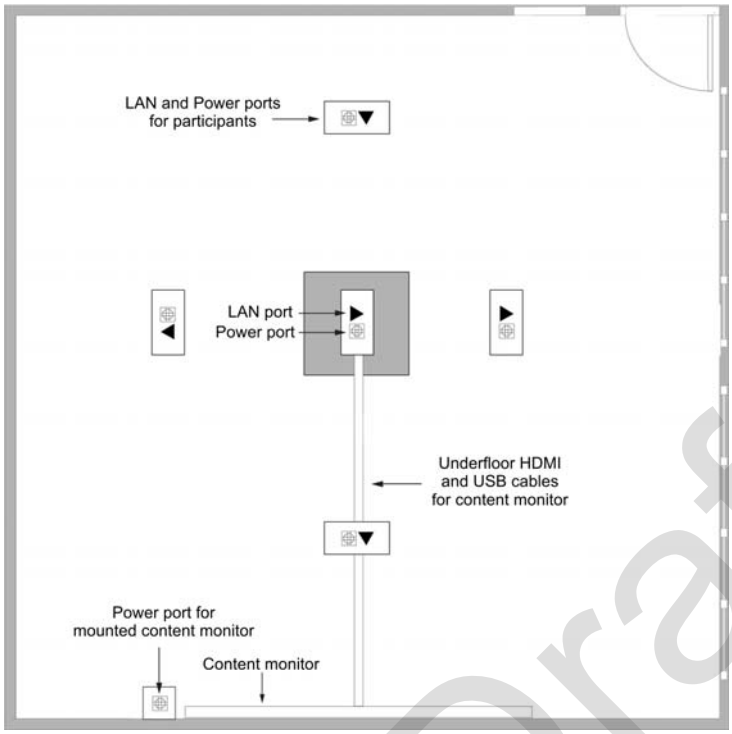
Additional power outlets along the walls of the room are required for using content monitors.

The following graphic shows a room with additional ports throughout a room with a content monitor.

Optional placement of additional power and LAN ports



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Lighting Recommendations

The brightness of the lighting in a video conference room plays an important role in determining the quality of video for the far end. In preparation for installing a RealPresence Centro system, you must provide optimal lighting that prevents direct light on the camera and provides proper illumination to prevent a glare on the monitors.

Consider the following tips when providing the proper lighting for a RealPresence Centro system:

- Avoid standard direct fluorescent lights or spotlights. This type of lighting can damage the camera, be harsh on in-room participants, interfere with the clarity of video sent to the far end, and cast significant shadows on the participants.
- Use indirect fluorescent lighting for 80 to 85 percent of the room's lighting and use evenly distributed direct lighting for the remaining 15 to 20 percent. This type of lighting works by using the upper walls and ceiling as reflectors to diffuse the light.

  Indirect lighting helps minimize shadows on the faces of the participants and makes the room more comfortable for viewing the far end on the monitor.The direct light can be used to create backlight separation between foreground and background objects or surfaces.
- Include bright lights of 70 foot-candle (fc) or more in the room to ensure the best lighting for an in-focus meeting for far end participants. Participants at the far end will see more people in sharp focus, and the system has an easier time encoding the image.

- Use no less than 55 fc and ideally as much as 75 fc of light (770 lux) on the faces of the participants in the view of the camera. The light should be completely even across the field of view and one consistent color temperature.

  The usual recommended color temperature for a room is 3,000 to 3,800 degrees Kelvin. If there is a significant quantity of outdoor light entering the room, the temperature should be more than 5,500 degrees Kelvin.

Wall Recommendations

If your room installation includes an additional monitor for content sharing, consider the following requirements for mounting a monitor on the walls:

- Mount monitors about 6 ft (1.8 m) up the wall from the floor
- Place outlets for monitors about 5 ft (1.5 m) up the wall from the floor to hide monitor cords or prevent people from tripping on cords.

Acoustic Recommendations

The acoustic and noise levels in a room can greatly impact the audio quality during a meeting. Sounds from adjacent rooms, such as meeting rooms, offices, kitchens, reception areas, restrooms, or data centers, may interfere with the audio during conferences.

The Noise Criteria (NC) rating for the room should be better than NC30 with less than 43dBASPL ambient noise level. If the room does not meet the NC rating, you should consider another room or consult with an architect to help you determine ways to reduce noise within the room. The quieter the room, the easier it is to hear others in the same room, hear the far end, and be heard by the far end.

To provide the best conferencing experience, consider the following acoustic treatment tips to maximize the performance of the integrated microphones:

- Use acoustic treatment on at least two adjoining walls, including the walls with mounted monitors.
- Use acoustic treatment on any walls adjoining hallways or office spaces.
- Cover at least 50 percent of the wall with acoustic panels that are 1 in (2.5 cm) thick compressed, dense-core fiberglass, fabric-covered or equivalent with an average sound absorption index of 0.9.

  To reduce noise disturbance to surrounding areas, laminate an additional barrier layer to the dense-core material, such as 3/8 in (1 cm) thick fiber compression board. Place the barrier layer against the existing wall material then place the acoustic absorption panels on the interior-room side of that. The barrier panels need to have a sound absorption index of 0.9 and an additional specification of a sound transmission coefficient (STC) of 20. A high-quality conference room wall usually has an STC of 60 or more.

General Room Recommendations

The following sections include general recommendations you should consider when preparing your collaboration room for the RealPresence Centro system.

If you follow the recommendations provided in this section, you will dramatically enhance the effectiveness of a room as it operates as a collaboration room or for more traditional meetings and presentations. The environment will be more comfortable and flexible for meeting participants and less dependent on specialized electronics for fixing deficiencies in the environment.

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Windows

Because natural light and sound from windows varies, windows can interfere with the acoustics of a room, alter the way a camera renders colors and brightness, and affect the quality of the video as well as the conferencing experience. Windows not only transmit room sound, but also allow unwanted outside noise to intrude on the conference space. Consider covering any windows facing outdoors with curtains or remove the windows.

In the event that windows cannot be avoided or removed, use window treatments that match the interior look and feel of the space and provide a high level of sound and light block. Typically a heavyweight drape, 24 oz (680 g) or more, of heavy fullness, not less than 6 in (15 cm) fullness or not less than 8 in (20 cm) centers per fold, is best. Avoid using sheer draperies or standard vertical or horizontal blinds due to their inefficiency to block sound and light and the fine lines they create.

Ceiling

When installing the RealPresence Centro system, consider the height of the ceiling in the room. The minimum ceiling height for a RealPresence Centro system is 8 ft (2.7 m).

To optimize the room's acoustics, consider adding high-quality acoustic tiles, ideally 1 in (2.5 cm) thick compressed dense core fiberglass, to the room's ceiling. These types of ceiling tiles work well with indirect lighting.

To reduce any extraneous noise from leaving or entering the room through the ceiling, blanket the ceiling tiles completely from the plenum side with a minimum of 6 in (15 cm) thick unfaced dense fiberglass batting or mineral rock wool (the equivalent of R-15 to R-19). A barrier layer improves acoustic performance. Follow all local building codes for materials allowed in the various aspects of room acoustic modifications.

To make entry and exit from the ceiling space easier, suspend the blanket and barrier above the ceiling tiles.

Heating, Ventilation, and Air Conditioning

The location of Heating, Ventilation, and Air Conditioning (HVAC) equipment within the ceiling of a conference room often renders that room unusable for video or audio-only conferences due to the noise associated with HVAC equipment. Consider using a room where all HVAC equipment is located outside of the meeting room.

If the meeting room must include HVAC equipment, consider including the following adaptations to provide the best meeting experience:

- Include at least a 4 ft (1.2 m) separation between any HVAC equipment (particularly the air conditioning equipment) and the microphones. Your room may require a greater distance depending on the noise level of your HVAC.
- Replace the air vents with low-velocity diffusers to eliminate wind noise when the HVAC system is running.
- Install HVAC ducts and diffusers that are oversized for the general application in the space with a minimum 2 ft (1 m) diameter insulated flexible ducts and matching 2 ft (1 m) noise dampening diffusers.
- Install all ducts with gradual bends and curves rather than rigid 90-degree corners. This minimizes thunder-like sounds when the HVAC system turns on and air pushes through the ductwork and into the room.

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Temperature

The operating temperature for the RealPresence Centro system equipment should be within 41° to 86° F (5° to 30° C), with a typical setting of 73° F (23° C). An air conditioning system should be provided to cool the room.

Consider the following tips when controlling the temperature for the room with a RealPresence Centro system:

- Install a thermostat that is controlled independently from the rest of the building in the room to ensure that the best temperature for the RealPresence Centro system is set at all times.
- Include a sufficient number of air vents in the room to maintain a consistent temperature throughout the room.
- Allow an additional 5,000 BTU of cooling capacity for the RealPresence Centro system and a minimum of 10,000 BTU for additional mounted monitors or a VisualBoard.

  For the comfort of the participants, the room must be able to accommodate equipment heat loads plus the heat load of a room full of people with a minimal rise in temperature.

Vibration

Excessive room or wall vibration can negatively affect video performance due to camera movement that may be noticeable by far end participants. Room or wall vibration can be caused by many factors, such as HVAC equipment mounted nearby, heavy machinery in use nearby, high-rise structural vibrations, building sway or movement, and even trains or subways passing nearby or underneath the building.

Consult the building manager, an architect, or a contractor to determine the optimal placement for the RealPresence Centro system.

If there are known vibration issues, please contact your Polycom sales representative or speak to your Polycom Project Manager prior to the RealPresence Centro system installation.

Room Color

The color of the walls in the meeting room can significantly impact the far end's experience and alter the far end's perception of the video quality. In general, light gray with hints of blue works best. For rooms that have bright lighting, slightly darker colors work as well. If your room includes acoustic panels, panels within view of the camera should be in silver, light gray, quartz, or champagne.

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Room Layouts and Product Recommendations

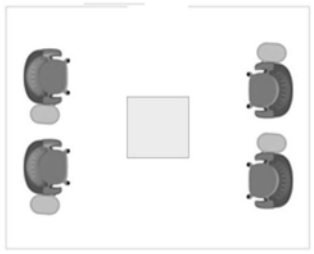
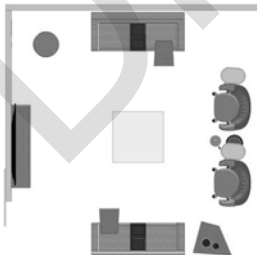
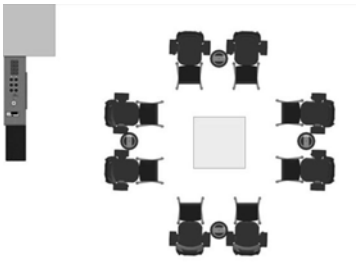
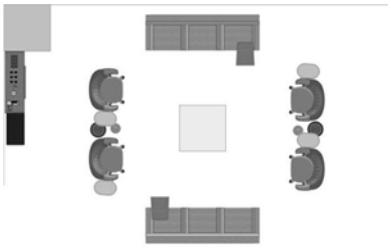
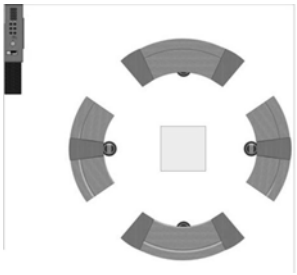
When preparing your room for a RealPresence Centro system, consider what type of furniture would be best to maximize the collaboration experience for participants in the room. Polycom recommends including desks or small tables that provide participants with a space to place laptops, mobile phones, or tablets.

This section includes illustrations of furniture and products from Steelcase. For information on purchasing any of the Steelcase products shown in this section, contact your local Steelcase sales representative.

Room Size and Capacity

As stated in the section Recommended Room Dimensions, the RealPresence Centro system is designed to be in a closed room no larger than 387ft² (36 m²). Polycom recommends that you follow the capacity and room size layouts shown below when preparing your collaboration space.

Room Size and Capacity

180 ft² (16 m²) **4 person capacity** 	**225 ft² (21 m²)** **6 person capacity** 	**360 ft² (33 m²)** **8 person capacity**
360 ft² (33 m²) **8 person capacity** 	**360 ft² (33 m²)** **10 person capacity** 	**400 ft² (37 m²)** **8 person capacity** 

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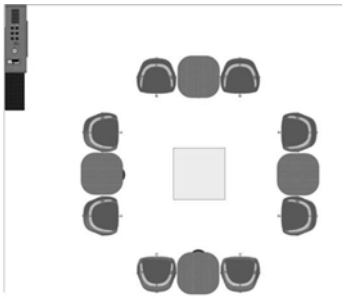
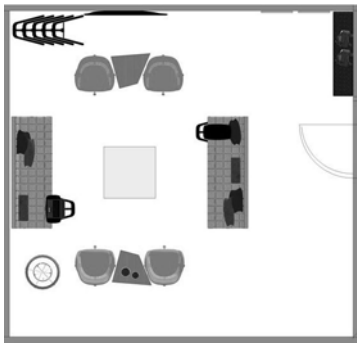
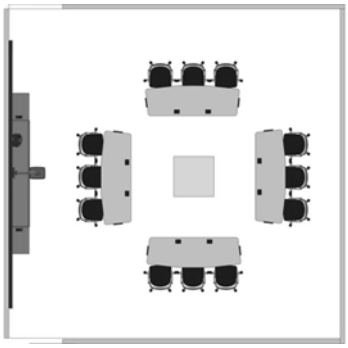
Room Size and Capacity

400 ft² (37 m²)	400 ft² (37 m²)	576 ft² (54 m²)
8 person capacity	**8-10 person capacity**	**12 person capacity**
		

Furniture Recommendations

The furniture you include in your collaboration room should coordinate well with a RealPresence Centro system and be optimal for facilitating collaboration among meeting participants.

Consider the following recommendations when choosing and arranging furniture:

- Place furniture evenly around the RealPresence Centro system to ensure participants are seen equally by the camera.
- Use tables or desks with a flat satin finish in neutral colors.

  If tables in neutral colors with a satin finish are not available, consider using a table cloth to achieve the proper surface color. Note that using table cloths may create problems related to the use of access to ports in the tables or movement of end-user items across the surface.
- Avoid tables and desks with glossy tops or saturated colors.

  If glossy or saturated color surfaces are unavoidable then proper lighting can help reduce, but not necessarily eliminate, reflections or video distortions.

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Example Furniture Layouts

This section includes examples of furniture layouts for you to consider when designing a collaboration room for your RealPresence Centro system.

Room with seating and desk space for six participants

Room with seating and desk space for eight to ten participants

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Room with seating and desk space for twelve participants

Product Recommendations

This section shows recommended products by Steelcase that you can use in your collaboration room with a RealPresence Centro system to provide the best experience for meeting participants.

Note that some of the products shown in this section may not be available in all countries. For information on the products available in your country, contact your local Steelcase sales representative.

Seating

The following graphics show example seating styles you can use to provide meeting participants with the best meeting experience.

i2i® collaborative office chair

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QiVi® office chair

SW_1® chair

Milbrae™ lounge

Regard™ modular room lounge system

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Circa™ seating and tables

Tables

The following graphics show example table styles you can use to provide meeting participants with the best meeting experience.

Campfire™ personal table

Circa™ table

Free Stand personal table

CG_1™ table

Sebastopol™ table

SW_1® table

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Groupworks® table

Verb® classroom table

Power

The following graphic shows an example power supply you can use to provide meeting participants with the best meeting experience.

Thread™ power supply

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Delivery Requirements

The RealPresence Centro system is delivered on a full-size 53 ft (16.1 m) trailer truck. Make sure that the following delivery requirements are in place for the system's delivery:

- Access is available to a loading bay or designated area that can accommodate a trailer truck and is protected from inclement weather and from excessive heat and cold.
- The delivery is coordinated with the shipping carrier and may require a labor union or security office.
- Access to an equipment lift or other equipment needed to move the Polycom pallets from the delivery truck to the desired installation room or storage area is available. For information on the size and weight of the crates, consult your Polycom reseller.
- The path from the delivery truck to the desired installation room or storage area is planned and cleared of potential obstacles, such as small doorways, thresholds, stairs, ramps, and so forth. If desired, floor protection should also be used.
- A safe exit per local fire and safety regulations to be maintained.

The crates must be unpacked by Polycom or under the supervision of Polycom. If the crates are unpacked by the customer without Polycom supervision, the customer is responsible for the replacement of any equipment damaged during the unpacking procedure.

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Network Requirements

The following are the LAN connection requirements for the RealPresence Centro system:

- One 100mbps or Gigabyte LAN jack
- One DHCP or Static IP address

In addition, you should have the following requirements set up:

- Review your Quality of Service (QoS) settings. If you are using Diffserv, you can use Polycom's Diffserv markings to fit into your current QoS schema.
- For additional guidance, contact Polycom Global Services Networking Consulting.

The recommended bandwidth required depends on the customer's application, location, required resolution, and other factors. Refer to the *Polycom RealPresence Centro Administrator Guide* for a detailed matrix of call speeds and resolutions.

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