

ARCHITECTURAL PROGRAM REQUIREMENTS CATERPILLAR SURFACE MINING & TECHNOLOGY DIVISION NEW TUCSON FACILITY

ABOUT CATERPILLAR SURFACE MINING AND TECHNOLOGY:

The Tucson Caterpillar Surface Mining & Technology Facility will be home to four engineering product groups accounting for a total of 500 engineers. In addition to engineering departments, the facility will be home to approximately 135 Administrative staff.

SECTION 1: CATERPILLAR WORKSTYLE

For the SM&T Facility, the majority of employees are actively engaged in engineering and require a desktop computer and multi-monitor set-up. These employees will typically have a dedicated, assigned workstation; they may move occasionally as teams evolve and shift to different projects.

The administrative employees within the facility will not have assigned seating, and will select a workstation or collaborative work area at the beginning of each day based upon their work tasks for that day. These employees typically work from a laptop computer which travels with them. Since these employees may be using collaboration spaces or working off-site on a given day, the areas designated for them should have a minimum of a 1:1.2 mobility ratio to support this increased movement as well as reduce the requirement for usable square feet per person.

Any employee may make use of a variety of spaces tailored for collaboration. These spaces can be divided into two broad categories:

“ME” Spaces: These spaces support intense concentration on a given task. “ME” spaces are identified with light and medium colored carpet and a light blue wall paint color.

“WE” Spaces: These spaces are designed to foster collaboration of different types and scales. “WE” spaces are identified by dark colored carpet and light green wall paint color.

The use of built-in visual cues to indicate the appropriate sound level within a space is important given the variety of different types of spaces making up a typical work zone.

SECTION 2: WELCOME TO THE NEIGHBORHOOD

Caterpillar facilities are designed using the concept of work neighborhoods. A neighborhood is a scalable dedicated area for employees that supports various workstyles with a mix of open and enclosed spaces with a zone of shared support and resource services connecting multiple

neighborhoods. Neighborhoods can vary in size depending upon the work tasks of the employees, but are generally designed for approximately 30-40 employees in 7,000 to 10,000 SF. Multiple Neighborhoods can share resources at the core. As an example, premium Tea and coffee may be available on one side and standard on the other. Access to natural light should be provided to each neighborhood. Long and narrow floor plates are preferred for this reason. The neighborhood layout applies to both engineering and administrative employee work areas.

SECTION 3: VISITOR'S CENTER

The facility will showcase Caterpillar's products and services to a variety of different types of visitors. Perspective equipment buyers, dealers, and suppliers will visit this facility in small groups of 10 to 15 to learn more about Caterpillars products and services. It is estimated that the facility will receive between 4,000 and 5,000 visitors per year, but that the number could greatly exceed that over time. These spaces are separated from employee workspaces.

LOBBY

Main entry for visitors to the facility. Upgraded finishes. Integrate Caterpillar products into this space.

Square Footage: 2,000 SF.

Critical Adjacencies: Main entrance, Reception.

Acoustical Considerations: No special considerations.

Security Considerations: Main entry point for visitors to the facility.

RECEPTION AREA

Desk permanently staffed with employees to greet visitors to the facility.

Typical Square Footages: 1,000 SF.

Critical Adjacencies: Directly connected to Lobby.

Acoustical Considerations: No special considerations.

Security Considerations: Panic button at desk, CCTV coverage of entry.

VALUE THEATER

Small theater with comfortable seating for 20-30 individuals.

Square Footage: 500 SF.

Critical Adjacencies: Lobby

Acoustical Considerations: Acoustically isolated from lobby and adjacent space.

Security Considerations: Lockable door.

VALUE THEATER SUPPORT ROOM

Closet with AV equipment serving the value theater.

Square Footage: 25 SF.

Critical Adjacencies: Directly adjacent to Value Theater.

Acoustical Considerations: None

Security Considerations: Lockable door.

CUSTOMER AND HERITAGE CORRIDOR

8-10 foot wide corridor showcasing Caterpillar products and services. (2) rows of (10) +/-42" LCD monitors on each side of corridor.

Square Footage: 1000 SF.

Critical Adjacencies: Lobby

Acoustical Considerations: May be a noise generator.

VALUE THEATER SUPPORT ROOM

Closet with AV equipment serving the Heritage Corridor.

Square Footage: 25 SF.

Critical Adjacencies: Directly adjacent to Heritage Corridor.

Acoustical Considerations: None

Security Considerations: Lockable door.

MERCHANDISE CENTER

Gift shop with Caterpillar branded merchandise available for purchase by visitors to the facility.

Typical Square Footages: 400 SF.

Critical Adjacencies: Lobby

Acoustical Considerations: No special considerations.

Security Considerations: Needs locking door.

COFFEE BAR

Coffee, espresso and light snacks available to visitors to the facility. Roll-up window and serving area with kitchenette.

Square Footage: 200 SF.

Critical Adjacencies: Lobby

Acoustical Considerations: No special considerations.

Security Considerations: No special considerations.

CAVE

3d visualization room with (4) 10'x10' display screens (Two walls, floor and ceiling) used for testing and training.

Operation station includes furniture for operator to drive system, plenty of microphones.

Two tables with microphones built in, 30' wide by 40' long. 12 to 20 people. Large 65"-72" monitor or 8' screen for projection with projector,

Square Footage: 1,200 SF

Critical Adjacencies: First floor – this space is used in the course of engineering, and by visitors.

Acoustical Considerations: Decoustic wall panels/ceiling tiles.

Security Considerations: Badge access control.

CAVE SUPPORT ROOM

Closet with AV and network equipment serving the CAVE. Assume one full IT rack.

Square Footage: 64 SF.

Critical Adjacencies: Directly adjacent to CAVE.

Acoustical Considerations: None

Security Considerations: Lockable door.

SECTION 4: SPECIAL REQUIREMENTS FOR TYPICAL SPACES WITHIN EACH NEIGHBORHOOD

Neighborhoods are composed of a variety of open and closed work spaces forming a kit of parts which can be arrayed in a variety of configurations and types. The spaces below are found within each neighborhood:

OPEN FOCUS

The Open Work Zone supports both focus and light collaboration by providing a primary seat for an individual and collaboration opportunities for teams in the open plan. This zone is central to the Work Neighborhood and within close proximity to the Collaboration and Shared Zones.

Open focus areas are comprised of the following sub-elements:

Standard Workstations:

Used by administrative staff, non-reservable or assignable.

Spatial Considerations: 5'-6" x 6'-0" work surface (56 SF)

Engineering Workstations:

Assigned to an individual employee for long periods of time.

Spatial Considerations: 8'-0" x 11'-0" work surface (88 SF)

Supervisor Workstations:

Used by administrative staff, non-reservable or assignable.

Spatial Considerations: 8'-0" x 11'-0" work surface (88 SF)

Collaboration Stations:

Large open work areas where multiple employees can collaborate in an open setting.

Spatial Considerations: 10'-0" x 14'-0" work surface (140 SF)

Filing Area:

Filing cabinets distributed throughout each neighborhood. Need not be concentrated in a single location.

Spatial Considerations: 88 SF needed, configuration can vary.

Technology Monitoring and Support:

Assignable, acoustically enclosed work area.

Spatial Considerations: 8'-0" x 11'-0" work surface (88 SF)

TELEPHONE ROOM

Shared, non-reservable room with a 2-hour time limit to provide private space for confidential phone calls. Comfortable chair, no docking station, no wall monitor, seat for 1 person. Glass elevation to borrow light and connect visually to open focus area.

Typical Square Footages: 50-75 SF Each.

Critical Adjacencies: Open focus area.

Acoustical Considerations: Acoustically isolated from open focus area and adjacent closed areas.

Security Considerations: None.

CLOSED FOCUS ROOM & EXECUTIVE FOCUS ROOM

Shared, non-reservable with a 2-hour time limit to provide private space for confidential phone calls or hosting a teleconference. Desk phone optional, docking station, no wall monitor. Seats 1-2 people. Glass elevation to borrow light and connect visually to open focus area. Writable and/or tackable surface on one interior wall. Plastic chair rail and painted walls.

Executive focus room is configured per the above but can be reserved by certain employees and has upgraded wall coverings and a wood chair rail.

Typical Square Footages: 140 SF, (225 SF Executive).

Critical Adjacencies: Open focus area.

Acoustical Considerations: Acoustically isolated from open focus area and adjacent closed areas.

Security Considerations: None.

HUDDLE ROOM

Shared, non-reservable with a 2-hour time limit for use. Huddle rooms are a private space for small quick meetings and confidential group phone calls. Desk phone and wall monitor, no docking station. Seats 6 people. Writable and/or tackable surface on one interior wall.

Approximately 15% of Huddle rooms will be designated as telepresence rooms with upgraded AV, furnishings, and finishes.

Typical Square Footages: 225 SF

Critical Adjacencies: Directly adjacent to open focus area.

Acoustical Considerations: Acoustically isolated from open focus area and adjacent closed areas.

Security Considerations: None.

TEAM ROOM

Shared, reservable, private space for hosting a meeting or teleconference. Conference phone and wall monitor, conference table with phone power, data, and monitor cable. Option for Telepresence in select rooms. Seats 10 people. Glass elevation to borrow light and connect visually to open focus area. Whiteboard and/or tackable surface on a minimum of one wall.

Approximately 15% of Team rooms will be designated as telepresence rooms with upgraded AV, furnishings, and finishes.

Typical Square Footages: 320 SF.

Critical Adjacencies: Directly adjacent to open focus area.

Acoustical Considerations: Acoustically isolated from open focus area and adjacent closed areas.

Security Considerations: None.

MEETING ROOM & EXECUTIVE MEETING ROOM

Shared, reservable, private space for or hosting a meeting or teleconference. Conference phone and projector screen. Conference table with phone power, data, and monitor cable. Option for wall monitor(s). Seats 18-40. Dimmable lighting. Glass elevation to borrow light and connect visually to open focus area. Whiteboard and/or tackable surface on a minimum of one interior wall. Special considerations are required for wall and table finishes in this space if used for telepresence.

Executive Meeting room is configured per the above but can only be reserved by certain employees and has upgraded wall coverings and a wood chair rail..

Typical Square Footages: 640 SF.

Critical Adjacencies: Directly adjacent to open focus area.

Acoustical Considerations: Acoustically isolated from open focus area and adjacent closed areas.

Security Considerations: None.

CORE SERVICES

Space within each neighborhood for copiers and plotters. Power and data required.

Typical Square Footages: Distributed throughout each neighborhood, within gross space.

Acoustical Considerations: None.

Security Considerations: None.

OBEYA (LARGE CONFERENCE) ROOM

Large conference room. Bulletin boards around outside, two 70" monitors on one wall, maybe a table. Glass elevation to borrow light and connect visually to open focus area.

Typical Square Footages: 1,280 SF.

Critical Adjacencies: Open Focus area.

Acoustical Considerations: Acoustically isolated from open focus and adjacent spaces.

Security Considerations: Lockable door.

TRAINING ROOM

Rows of desks with desktop computers and multiple monitor setups. Provide power and data for each station.

Typical Square Footages: 1,000 SF

Acoustical Considerations: Acoustically isolated from open focus and adjacent spaces.

Security Considerations: Lockable door.

TRAINING ROOM STORAGE

Storage room directly connected to training room with lockable double door.

Square Footage: 250 SF

Critical Adjacencies: Direct connection to Training Room.

Acoustical Considerations: None

Security Considerations: Lockable double doors.

TECH TRAINING ROOM

Training room for electronic projects. Soldering and other specialized tasks may take place in this room.

Typical Square Footages: 400 SF

Critical Adjacencies: Training Room.

Acoustical Considerations: Acoustically isolated from open focus and adjacent spaces.

Security Considerations: Lockable door.

TECHNOLOGY LAB

Work room for electronic projects. Soldering and other specialized tasks may take place in this room.

Typical Square Footages: 250 SF

Critical Adjacencies: Tech Training Room.

Acoustical Considerations: Acoustically isolated from open focus and adjacent spaces.

Security Considerations: Lockable door.

CPPD ROOM

Large open collaboration area with tables around the outside, have some tables with dry erase top, solid 3D printers, and other tools. Need to have access to bring large material into this room from the loading dock.

Typical Square Footages: 1,200 SF

Critical Adjacencies: ICIDO

Acoustical Considerations: Acoustically isolated from open focus and adjacent spaces.

Security Considerations: Lockable door.

ICIDO (I SEE, I DO)

3d visualization space with one or two 8'x8' or 10'x10' display screens on walls. Two (2) required couple of tables with microphones built in, 16' to 20' wide by 30' to 40' long. 12 to 20 people. Large 65"-72" monitor or 8' screen for projection with projector, operation station includes furniture for operator to drive system, plenty of microphones. Locate in Engineering areas.

Typical Square Footages: 700 SF.

Critical Adjacencies: Position for easy access by engineering employees.

Acoustical Considerations: Decoustic wall panels/ceiling tiles.

Security Considerations: Badge access control.

ICIDO SUPPORT ROOM

Closet with AV and network equipment serving the ICIDO Room. Assume one half of a full IT rack.

Square Footage: 25 SF.

Critical Adjacencies: Directly adjacent to ICIDO.

Acoustical Considerations: None

Security Considerations: Lockable door.

SECTION 5: OFFICE SUPPORT SPACES

The facility supports a number of uses and spaces which do not fall within the repetitious neighborhood. The following is a listing of each of the unique spaces within the building.

LOADING AND RECEIVING AREA

Interior portion of loading dock.

Typical Square Footages: 1,200 SF

Critical Adjacencies: Kitchen.

Acoustical Considerations: No special considerations.

Security Considerations: Card access to exterior doors.

HOUSEKEEPING

Storage area for maintenance and janitorial supplies and equipment.

Typical Square Footage: 800 SF.

Critical Adjacencies: None

Acoustical Considerations: None.

Security Considerations: Lockable Door.

FILE STORAGE

Secure centralized storage for sensitive files.

Typical Square Footages: 800 SF.

Acoustical Considerations: None.

Security Considerations: Card access.

COPIER / OFFICE SUPPLY ROOM

Centralized location for storage of office supplies.

Typical Square Footages: 500 SF.

Acoustical Considerations: None.

Security Considerations: None.

WAN ROOM

Primary location for server rack space within the facility. Dedicated in rack cooling for equipment.

Typical Square Footages: 576 SF.

Critical Adjacencies: Must not be located on exterior wall

Acoustical Considerations: None.

Security Considerations: Card access.

IT BUILD ROOM AND HELP DESK

Room for troubleshooting of technology such as employee computers and cell phones. Users of this room are contracted third party employees.

Typical Square Footages: 300 SF

Critical Adjacencies: Adjacent to WAN Room.

Acoustical Considerations: None.

Security Considerations: Card access.

LAN ROOM

Estimated one per floor. Dedicated cooling.

Typical Square Footages: 100 SF.

Acoustical Considerations: None.

Security Considerations: Card access.

PANTRY

Informal social space directly adjacent to the open work area to support quick and easy access to coffee/water. Furnished to encourage impromptu collaboration. Ice & water machines as well as coffee station, Refrigerator, and microwaves. Locate in each Neighborhood serving multiple work groups. Monitors with cable news and other programming.

Typical Square Footage: 750 SF.

Critical Adjacencies: Directly adjacent to open focus area.

Acoustical Considerations: This area will be a noise generator.

Security Considerations: None.

MAIL ROOM

Location for delivery and sorting of incoming and outgoing mail and parcels.

Typical Square Footages: 400 SF.

Acoustical Considerations: None.

Security Considerations: Card access.

SECURITY OFFICE

Set up for viewing of CCTV footage.

Typical Square Footages: 300 SF.

Acoustical Considerations: Acoustically isolated from open focus and adjacent spaces.

Security Considerations: Card access.

SECTION 6: EMPLOYEE SUPPORT SPACES

The facility supports a number of uses and spaces which do not fall within the repetitious neighborhood. The following is a listing of each of the unique spaces within the building.

FITNESS CENTER

Room equipped with various fitness machines and space for yoga and stretching. Rubber flooring. Monitors with cable news and other programming.

Square Footage: 1,600 SF.

Critical Adjacencies: Shower room, Locker rooms.

Acoustical Considerations: None.

Security Considerations: Lockable door.

LOCKER ROOMS

Secure storage space for clothes and personal items of employees while they use shower or fitness facilities. Consider locating with entrance to outside on main level.

Typical Square Footages: 300 SF Each for Men's and Women's locker rooms.

Critical Adjacencies: Shower room, Fitness center.

Acoustical Considerations: None.

Security Considerations: Lockable door.

SHOWER ROOMS

Shower stalls should be designed with space to store clothes and towel within each stall. ADA stalls are required.

Typical Square Footages: 300 SF Each for Men's and Women's.

Critical Adjacencies: Locker room, Fitness center.

Acoustical Considerations: None.

Security Considerations: Lockable door.

MEDICAL ROOM

Comprised of the following spaces: Waiting, Nurse Station, Doctor's Office, Exam Room, and Storage Room.

Typical Square Footages: 75 SF Waiting; 225 SF Nurse Station, 225 SF Doctor's Office, 300 SF Exam Room, and 90 SF Storage Room.

Critical Adjacencies: Part of wellness area.

Acoustical Considerations: Acoustically separated from adjacent spaces.

Security Considerations: Lockable door.

MOTHER'S ROOM

Room used for nursing and expression of milk. Comfortable seating, Hand sink, Under-counter refrigerator. Dimmable lighting preferred.

Typical Square Footages: 100 SF

Critical Adjacencies: Part of wellness area.

Acoustical Considerations: Acoustically separated from adjacent spaces.

Security Considerations: Reservable, Card access.

WUDU AND PRAYER ROOMS

WUDU rooms are used to cleanse portions of the body before daily prayers. Separate facilities are required for men and women. Specialty plumbing fixtures and seating are required for this task. Prayer room must have dimmable lighting. Prayer room may have secondary use as yoga or stretching room outside of prayer hours.

Typical Square Footages: WUDU 2@80 SF; Prayer 225 SF.

Critical Adjacencies: WUDU and prayer rooms must be directly adjacent. Prayer room may be accessed via WUDU room. Part of wellness area.

Acoustical Considerations: Acoustically separated from adjacent spaces.

Security Considerations: Card access.

DINING SEATING AREA

Provide a variety of informal seating arrangements for between 200 and 300 people to facilitate casual collaboration at a variety of scales. Provide "Power Bar" bar top with high stools that have space for power and USB. Note that many engineers bring lunch and eat at their desk in lieu of in this space.

Mix of round and square or rectangular tables

Mix of chairs and booths

Mix of high and low seating

Mix of soft and firm seating

Typical Square Footages: 3,600 SF

Critical Adjacencies: Kitchen, Servery

Acoustical Considerations: This space is a noise generator, isolate from quiet spaces.

MICRO MARKET

Self-serve market which is open 24/7. Open front refrigerators for sandwiches, salads and snacks which are prepared off site and for chilled beverages. Racks for non-perishable, non-refrigerated snacks. Countertop coffee maker. Provide power and data for automated point of sale machine. Provide hand sink.

Typical Square Footages: 1,000 SF.

Critical Adjacencies: Easily accessible by employees.

Acoustical Considerations: None.

Security Considerations: None.

COMMERCIAL KITCHEN

- Grill station: Flat grill, Fryers (double well).

- Holding area: Hot well, Cold well
- Required Equipment: Steamer, Tilt Skillet, Induction Cooker, Convection Oven (double stack), Salad Bar (single side), Dishwasher.

Typical Square Footages: 2,200 SF.

Critical Adjacencies: Servery, Seating Area.

Acoustical Considerations: Acoustically separate from adjacent spaces.

Security Considerations: lockable door.

SERVERY

Location where food prepared in the commercial kitchen is distributed to employees. Serving line and POS areas.

Square Footage: 1,000 SF.

Critical Adjacencies: Commercial Kitchen, Seating Area.

Acoustical Considerations: None.

Security Considerations: None.

FOOD SERVICE SUPPORT SPACES

Storage and back of house spaces serving the kitchen and it's staff.

Typical Square Footages: 150 SF Office; 150 SF Locker Room; Single Occupancy restrooms 2 @ 50 SF ea; 100 SF Chemical Storage Area; 350 SF Storage; 200 SF Trash and recycling storage area.

Critical Adjacencies: Servery, Loading Dock

Acoustical Considerations: Acoustically separated from dining area.

Security Considerations: Outside of secure area, no special considerations.

DAT SYSTEM ROOM

Equipment room for Cellular service providers who will be providing antennas for their service within the building.

Square Footage: 25 SF.

Critical Adjacencies: Near WAN Room.

Acoustical Considerations: None.

SECTION 7: PARKING AND SITE CONSIDERATIONS

PARKING

- Code minimum is about 500 spaces or one parking space per 300 SF over 150,000 SF.
- This amounts to about 78% parking per employee for this phase. Investigate opportunities to reduce parking spaces.
- Estimate about ½ spaces underground (200-250) and ½ above ground (200-250). Allow approx. 10' per level.
- Space for food truck parking and service on site.

LANDSCAPING

- Provide shade and seating (patio and fixed) for large and small meetings. Intent is to view exterior space in much the same way as a closed collaboration space.
- Patio for customer reception area.
- Outdoor grill
- Consider different spaces to optimize Sunset view and city view both.
- Integrate Caterpillar machine parts or factory components into construction.
- Make use of CAT Tote Box for outside planters in some locations.
- Investigate live indoor plants in conference rooms and corridors