

Q-CAD Inc.

Polygon Standards

**BOMA
IFMA
Institutional**



Q-CAD

CAD DRAFTING SERVICES

WWW.Q-CAD.COM | QCAD@QCAD.COM | 800-700-3305

USA CORPORATION, WOMAN-OWNED, 23-YEARS EXPERIENCE

Q-CAD: BOMA POLYGON STANDARDS (ANSI Z65.1-1996)

1. **External Gross Area Polygon** shall be drawn to the outside face of the Exterior Walls.
2. **Internal Gross Area Polygon** shall be drawn to the interior surface (inside face) of the glazing. If no glazing exists, draw to inside face of Exterior walls. Ignore all columns and other projections. Polygon should pass through these elements.
3. **Vertical Penetrations** include stairs, elevator shafts, escalators, flues, pipe shafts, vertical ducts, atrium, and light wells and shall be drawn to outside face of the walls. If a Vertical Penetration is adjacent to an Exterior Wall, polylines shall be drawn to the inside face of the Vertical Penetrations. If Vertical Penetration is adjacent to Vertical Penetration, draw centerlines of wall.
4. **Building Service Areas** include toilets, mechanical, electrical, communications and maintenance closets, as well as any **voids** (any inaccessible spaces that are not shafts). Building Service Area polygons shall be drawn to outside face of walls. However, if a Building Service Area is adjacent to a Vertical Penetration or an Exterior Wall, the Building Service Area Polygon shall be drawn to the inside face of the Building Service Areas. If Building Service Area is adjacent to Building Service Area, draw centerlines of walls.
5. **Primary Circulation Polygons** include lobby, main corridor, building service hall and any other circulation used by all building users. Primary Circulation Polygons shall be drawn to outside face of the walls. However, if A Primary Circulation Polygon is adjacent to the Exterior Walls or Vertical Penetrations or Building Service Area, then the polygon shall be drawn to the inside face of Primary Circulation. If Primary Circulation Polygon is adjacent to Primary Circulation Polygon, draw centerlines of walls.
6. **Room Area Polygons** shall be drawn to the centerline of the walls. However, if a Room Area is adjacent to the Exterior Walls or Vertical Penetrations or Building Service Area or Primary Circulation, then the polyline shall be drawn to the inside face of the Room Area Walls. If the Room Area is adjacent to the Room Area or Workstation or Secondary Circulation, then the polyline shall be drawn to the centerline of the walls.
7. Each **Workstation** shall be individually polylined. Workstations shall be polylined to the centerline of the movable panels and to the center of the space divided by multiple Workstations. However, if a Workstation is adjacent Exterior walls or Vertical Penetrations or Building Service Area or Primary Circulation, then the polylines shall be drawn to the inside face of the Workstation walls. If the Workstation is adjacent to Room Area or Workstation or Secondary Circulation, then the polyline shall be drawn to the centerline of Walls.
8. **Secondary Circulation** is the space remaining after all other deductions have been made. Secondary Circulation consists of a pedestrian circulation, which is the pedestrian access to corridors, exits, main lobbies, or between workstations.

Use the following layer names for BOMA Polygons:

External Gross: A-AREA-GROS-EXTR

Internal Gross: A-AREA-GROS-INTR

Vertical Penetrations: A-AREA-VERT

Building Service Areas, Primary Circulation: A-AREA-SERV

Room Area and Workstations: A-AREA-ROOM

Secondary Circulation: A-AREA-CIRC-SCND



Q-CAD

CAD DRAFTING SERVICES

WWW.Q-CAD.COM | QCAD@QCAD.COM | 800-700-3305

USA CORPORATION, WOMAN-OWNED, 23-YEARS EXPERIENCE

Q-CAD: IFMA POLYGON STANDARDS

1. **External Gross Area Polygon** shall be drawn around the entire exterior of the building. Follow the outside face of exterior walls, disregarding canopies, cornices, pilasters, buttresses, balconies that extend beyond the wall face, and courtyards that are enclosed by walls but have no roof. For basement space, include the area measured to the outside face of basement or foundation walls. Exterior bridges and tunnels that are totally enclosed, constructed areas connecting two or more buildings are included in building exterior gross area.

Building Exterior Gross polygons are drawn on layer: A-AREA-GROS

2. **Facility Internal Gross Area Polygon** shall be drawn around the entire floor, following the inside face of the exterior wall. The inside face is determined as the intersection of the plane of the finished floor and the finished interior surface of the walls. Finished surface is defined as a wall, ceiling, or floor surface, including glass, as prepared for tenant or occupant use, excluding the thickness of any special surfacing materials such as paneling, furring strips, and carpet.

Interior gross area includes only areas that are totally enclosed within the building. Basements, enclosed porches, penthouses, mechanical equipment rooms, lobbies, mezzanines, corridors, interior parking, and enclosed loading docks are included. Spaces outside the exterior walls or without a roof covering are not included in the interior gross area. Interstitial areas and excluded areas are also not included. Excluded areas are fully enclosed spaces with adequate clear headroom that are not intended for or are not suitable for occupancy by people or equipment, but not spaces that are temporarily unusable due to flood, fire damage, construction, or renovation activity.

Facility Interior Gross polygons are drawn on layer: A-AREA-GROS

3. **Major Vertical Penetrations** comprise one division of the Facility Interior Gross area. Vertical penetrations include stairs, elevator shafts, flues, pipe shafts, vertical ducts and their enclosing walls. Stairs and elevator shafts shall be considered major vertical penetrations for all affected floors, even the lowest level at which they originate. Not included in this category are stairs, dumbwaiters, and lifts that do not serve a general building circulation function but exclusively serve a specific tenant. Disregard areas less than 0.1m² or 1 ft². If the vertical penetration adjoins an exterior wall, draw the polygon to the inside face of the exterior wall. If Vertical Penetration is adjacent to another Vertical Penetration, draw polygon to centerlines of wall.

Vertical Penetration polygons are drawn on layer: A-AREA-VERT

4. **Void Areas** are floor areas of rooms more than one story in height and having void areas on upper floors such as atria, light wells, or lobbies. Major vertical penetrations are not considered void areas. Void Areas include their enclosing walls. If the Void Area adjoins an exterior wall, draw the polygon to the inside face of the exterior wall. If Void Area is adjacent to another Void Area, draw polygon to centerlines of wall.

Void Area polygons are drawn on layer: A-AREA-VERT

5. **Building Core and Service Areas, and Interior Parking** are the floor areas of a facility necessary for the operation of the facility and are not available for general occupancy. These include building lobbies, mechanical rooms, electrical rooms, telephone rooms, loading docks, restrooms, electrical rooms, telephone rooms, toilet rooms, restrooms, custodial rooms, and utility tunnels that are not used for any other purpose. Building Core and Service Area polygons shall be drawn to the center of all interior walls. However, if a Building Core and Service Area is adjacent to a Vertical Penetration or an Exterior Wall, the Building Core and Service Area Polygon shall be drawn to the inside face of the Building Core and Service Areas. If Building Core and Service Area is adjacent to facility usable area, the thickness of the wall shall be included in the area of the building core and service area. If the Building Core and Service Area adjoins an exterior wall, draw the polygon to the inside face of the exterior wall.

Interior Parking is parking that is totally enclosed within the building. Polygon Interior Parking to the centerline of all interior walls. If the Interior Parking is adjacent to a Vertical Penetration or an Exterior Wall, draw the polygon to the inside face of the exterior wall. Do not polygon individual parking spaces.

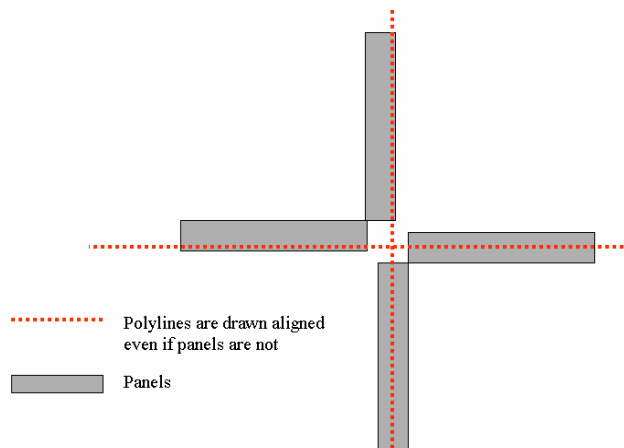
Building Core and Service Area, and Interior Parking polygons are drawn on layer: **A-AREA-ROOM**

- Primary Circulation Area** is the portion of a building that is a public corridor or lobby or is required for access by all occupants on a floor to stairs, elevators, toilet rooms, building entrances, and tenant space entry points on multi-tenant floors. Primary Circulation is determined by identifying the reasonable **minimum** circulation connecting stairs, elevators, toilet rooms, building entrances, and tenant space entry points on multi-tenant floors. Bridges, tunnels, and atria that do not meet this strict definition but are used for Primary Circulation even though they may be used for other purposes shall be considered Primary Circulation. Primary Circulation does not necessarily include all circulation required for life safety access and egress. However, if dedicated circulation required for egress can serve no normal Secondary Circulation function, it shall be considered Primary Circulation. Polygon primary circulation spaces to the centerline of all interior walls. If Primary Circulation Polygon is adjacent to the Exterior Walls or Vertical Penetrations or Building Service Area, then the polygon shall be drawn to the inside face of Primary Circulation.

Primary Circulation polygons are drawn on layer: **A-AREA-ROOM**

- Assignable Areas (Room Area Polygons)** is the portion of facility usable area that can be assigned to occupant groups or functions. This includes portions of a floor used to house tenant personnel, tenant furniture, tenant equipment, tenant support areas, and common support areas. Polygon Facility Assignable Areas to the centerline of all interior walls or furniture panels. However, if a Facility Assignable Area is adjacent to the Exterior Walls or Vertical Penetrations or Building Core and Service Areas, then the polygon shall be drawn to the inside face of the Facility Assignable Area Walls. If furniture panels are slightly out of alignment (approximately 6 inches or less), as shown below, draw the polygons aligned, ignoring the panel offset.

Facility Assignable Area polygons are drawn on layer: **A-AREA-ROOM**



- Secondary Circulation** area is the portion of a building or floor required for access to some subdivision of space that is not defined as primary circulation. Secondary circulation may or may not be surrounded by walls or furniture panels. Secondary circulation is the last to be polygoned. Polygon secondary circulation spaces to the centerline of all interior walls or coincident with other polygoned areas. If the secondary circulation is adjacent to the Exterior Walls or Vertical Penetrations or Building Core and Service Areas, then the polygon shall be drawn to the face of the Exterior Walls or Vertical Penetrations or Building Core and Service Areas.

Secondary Circulation polygons are drawn on layer: **A-AREA-ROOM**

Markups with Space Allocation Categories

The following is a key to identifying Space Allocation Categories for determining the method to be used for creating the polygons:



PRIMARY CIRCULATION (HALLWAY)



SECONDARY CIRCULATION (HALLWAY)



BUILDING CORE AND SERVICE AREAS – RESTROOMS



VERTICAL PENETRATIONS (ELEVATORS & STAIRWELLS)

GENERAL RULES

Area polygons on a floor plan can be thought of as working from the “outside in,” beginning at the building plan perimeter.

1. Always draw the polygons in a **clockwise** direction.
2. All areas are measured using closed polygons.
3. Segments of a polygon must not cross over each other.
4. All polygons shall be coincident. There should be no gaps or overlaps between adjacent polygons.

Content	Layer Name	Layer Color
Building Exterior Gross	A-AREA-GROS	Green
Facility Interior Gross	A-AREA-GROS	Green
Vertical Penetrations	A-AREA-VERT	Red
Void Areas	A-AREA-VERT	Red
Building Core & Service Areas, Interior Parking	A-AREA-ROOM	Blue
Primary Circulation	A-AREA-ROOM	Blue
Facility Assignable Areas (Rooms)	A-AREA-ROOM	Blue
Secondary Circulation	A-AREA-ROOM	Blue



Q-CAD

CAD DRAFTING SERVICES

WWW.Q-CAD.COM | QCAD@QCAD.COM | 800-700-3305

USA CORPORATION, WOMAN-OWNED, 23-YEARS EXPERIENCE

Q-CAD: INSTITUTIONAL POLYGON STANDARDS

1. **External Gross Area Polygon** shall be drawn to the outside face of the Exterior Walls.
2. **Internal Gross Area Polygon** is not calculated for the Institutional Standard.
3. **Vertical Penetrations** include stairs, elevator shafts, escalators, atriums, and light wells. Vertical Penetration polygons shall be drawn to the inside surface of walls. Areas such as flues, pipe shafts, vertical ducts and other non-accessible spaces are not polylined.
4. **Building Service Areas** include toilets, mechanical, electrical, communications and maintenance closets. Building Service Area polygons shall be drawn to the inside surface of walls. Any voids or inaccessible spaces will not be polylined.
5. **Primary Circulation polygons** include lobby, main corridor, building service hall and any other circulation used by all building users. Primary Circulation Polygons shall be drawn to inside surface of the walls.
7. **Room Area polygons** shall be drawn to the inside surface of the walls.
8. Each **Workstation** shall be individually polylined. Workstations shall be polylined to the inside face of the movable panels. However, if a Workstation movable panel is adjacent to Exterior walls, Vertical Penetrations, Building Service Areas, Primary Circulation, or Room Areas, then the polylines shall be drawn to the inside surface of the permanent adjacent wall.
9. **Secondary Circulation** consists of pedestrian circulation, which is the pedestrian access to corridors, exits, main lobbies, or between workstations.