

Information an Architect Must Provide to the HVAC Design Engineer

1. Architectural Drawings (Latest Revisions)

- * Floor plans (all levels)
- * Reflected ceiling plans (RCP)
- * Sections and elevations
- * Roof plans
- * Schedule of rooms and areas
- * Shaft, riser, and plant room locations
- * Architectural details that affect coordination

2. Room Information

- * Room names + numbers
- * Room areas
- * Room occupancy levels
- * Room functions and special usage (labs, kitchens, server rooms, prayer rooms, etc.)
- * Required internal conditions (if specified by the client or architect):
 - * Temperature
 - * Humidity
 - * Fresh air requirements
 - * Noise criteria (NC levels)

3. Building Envelope Details (For Cooling/Heating Load Calculations)

- * Wall constructions (U-values)
- * Roof construction (U-values)
- * Floor construction (U-values)
- * Window schedule:
 - * Glass type
 - * SHGC / g-value

- * U-value
- * Frame type
- * Opening percentage
- * External shading elements
- * Orientation of each façade

Without these, load calculations cannot be accurate.

4. Building Layout Considerations

- * Ceiling heights (clear and structural)
- * Soffit heights
- * Clashes with beams, bulkheads, architectural features
- * Internal door dimensions + locations
- * Atriums and double-height spaces

5. Space Allocation for HVAC Systems

- * Mechanical rooms (AHU rooms, plant rooms)
- * Chiller/boiler plant spaces
- * Pump rooms
- * Transformer + generator areas (heat load impact)
- * AC outdoor unit locations
- * Riser shafts (supply, return, fresh air, exhaust)
- * AC closets for ducted units
- * Space for fire dampers, sound attenuators, access panels

This is one of the biggest issues in real projects—HVAC needs adequate space early.

6. Building Codes and Client Requirements

- * Project design code basis (ASHRAE, CIBSE, local code, Green Building requirements)
- * Fire strategy report

(defines pressurization, smoke extraction, stairwell requirements)

- * Acoustic requirements
- * Sustainability targets (LEED, BREEAM, Estidama, etc.)

**7. Special Rooms and Systems

- * Kitchen type + exhaust requirements
- * Swimming pool area (special humidity conditions)
- * Server rooms / data rooms
- * Laboratories and medical facilities
- * Car parks (CO ventilation)
- * Smoke zones and egress paths

Architect must confirm all special-use areas early.

8. Coordination Inputs

- * Final ceiling coordination layout
- * Locations for grilles, diffusers, thermostats
- * Access panel requirements
- * Aesthetic constraints (no ducts visible in certain areas)
- * Restrictions for façade penetrations (louvers, exhausts)

9. Equipment Weight & Support Requirements

Architect/structural coordination to allow:

- * AHUs
- * VRF condensers
- * Chillers
- * Pumps
- * Exhaust fans
- * Duct supports
- * Plant room bases

Summary (Quick List to Send to Architect)

HVAC requires from architect:

1. Architectural drawings (plans, sections, elevations, RCP).
2. Room names, functions, areas, occupancy.
3. Building envelope details (U-values, glass data).
4. Ceiling heights, soffits, beams.
5. Space allocation for plant rooms, risers, AC units.
6. Fire strategy and project design codes.
7. Special rooms (kitchen, lab, server room).
8. Coordination constraints (aesthetics, diffusers, access panels).
9. Structural coordination for equipment weights and openings.

*Coordination constraints (No.8) mean the architect gives rules that HVAC must follow so that equipment, ducts, diffusers, and access panels do not ruin the building's interior look or create functional conflicts.