

Ångström Technology Ltd.

Engineering Planning
Questionnaire for a
HardWall – Multiroom
Cleanroom Facility

Date: _____

Company: _____ Contact: _____

Address: _____

Email: _____ Phone: _____ Fax: _____

Alternate Contact: _____ Phone: _____ Fax: _____

Project Name and/or Description: _____

Quotation Type: _____ Date Ready for Occupancy: _____

SECTION 1- CLEANROOM DATA

INSERT ANSWERS IN SPACE PROVIDED

Room Name or Number																							
1. Cleanroom Process																							
2. Class Room particle classification based on ISO 14644-2																							
<table border="1"> <thead> <tr> <th>ISO Class</th> <th>Federal Standard</th> <th>ACH</th> </tr> </thead> <tbody> <tr> <td>4</td> <td>Class 10</td> <td>600-667</td> </tr> <tr> <td>5</td> <td>Class 100</td> <td>267-480</td> </tr> <tr> <td>6</td> <td>Class 1,000</td> <td>200-233</td> </tr> <tr> <td>7</td> <td>Class 10,000</td> <td>67-100</td> </tr> <tr> <td>8</td> <td>Class 100,000</td> <td>37</td> </tr> </tbody> </table>	ISO Class	Federal Standard	ACH	4	Class 10	600-667	5	Class 100	267-480	6	Class 1,000	200-233	7	Class 10,000	67-100	8	Class 100,000	37	<p>(ACH) Air Change per hour = (velocity (FMP)) x 60 Ceiling height (ft)</p> <p>Velocity: Room cross-section air flow velocity with ceiling height ultimately determines room air changes and ultimately, Cleanroom performance.</p>				
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4	Class 10	600-667																					
5	Class 100	267-480																					
6	Class 1,000	200-233																					
7	Class 10,000	67-100																					
8	Class 100,000	37																					
3. Dimensions (LxWxH) - Feet of Desired Cleanroom																							
4. Temperature: Room temperature specifications in Fahrenheit - include acceptable range; e.g., 68 +/- 2																							
5. Humidity +/- %: Room relative humidity specifications, including acceptable range; e.g., 45																							
6. Light level: Lighting Levels in footcandles measured at 30" from floor (or specify)																							
7. Light Color: If "ultraviolet: light is to be avoided due to photosensitive processes, define desired wave length cut off. Please note if colored lamps (CL) or lamp shield (LS are preferred.																							

Room Name or Number													
8. Exhaust CFM: Define maximum concurrent exhaust air volume from each room. Indicate how much exhaust is solvent (S), acid (A), or general (G). (If applicable)													
9. Process Heat: Indicate maximum process heat in BTU's or power consumption in KW. A process equipment matrix will be helpful. Please indicate if a diversity factor (DF) is to be applied. (Diversity equals % of equipment loads operating at the same time.)													
10. Personnel: Define max # of individuals in room at one time.													
11. Floor Material: A) Perforated raised flooring B) Seamless Vinyl C) Epoxy Paint on concrete D) Nonconductive D) Antistatic F) Conductive G) Existing Floor will Remain (More than one choice may apply)													
12. Architectural Wall System: FRP, Aluminum, Vinyl, Steel, Stainless Steel or _____ If floor plan is not provided, indicate quantities of the doors in grid provided:	Preferred panel surface & Core Materials												
	Single Doors	Double Doors											
	Sliders (auto or manual)	Doors requiring panic hardware											
13. Static elimination Ceiling System: Is this required? (Yes or No)													
14. Sound Level: Specify in DBA or NC													
15. Phone: Specify number of telephone conduits needed or empty junction boxes.													
16. T-Bar Dimension: Suspended Ceiling inverted T-Grid can be of 1 ½" or 2" sizes. Grids are routinely clear anodized aluminum but various other coatings are available on request. Nominal 1" grid is acceptable for non-rated rooms.													
17. Vibration requirements: Are specific vibration requirements known? (Yes or No) If yes, provided specification.													
18. Fire Rating: (1 answer for all rooms) Do perimeter walls require fire rating? (Yes or No) If yes, identify on sketch and indicate rating in hours (RIH) and height to deck (HTD)													
19. Design Concept: If a certain design concept is preferred, please identify. See airflow design schematics, PDF.													
20. ADDENDUMS: indicate # from above and additional notes if applicable.													

SECTION 2- PLANT & UTILITY DATA

INSERT ANSWERS IN SPACE PROVIDED

1. Existing building or new construction: _____
2. Floor to roof height: _____
3. Truss depth: _____ 4. Truss spacing: _____
5. Truss loading capacity available (Pounds per square foot (SPSF)): _____
6. Can Cleanroom mechanical equipment be supported from existing roof structure? (Yes or No): _____

Note: Ångstrom can specify ceiling system weight when required.

7. Available clear height if obstructions exist: _____
8. Plant conditions affecting design: (Ashrae 99% values can be used if this data is unknown)

OUTSIDE CONDITONS	Dry Bulb (Degrees Fahrenheit)	Wet Bulb (Degrees Fahrenheit)
Winter Low		
Summer High		

9. Altitude (feet above sea level): _____
10. Fire Protection: Will Cleanroom need sprinkler system? (Yes or No) _____
If YES, is sprinkler main piping provided? (Yes or No) _____
11. Other services (Assumed to be within 10' of Cleanroom unless specified otherwise) (Yes or No):
Is chilled water available? _____ Is steam available? _____
Is hot water available? _____ Natural gas? _____
Lift Truck available? _____ Electric power? _____ If yes, Volts: _____ Phase: _____
Distance from installation site to loading dock? _____
12. Special Utilities (Yes or No):
Is central housekeeping vacuum system to be installed? _____
Shoe Covers? _____ High-velocity air showers? _____
Pass-thru boxes? (Number and Size) _____
13. Construction and service personnel: Must be union members? (Yes or No) _____

SECTION 3- CERTIFICATION SERVICES

SKETCH CLEANROOM IN SPACE PROVIDED

1. Indicate which testing standards are to be followed:
A. ISO 14644-1 _____ B. ISO 14644-2 _____ C. ISO 14644-3 _____ C. Other _____
2. Type of Service (Yes or No):
A. "As built" Cleanroom performance testing _____
B. Particle Count _____ C. Temperature _____ D. Humidity _____
D. Light _____ E. Sound _____ F. Vibration _____
G. Will a series of certification tests be required in the operation mode? _____

