

**ELEVATE QUANTUM a CONSORTIUM INCLUDING
OCTAVE PHOTONICS &
COLORADO SCHOOL OF MINES**



**REQUEST FOR PROPOSALS (RFP) FOR DESIGN, INSTALL, AND
PROCESS ENGINEERING SERVICES**

For the

ELEVATE QUANTUM NANOPHOTONICS CLEANROOM

SUBMISSION DEADLINE EXTENDED TO FEB 7, 2025

Key Dates:

20 Dec 2024: RFP Released on Elevate Quantum Website
8 Jan 2024: Information Session
3 Feb 2025: Deadline for Submission of Bids
10 - 14 Feb 2025: Interviews with Finalists
14 Feb 2025: Final Selection Announced

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2. GENERAL INFORMATION

2.1. INTRODUCTION / PROJECT DESCRIPTION

Introduction

Elevate Quantum is a nonprofit organization dedicated to establishing the Mountain West as the global epicenter for quantum technology development. As a U.S. Department of Commerce Designated Tech Hub, Elevate Quantum (EQ) will aid in accelerating the transformation of cutting-edge quantum research into world-changing technologies while building a diverse and inclusive workforce to support the future of this industry.

Three primary goals of Elevate Quantum include:

1. A globally unique lab and fabrication facility to enable rapid prototyping and low-volume manufacturing that is right-sized to the quantum industry and delivered at world-class speed.
2. Workforce activities to close the gap of three open quantum jobs for every one qualified person.
3. A range of entrepreneurial support activities to speed the commercialization process of quantum technologies.

The Quantum Commons will rapidly transform into a globally leading technology transfer hub – the “Quantum Silicon Valley” – providing facilities critical to accelerating the speed of progress in the quantum industry. A new nanofabrication building (Fab building) is currently being designed by the Colorado School of Mines (CSM), an EQ consortium partner. Within the Fab building, the cleanroom facility will support a critical need for quick-turnaround production of photonic chips while bridging the connection between academic research and high-volume production.

Project Description

New Cleanroom for Nanophotonic Fabrication

Developing a nanofabrication facility will be one of the first steps to realizing the goals of the EQ Tech Hub. This facility will support a critical need for quick turnaround production of photonic chips while bridging the connection between academic research and high-volume production. The project described in this RFP is for a turnkey cleanroom that will reside within the new Fab building being constructed by CSM. This Fab building will also house supporting spaces such as gowning, offices, break room, loading dock, and others related spaces. The Fab building and cleanroom are intended to be designed with a mindset for the desire to expand in the future without compromising continuous operations in the existing cleanroom.

In collaboration with a team of nanofabrication experts at Octave Photonics, Elevate Quantum (EQ) intends to select a Cleanroom Team (CR Team, also referred herein as

“vendor”) who will design, build, and implement process engineering services of a turnkey cleanroom that is ready to connect process tools for fabrication of nanophotonic circuits located at EQ’s newly established campus owned by The Colorado School of Mines and located in Arvada, Colorado (Quantum Commons). **For avoidance of doubt, this RFP is not for the Fab building itself, it is limited to the design and installation of the cleanroom and associated process engineering to ensure efficient and cost effective operation.**

EQ and Octave Photonics (CLIENT) seeks a collaborative partner with experience expediting the design, procurement, and installation processes to deliver this critical project as quickly as possible and for the lowest cost achievable. **The selection process is for both cleanroom design/install and process engineering services. Prospective applicants that have expertise in only portions of the requested scope are strongly encouraged to team together (subcontract) with other organizations to present a complete solution in response to this RFP.** The preferred CR Team will have expertise in speed-to-market delivery and cost management as well as technical design, engineering, and construction to support the fabrication processes housed within the cleanroom. Further, the ideal team will embrace a delivery model that is highly collaborative, framed by trust and transparency, and exemplified by recent project experience as a team.

The CLIENT has recently engaged nanofabrication cleanroom consultants to create design criteria for the cleanroom. These design criteria will be used by the selected CR Team to establish the scope of the project and execute the design and construction phases. Additionally, a design/build team has been contracted to construct the Fab building in which the cleanroom will be housed. It is expected the CR Team will work in close collaboration with the Fab design/build team to guarantee smooth, timely, and cost-efficient completion of the combined projects.

Functionality is the priority. The main function of this cleanroom will be to establish a unique nanofabrication facility which will produce photonic integrated circuits, addressing the critical industry need for quantum technology utilized in communications, defense, and remote sensing. The facility will utilize tooling and supporting systems typically used for small-scale semi-conductor R&D and fabrication. The primary design considerations are rapid construction and ensuring safety. The expected size for the cleanroom is 5,000 square feet.

2.2. CONTACT INFORMATION

All questions and submissions related to this RFP are to be directed to the RFP initiators below:

Primary RFP Contact

Name: Elevate Quantum RFP
Company: Elevate Quantum
Email: rfp@elevatequantum.org

2.3. RFP LIMITATIONS

The RFP represents the team's best understanding at the time of this writing, as well as learnings from prior cleanroom experiences. The CLIENT looks to this RFP awardee as a technical partner to work through the myriad details in a real-time, interactive design/install activity that will produce a working facility on time and on budget. For the purposes of bidding, assume that the specifications outlined in this document represent the final facility requirements. In reality, we acknowledge that the complexity of this project may necessitate future modifications in scope or contracts as the cleanroom design and installation process moves forward in coordination with the Fab building team.

3. SCOPE OF WORK

Proposals shall be submitted based on the following assumptions:

- 3.1. This project has an approximate budget of \$2.0 million for the cleanroom and process engineering of a cleanroom space for the fabrication of nanophotonic devices. The scope of work does not include commissioning or certification. We are open to the inclusion of these services as separate line items in the bid. Bids exceeding the allocated budget will be considered, but reasonable considerations for value engineering should be included from the outset.
- 3.2. This RFP emphasizes the tool utility matrix that together comprises the process flows and hazardous processed materials over the specific fabrication method of the walls.
- 3.3. Applicants may choose to subcontract a portion of the proposed work. Bidders who have participated as a team with subcontractors shall submit an MOU with the matrix of responsibilities among the prime bidder and their corporate partners.
- 3.4. The building in which the cleanroom will reside is currently being designed. Suppliers will need to work in close coordination with the building firm to ensure appropriate layout and connections between the two structures (e.g. electrical, water, PCW, HVAC, acid neutralization, design & detailed engineering, and supply, installation, testing, final superclean and commissioning of cleanroom, HVAC systems, BMS/TGMS/Man-down sensing and notification, gas distribution and exhaust system, gas leak detection and gas abatement system, electricals, fire detection & protection system, tool hook-up, process heat exchanger connection to PCW, etc.).
- 3.5. Desired cleanroom to cover 5,000 sq ft.
- 3.6. The scope of work comprises bay/chase construction. A proposed schematic layout of the cleanroom facility is provided in Appendix A, for illustrative purposes. Note that this layout concept is intended to serve as inspiration for prospective bidders and will be reviewed through the design process
- 3.7. Space list includes:

Space	Est. Dimensions (min)	Notes
Nanolithography bay	44' x 20' x 10'	
Etch bay	44' x 20' x 8'	
Deposit bay	38' x 20' x 8'	
Chases	8' wide	Separating each bay
Future expansion*		

* unfinished space for future internal expansion with an external knockout wall and utility stub extensions for possible future facility expansion.

- 3.8. A list of currently identified integration points is provided below. **We do not expect engineering solutions to these items at time of bid, but we request that bidders provide documentation to convey a plan to adequately address and communicate considerations like these.**

- 3.8.1. Consideration for seamless expansion of the cleanroom footprint by knocking out one wall and extending utility stubs into the expansion space, including placement of specific utility stubs so that this engineering project takes into account minimum impact on future operations.
- 3.8.2. This RFP intends to manage non-halogen containing acid waste (beakers of used acid, acid wet bench drain and SRD rinsate) through a limestone chip neutralization pit. The future expansion may require a dedicated AWN system. This requires a high level of coordination between the Fab building and CR teams related to plumbing design and utility stubs.
- 3.8.3. For informational purposes: The interior dividing wall between H- and B-class occupancy will be built by the Fab building team.
- 3.8.4. Similarly, the Fab building team is responsible for supplying all utilities to the perimeter point of the cleanroom (electrical, city water, PCW, Power, fire suppression, etc.) based on the loads plus a safety factor as determined by the awarded CR team, from the tool-utility matrix provided in Appendix C.
- 3.8.5. Cleanrooms typically separate (by code) the solvent exhaust from the acid exhaust. Cost saving efforts will be made by sizing and locating exhaust systems appropriate to the minimum path from process to abatement system (scrubber) to exhaust air handler. (any energy scavenging from these systems will also have to take into account the nature of the exhaust). Trunk slopes must account for any collection of condensates, and location of exhaust trunk condensate drip drops (drain points with sight glasses) need to be smartly located in order not to interfere with tool placement.
- 3.8.6. Make-up air needs to be appropriately sized to the exhaust and the air changes to maintain the positive pressure in the cleanroom. In the event of power outages, care must be taken to avoid the inability to open cleanroom doors from the inside, preventing emergency exit.
- 3.8.7. The BMS needs to be integrated with the TGMS- Toxic Gas Monitoring System. These should be designed at the same time for full integration in coordination between the building team and the CR vendor. We will monitor for toxic materials at multiple points both in the working spaces and in tool chassis, and downstream of POU abatement systems. We will also use waterbugs for sensing potential leaks. Due to the limited number of people working in the cleanroom at any given time, accommodation needs to be made for workers alone in the facility. Worker-down lanyards and their notification systems must be integrated with the BMS system. All alarm signals need to be available in real time to Mines/EHS/Fire Marshall as well as CLIENT principals.

3.8.8. Electrical panels and drops, along with switches, sensors, fire annunciators and extinguishers need to be smartly located with a foreknowledge of planned tool placement, or else precious wall space is wasted or costly rework is required prior to tool placement.

3.8.9. The cleanroom Team will work with the Fab D/B team to produce a coordinated design for one fire suppression system.

3.8.10. Siting of electron column tools (EBL, SEM) with their power and utility drops will depend on assessment of lowest vibration coupling, lowest RF interference, furthest from furnaces (electrical relays in resistive heating furnaces create spurious EMI events), easiest path to dedicated earth ground.

3.8.11. E-Beam evaporator and RF-powered process (etch, dep) tools will require a low-impedance chassis connection to ground to protect operators from an electrified chassis.

4. RFP SUBMISSIONS

4.1. SCHEDULE

Action	Due By (5pm MT)
RFP Document Release	12/20/2024
Pre-Submission Information Session	1/08/2024
Submit Clarification Questions	1/14/2025
Respond to Clarification Questions	1/17/2025
Submit Proposal	2/3/2025
Notify Selection of Finalists	2/5/2025
Presentations and Oral Interviews with Finalists	2/10 – 2/14/2025
Selection Announced	2/14/2025

4.2. PRE-SUBMISSION CLARIFICATIONS Q&A

Bidders are welcome to submit clarification questions up to the due date outlined in the schedule above. Responses to all submitted clarification questions will be sent out to all bidders who have provided a Notification of Intent to Bid. The published RFP may be amended to address any identified discrepancies or inconsistencies.

All clarification questions must be submitted in electronic format to the following individuals:

Name: Elevate Quantum RFP
Company: Elevate Quantum
Email: rfp@elevatequantum.org

4.3. PROPOSAL CONTENT

Proposals must be submitted in accordance with the following instructions. Proposals not complying with these instructions may be rejected by CLIENT.

Proposals shall:

- Demonstrate outstanding ability to understand intricacies of cleanroom design and construction and overall process engineering design: chemistry and abatement approaches, manual handling of liquid toxins and safe, ergonomic design of waste process flows; HPM supply and exhaust compatible materials, HPM valving, manifolding and routing strategies, TGMS control systems, tool hook-up, HPM related code compliance, superclean procedures, commissioning procedures, start-up support.
- For the purposes of bidding, RFP respondents should assume an H5 occupancy and requirements.

Bidders shall submit the following with their technical bid:

- a. Concept design drawing showing the layout of Cleanroom area, HVAC blocks, gas hook up schematic, dry abatement, other facility and utility service blocks etc.
- b. An organization chart indicating who will be participating on the project, a summary of their qualifications, relevant experience on related cleanroom projects, and their proposed effort in FTE.
- c. A proposed management response to the touchpoints identified in Section 3.8 of this RFP.
- d. Gantt chart for overall project schedule.
- e. Price breakdown listing which features and capabilities can be included within the current \$2.0 M project budget. If certain requested requirements in this RFP cannot fit within this budget, they should be included as priced add-ons. See Appendix F.
- f. Provide descriptions of at least 2 successfully completed projects of similar size and scope. Include the size, cost, and facility contact information.
- g. Resumes of project team members.

Prime bidders who have participated as a team with subcontractors shall submit an MOU with the matrix of responsibilities among the prime bidder and their corporate partners.

All Proposals must be submitted in electronic format to the following individuals:

Name: Elevate Quantum RFP
Company: Elevate Quantum
Email: rfp@elevatequantum.org

Proposals are to be submitted no later than **February 3, 2025, 5p Mountain Time**. Proposals received after this date may, at the sole discretion of CLIENT, be disqualified. Proposals must not be sent to anyone else in CLIENT or any third party. The designated CLIENT representative will distribute copies of the proposal to the required personnel. All responses and parts thereof must be in English.

4.4. CLEANROOM AND PROCESS ENGINEERING TEAM SELECTION CRITERIA

CLIENT shall select the CR Team whose proposal is the most advantageous and represents the best overall value. The following evaluation factors shall be used to evaluate the proposals and capabilities of participating entities:

- Price including demonstrated creativity in effective use of a fixed budget for optimal outcome in cleanroom design, construction, and implementation.
- Plan for cost effectively managing the cleanroom-compatible floor finishes, wall finishes, and separation wall construction so that savings can be directed toward cleanroom infrastructure
- Design and technical approach to the project including the approach to addressing integration touchpoints with the Fab building
- Past performance and experience including demonstrating “lessons learned” from similar past projects.
- Project management capabilities, including financial resources, equipment, management
- Personnel, project schedule, and management plan

CLIENT will evaluate proposals upon several criteria, including but not limited to cost, quality, delivery, service, and responsiveness. Bidders are encouraged to propose creative solutions that reduce CLIENT’s costs and improve the CLIENT customer experience.

4.5. TECHNICAL PRESENTATION AND ORAL INTERVIEW

Finalists will be required to make a technical presentation of proposals and address technical questions raised by the CLIENT. The technical presentation and oral interview may be conducted virtually (e.g. Teams/Zoom/Meet) to accommodate prospective partners not located in Colorado. This meeting will be scheduled at the direction of the CLIENT after initial applicants have been scored. The top three scored teams will have the opportunity to present. Note that failure to attend the scheduled meeting will be considered as non-compliance from the Bidder and the offer will be rejected.

5. CLEANROOM LAYOUT

The tentative layout of the Cleanroom is envisioned schematically based on functional requirements including equipment being procured and available spaces. Refer to Appendix

A. This layout shall be further developed and detailed by the selected Bidder for approval by the CLIENT

5.1. CLEANROOM PARENT BUILDING AND UTILITY AREAS

The perimeter walkway around the Cleanroom shall be as per the dimensions in the drawing. All utility equipment should be placed/installed adjacent to the cleanroom in such a way to avoid sound and vibrations.

The locations of associated gas manifolds etc., shall be determined by the bidder in consultation with the CLIENT and Fab building team. The bidder shall along with their bid submit drawing indicating the placement/arrangement of utilities equipment etc. with dimensions and the utility area / size requirement. Foundation bolts, seismic restraints (as required by code) and associated finish grouting for CR-vendor-installed equipment shall be in the CR Vendor's scope. Making all other penetrations/cut-outs required for running pipelines/cables etc., to tool locations shall be in the CR Vendor's scope, as well as making bulkhead cutouts for relevant tools. Cleanroom vendor shall provide pipe supports for cleanroom vendor pipes including any utility runs necessary to connect to parent building.

6. TECHNICAL SPECIFICATIONS

6.1. SPECIFICATION OF DIFFERENT FUNCTIONAL AREAS

General lab Condition	The specifications are to be maintained at full load
Class 100 Lithography Area (ISO5 equivalent)	
Temp (°C)	21 ± 0.3 for 30 minutes
ACPH	Greater than 350
Filter coverage	70% or higher
Sound pressure level	65 dB or less. The measurements to be demonstrated at rest, i.e. keeping all process equipment in rest condition, at any height
Treated Fresh air	Adequate to offset exhaust and to maintain specified RH and Pressure in the Cleanroom.
%RH	45+/-5
Lux	500 (Yellow Lighting)
Press. Wrt atm	To meet iso spec
ISO6 (Class 1000) - Temp (°C)	21 ± 2
ISO6 (Class 1000) - %RH	45+/-10
ISO6 (Class 1000) - Lux	600 (White Lighting)
ACPH	Greater than 200
Filter coverage	30% or higher
Noise level	65dB or less The measurements to be demonstrated at rest i.e. keeping all process equipment in rest condition., at any height.

Treated Fresh air	Adequate to offset exhaust and to maintain specified RH and Pressure in the Cleanroom.
ISO6 (Class 1000) - Press. Wrt atm	+14± 2Pa
ISO7 (Class 10000) Gowning Temp (°C)	23 ± 2
ACPH	Greater than 40
Filter coverage	20% or higher
Noise level	65dB or less The measurements to be demonstrated at rest i.e. keeping all process equipment in rest condition, at any height.
Treated Fresh air	Adequate to offset exhaust and to maintain specified RH and Pressure in the Cleanroom
ISO7 (Class 10000) Gowning - %RH	55± 5
ISO7 (Class 10000) Gowning - Lux	600 (White Lighting)
ISO7 (Class 10000) Gowning - Press. Wrt atm	+10±2 Pa
Flooring	Electrostatic conductive type (ESD) epoxy flooring to be provided within the cleanroom area by the CR vendor .

6.2. CLEANROOM HVAC

The desired system is a positive pressure air-handler unit (AHU) with direct ducting to filters and return air to the AHU. A make-up air unit (MAU) will be needed to maintain positive pressure.

6.2.1. Air Handling units (AHUs) and Make-up Air Units (MAUs) for Cleanrooms

Suitable AHUs/MAUs are to be located outside the **cleanroom** envelope **area in a utility space provided as part of the base building contractor's scope**, and fitted with cooling coil, dehumidifiers, stages of filters etc., to maintain the required temperature and RH. The required quantity of dehumidified air should be delivered through suitably sized supply air ducts from where the air is supplied to the cleanroom. The scope includes supply, installation, testing, commissioning of appropriate number of air handling units of as per design to maintain the specified environmental conditions in the Cleanroom.

Considering the stringent requirements for humidity control, **CR vendor may** consider dedicated AHU one each for class 100 lithography lab and Class 1000 including gowning area of cleanroom. AHU and MAU shall be of modular construction and of draw through type. **If a simpler arrangement can provide the necessary specs, bidder should describe their proposed approach.**

The AHU and MAU will be built to meet or exceed industry standards for cleanroom operations. All insulation materials within the AHU and MAU will be fully enclosed to ensure no contamination of equipment or ducting.

Suitable air tight access door hatches and locks shall be provided for various AHU segments.

The casing shall incorporate thermal break profile and all other necessary design features to ensure that condensate does not occur during all seasons.

The fresh air plant should supply enough conditioned fresh air to be mixed with the recirculated air to maintain the required environmental conditions (temperature, RH, pressure etc.).

Noise level to be < 70 dB

6.2.2. Filtration

The cleanroom construction for class 100 and class 1000 spaces and shall be comprised of a suitable numbers of filter units (HEPA or ULPA) to meet or exceed the cleanliness requirement for the respective cleanroom classification. Below is an example of implementation, the CR Team is to provide specifications towards reaching compliance.

- HEPA filter efficiency shall be better than 99.997 % down to 0.3 microns (H14), and the ULPA efficiency should be better than 99.9995% down to 0.13 microns (U15).
- Pre- filter of 10 microns at the inlet to protect the HEPA filters.
- Material - Galvanized Al-Zn alloy steel or Stainless steel
- The average velocity of air should be measured at a distance of 50 to 75 mm from the surface of filter with face guard in position and ACPH should be calculated to meet the levels specified above.
- Filters to have endless Polyurethane in D-profile rubber gasket on the air discharge side to match with ceiling grid (for both ULPA and HEPA filters). Or equivalent.

Filter should be replaceable from beneath the ceiling.

Outside filter dimensions (mm), Nominal air volume (m³/hr.), Pressure drop at nominal air volume (Pa), Tolerance pressure drop (%)) to be submitted as part of the technical bid.

6.2.3. Air Distribution - Duct Insulation & Acoustic Insulation

Supply air duct - Insulated as required to meet industry standards

Return air duct: insulated as required to meet industry standards.

Sound attenuators should be installed in the supply air duct to reduce the sound to 70+/-2 dB (A).

6.3. CLEANROOM MATERIALS & ANCILLARIES

Cleanroom Materials & Ancillaries	
Fire rating	Cleanroom materials and assembly to comply with international building code and international fire code.
Walls may be constructed of steel walls with sheetrock or modular walls	Steel framed walls or modular systems will be finished with industry standard cleanroom compatible materials

Doors	Provide suitable doors as per the drawing.
	Door leaves should be complete with vision panel, pull handle, push plate, mechanical door closer without oil, door seals and all other hardware, as appropriate. All doors 42" or wider will require full roton style hinges
	Emergency exits to be provided as per safety norms at locations as indicated in the layout. All emergency exit doors shall be designed for consideration of power outage events that shut off air handling while maintaining exhaust: the sudden shift to negative pressure must not prevent emergency egress by pressurizing the doors closed.
Doors in outer periphery of service corridor	Doors with all hardware (lock, handles, SS hinges etc.), door seal. Fire check doors shall be provided with panic bar.
Windows & Door Vision Panels	Windows and door vision panel shall be specified to be in compliance with local jurisdiction.
	UV filtration film is to be applied to the ISO-5 (class 100) windows and door vision panels. And adjacent chase areas near entrance exit doors and hallway near the main entrance.
Lighting	Cleanroom lighting shall meet or exceed cleanroom specifications
	UV filtration film should be applied to the ISO 5 (class 100) lighting; Yellow lighting for Class 100. UV filtration film sleeves in Class 100 area to be cut-off for <420nm-500nm
	Each area should be provided with an uninterrupted supply or battery backup ballasting to ensure emergency illumination in the event of a mains power failure, per code requirements.
	Lighting control should be located on the walkway corridor and switch to be provided at convenient location in each room
Fire and Smoke Dampers	Fire and smoke dampers to be manufactured and installed to the requirement of international Fire Code
Access Panels/Doors in Duct Work	Access panels shall be provided with double panel type; material of construction shall be same as duct material.
	Access doors shall be adequately reinforced to prevent distortion and hinged so that internal air pressure holds the door closed. Clamping type latches and handles, which can be operated from both sides of the door, shall be provided.
	Smoke detectors in the duct should meet international fire code.

6.4. PROCESS EXTRACTION SYSTEMS

Process Extraction Systems
Vendors are to design and install corrosion resistant, soundproof and vibration free (less than 70 dB) systems for DRY & WET exhaust venting. Vendors to demonstrate compliance with applicable standards and codes for extraction of process gases connected to a suitable blower for all the equipment, HVAC, equipment in Cleanroom etc.
The Exhaust System comprises ducting, casing to be of corrosion resistant material of construction (MOC) to handle the respective (acid, solvent, general) gases/fumes that do not mix until exiting the building.
Exhaust distribution system from process equipment for acid exhaust to be SS316 L or equivalent. Fan shall be constructed of MS with FRP lined or equivalent. Shaft shall be of material sufficient for the uses required.
GI for solvent and heat exhaust along with control dampers / magnehelic gauges (that report to the BMS) and flexible ducting wherever required. Suitable exhaust fan to be provided for solvent, acid, and heat exhausts.
Ducting exposed to ambient to be firmly supported with galvanized brackets & tie rods.
Flammable gas exhaust shall meet fire code and/or ISO standard
Similar equipment exhaust to be clubbed inside
The system to be soundproof in nature (< 70db) and vibration free.
Proper exhaust should be available for all cabinets, gas pods, pumps, wet and dry benches as per the requirements
Magnahelic gauges will be provided for exhaust monitoring: one gauge will be provided on each of the inlet and outlet side of the primary and secondary filters and following the HEPA/ULPA filter in order to determine end-of-life for each filter. HEPA vs. ULPA will be recommended by the engineering team. Additional Magnahelic gauges will be required at the inlet of each branch.
ISO – 6 (Class 1000) Wet Bench Area to exhaust above building with sufficient velocity to ensure dispersal above roof line.
Vendor shall provide suitable drainpipes from wet chemical bench and solvent bench to neutralization limestone chip pit, to be coordinated with the Fab building team.

6.5. CENTRAL UTILITIES

Central utilities listed in this section may be shared between the cleanroom, the exterior building, or the adjacent laboratory building, see Appendix D. While distribution piping *within* the cleanroom walls is clearly in scope for this RFP, the main equipment in each category (e.g. chilled water skid, nitrogen generator, etc) may be shared between other campus activities and therefore fall outside the scope of this project. Final determination of utility scoping will be determined in coordination between the Fab building team, CLIENT, and the CR Team. **However, for the purposes of bidding, we request that allowances for these utilities be included as separately priced line items in submitted bids.**

Chiller Plant	The chiller plant to be positioned outside of the cleanroom walls and will generate primary chilled water to provide cooling for tooling within the cleanroom. CR vendor to use attached tool matrix to estimate required load and size/purchase/install an appropriate unit, in coordination with CLIENT.
Chilled water distribution	To be distributed through appropriate management system in pipe and fittings with required isolation valves including flow measuring devices, pressure, temperature gauges, and filters/strainers etc. as per the requirement of the facility/cleanroom.
	Complete chilled water lines to be duly insulated using approved insulation material and clad with aluminum sheet as per the standard practice and specifications.
Pneumatic systems support by site-generated nitrogen, not CDA. (No CDA system needed)	<p>All tool pneumatics will be operated using dry nitrogen with POU filters (0.2 microns rating). An on-site nitrogen generation system will be specified and installed that meets or exceeds the combined usage and flow requirements for N2/CDA based on the supplied tool and utility matrix in Appendix C.</p> <p>The nitrogen distribution system will be constructed of 316 SS, cleaned for ACR and coupled with swagelok fittings. All cutting will be by portaband saw and deburred inside and out. No oil will be used on any pipe cutting operations. No tubing cutters will be allowed.</p> <p>Commissioning will validate that</p> <ol style="list-style-type: none"> 1) all gas lines are oil and particulate free. 2) no pressure drop at full flow
	Pressure regulators and valves required at each tool location
Acid wet bench neutralization	Effluent from the acid bench will be managed by, a) manual collection of any F- or I-containing substances (HF, iodine-based gold etch) for reclaim or hazardous disposal; and b) other acids and rinsate in the sink will be flushed to a neutralizing limestone/marble chip pit before being disposed to the sanitary sewer. See Appendix B Chemical Inventory for use and disposal rates for non halogen-containing acids.
Ultra-Pure Water	Ultra-pure water will need to meet SEMI and ASTM standards. A full-cleanroom system or point-of-use units will be considered.

Central Utilities (Electrical)	Appropriate location adjacent to the fabrication building.
	All conduit and fittings must be de-greased prior to use in the cleanroom spaces.
Motor Control Centers	Motor control centers should be provided complete with all associated isolators, contactors terminal, overloads, selector switches and indicating lamps

	The operational mode of the connected device should be selected from the front panel of the motor control center by the associated three position selector switch
	MCC should have provisions to start/stop all the drives from remote location
Variable Frequency Drives	Supply and exhaust fans should be controlled via variable frequency drives for the benefits of managing energy consumption and automatic system control and respond and report to the BMS system.
Grounding	All metallic components of the central utilities should be grounded to a building earth point under the supervision of CSM and Elevate Quantum. Dedicated grounding will be needed on the E Beam Lithography tool and the Scanning Electron Microscope.
Power Distribution	The main electrical distribution panel will be located near the cleanroom area
	CLIENT shall provide power to the panels at a location near the cleanroom walls. CR Vendor shall provide further distribution comprising of cables, MCC, MCBDBs, wiring, lighting etc. for powered items (e.g. tooling) within the cleanroom boundary.
	All critical utilities including BMS / T G M S safety systems and emergency illumination shall be on UPS power or battery backup applicable to life safety standard.
	The bus-bar systems will incorporate MCB's at the power take off points for local protection/isolation
	Power shall be distributed suitably in the service corridor and for equipment support tools like chillers, vacuum pumps etc.
	120V convenience outlets shall be placed at regular intervals throughout the cleanroom, including all process bays and chases. Coordinate exact numbers and placements with the CLIENT.
	Electrical cabling to be laid out from the main panel to the tools, Cleanroom ancillaries and utilities is within scope of the CR vendor.
	Additional 20% future space for electrical connections shall be provided in the distribution system.
Life, Safety and Security Systems	

Local Fire Suppression System	Fire suppression is water based. Cleanroom areas will need a pre-action system. Shall be coordinated with the Fab building team
Emergency Showers	Emergency personal drench shower(s) with eyewash should be provided in close proximity to the wet chemical processing benches, in compliance with applicable codes
Emergency Lighting	Emergency lighting should meet applicable codes.
Local Area Network	Local area network infrastructure cabling shall be provided within the cleanroom connecting to a patch panel and switch within the control room.
FCMS section removed	

6.6. GAS AND PIPING EQUIPMENT

6.6.1. Nitrogen

All tool pneumatics will be operated using dry nitrogen with POU filters (0.2 microns rating).

The nitrogen distribution system will be constructed of 316 SS, cleaned for ACR and coupled with swagelok fittings. All cutting will be by portaband saw and deburred inside and out. No oil will be used on any pipe cutting operations. No tubing cutters will be allowed.

6.6.2. Distribution Pipeline Network for specialty gases:

1. All distribution pipeline network for the process gases (exclusive of house-generated N₂) to be of seamless SS 316L, internal electro polished 10Ra micro inches (RMS) pipes/tubes. All valves shall be orbital weldable, packless bellows type rated at 200 psi and provided with 316L stainless steel bodies, Kel-F seats. Valves in the main headers / laterals shall have integral purge ports downstream of seat with VCR type fitting caps.
2. Vendor to build distribution pipeline network from each gas cabinets and gas distribution panels to various process tools with appropriate components like Valve Manifold Boxes and valves, regulators, non- return valves etc, as required with appropriate end connection.
3. Vendor to use Seamless Stainless-Steel pipes/tubes of grade 316L, eletropolished 10Ra micro inches (RMS) and Face-Seal fittings.
4. Vendor to build Co-Axial pipelines for all hazardous gases (viz. DCS, SiH₄, NH₃) with vacuum switches. Distribution shall be through SS316L EP Co-axial tubing. Inner tubing shall have less than 10 Ra finish.

5. For other process gases (viz. CF₄, SF₆, CHF₃ & C₄F₈) vendor shall install single SS 316L EP <10 Ra tubing from the gas panels up to the tools and make the tool hook-up per

the connection size /type on the tool port.

- ~~6. One spare Nitrogen gas line connection of SS316 L Seamless, ¼" size with requisite isolation valve & pressure regulator to be provided in each bay.~~
7. One spare CDA / nitrogen line of SS316 L Seamless, ½" size with requisite isolation valve & pressure regulator to be provided in each bay
8. Vendor to use compatible components/ materials to build bulk and process gases facilities.
9. Vendor to erect equipment and distribution lines with appropriate supports /trays/pipe racks as per P&I diagrams adhering to the Cleanroom protocols.
10. Vendor to label the gas facilities according to the gases.
11. Vendor to test, purge, analyze and certify the facilities as per SEMI standards.
- ~~12. Rigid vacuum line between tools and pumps as per the requirements~~
- ~~13. Some flexible pipe working has to be considered during tools installation.~~
14. The supports/hangers for the distribution lines shall be 'Unistrut type'.
15. While final tool hookup is not in scope for this RFP, we may wish to later set up separate contracts as needed to accomplish the cross-ed out tasks listed above in this section.

6.6.3. Gas Monitoring, Tool Hook-Up and Toxic/Hazardous Gas Monitoring System:

Vendor to provide separate cost for gas monitoring systems

Gas monitoring and Safety Sensors	Gas cabinets, VMBs and process tool gas boxes to be monitored by Toxic/Hazardous gas monitoring. All alarms to be connected by hard wire to the Toxic/Hazardous Gas Monitoring system and to the control room.
	There should be appropriate annunciators installed at acceptable distances for gas alarm. All Toxic/Hazardous gases should be isolated
Toxic Gas Monitoring (TGM) / Toxic Gas Leak detection system.	Vendor shall provide a toxic gas leak detection system (fixed gas detector electrochemical type) for monitoring accidental gas leak in Cleanroom/Process tools/Gas cabinets/ VMB(s). The system shall include installation of gas sensor

	<p>at strategic locations in the downstream of the scrubber (per gas one sensor), Gas cabinet and VMB. Any detection of the gas shall raise an alarm and the data of continuous monitoring shall be available at a separate workstation/PC.</p> <p>Quantities shall be computed for each gas for Gas cabinet, Valve Manifold Box and Exhaust of Process tool. For each gas cabinet one gas sensor per gas type shall be provided, Valve Manifold Box (VMB) and Exhaust of Process Tool.</p>
NH3 gas detector	<p>Ammonia [NH₃] vapor detector system) having a solid state instrument panel and sensor capable of sensing ammonia concentrations of 25 to 800 ppm shall be installed in Class 1000 Cleanroom & service bay for environmental monitoring. This is in addition to the detectors provided in Gas cabinet, Valve manifold box and process exhaust. Detailed specifications as below:</p> <ol style="list-style-type: none"> NH₃ detector shall detect any accidental gas leak. The NH₃ detector shall have a progressive LED light tree display. The detector shall have relays for early warning (pre-alarm), Alarm and auxiliary equipments/alarm. Power requirements of the system shall be 230V 50Hz AC & 16V AC or 24V DC The detector shall not contain any radioactive materials. The system shall have a non- adjustable early warning set point at 250ppm and adjustable alarm set point at 500ppm. The detector system shall have a Service mode switch for servicing, testing or calibration. <p>The detector shall be capable of initiating a supervised alarm, resulting in corrective action.</p>

System configuration (Hardware and Software) SCADA and HMI based for Toxic Gas Monitoring and control (PLC)	<ul style="list-style-type: none"> a. Human Machine Interface (HMI)- User friendly interface of the monitoring and control software. PC to be provided by the vendor. b. All hook ups from the sensors and other areas, cylinders etc under the scope of the vendor. c. Appropriate alarms and visual color codes required in the software. d. Gas cylinders to be shut off automatically in case of any leak detection, with appropriate shut off cycle followed according to the gas. e. Exhaust to Gas Cabinets and VMBs- The ductwork materials used must be compatible with intended gas as per safety standards and shall not be made from a combustible material. f. Auto changeover gas manifold with pre- purging, post-purging and of required specifications. g. All fittings to be of weld/VCR type and should include Diaphragm valve and check valve for ultra-high pure application. h. Provision for alternate and additional future connections. i. Diaphragm valves and check valves- j. Electro polished SS with roughness no more than 0.15 microns.
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7. TECHNICAL SPECIFICATIONS OF TOXIC EXHAUST ABATEMENT SYSTEM:

The vendor should specify, install & commission the dry scrubber shared by the PECVD and LPCVD based on exhaust volume & gas species to be scrubbed. The vendor must integrate the e.g., Jupiter Systems/CSI dry scrubber with the TGMS and the process exhausts systems. Future use of scrubbing greenhouse gases from the fluorinated etch chemistry will be a future consideration upon capacity expansion.

Selected vendor shall carry out detailed engineering to determine actual duct routing layout, compatible materials analysis and joining design (with materials) and will submit the drawings showing slopes and drip-drops with sight glasses as shop floor drawings to CLIENT for approval before commencement of the ductwork fabrication and installation work.

8. VENDOR-PROVIDED DOCUMENTATION DURING PROJECT AND AT CONCLUSION

1.	Detailed design including design analysis & data for cleanroom, HVAC systems, utilities distribution, electrical systems and distribution, fire detection and suppression, LAN etc. for all the works covered under the scope of work of the RFP, as approved by the CLIENT.
2.	Detailed engineering drawings as approved by the CLIENT. The approved engineering drawings shall be referred to as Approved for Construction (AFC)/Good for Construction (GFC) Drawings. The work shall be executed as per the AFC / GFC drawings.

3.	On completion of the project, the vendor shall submit 'As Built Drawings' in CAD format and hard copy (three sets) of each drawing.
4	Operating and maintenance manuals for all skids, systems and hardware in hard copy and electronic format.

9. Applicable Codes, Material & Workmanship

The equipment and installation shall conform to all standards as required by the Authority Having Jurisdiction. All components should be UL listed, when applicable. See Appendix E for a list of approved state building codes.

All materials used in the work shall be of high-grade quality free from defects and imperfections and of recent manufacture and unused/new or refurbished back to factory specification. Materials used shall conform to latest specifications of the ASTM and/or other equivalent specifications. Liberal factors of safety shall be used throughout the design for various systems/equipment etc.

The contractor (vendor) shall ensure that no damage will occur during shipment or storage prior to installation under prevailing climatic conditions.

No tubing cutters will be allowed for any pipe sizing. All cutting will be by portaband saw and deburred inside and out. No oil will be used on any pipe cutting operations.

The nitrogen distribution system will be constructed of 316 SS, cleaned for ACR and coupled with swagelok fittings and terminated with VCR fittings.

QA / QC will validate all gas lines to be oil and particulate free.

All necessary fittings, assemblies, hardware, accessories such as clamps, foundation bolts, required seismic tie-downs, terminals for electrical connections, cable glands, junction box, wall cowls, bird screen gaskets, brackets, hangers, screws, nuts, bolts, washers etc., which are useful and necessary for proper assembly and efficient working of systems shall be supplied by the contractor and the cost of the same shall be deemed to be included in their quote/offer whether specifically mentioned in specification or not. Any material and labor which may be necessary to complete the work in accordance with the intent of the specification shall be furnished by the contractor.

The contractor shall fully co-operate with the CLIENT in the mutual exchange of various drawings, dimensions and other information of related equipment supplied by sub-vendor / subcontractor, if any, so as to ensure complete co-ordination in design, arrangements, manufacture and installation of all the related process tools and supporting utilities and equipment.

10. WARRANTY AND ANNUAL MAINTENANCE CONTRACT

Vendor shall provide one year on-site comprehensive warranty for the entire installation and

include the same in their base price. The warranty shall be for 1 year from the date of installation and acceptance on successful commissioning.

Vendor shall attend to breakdowns in any of the installation performed under the PO/Contract at own cost within 48 hours of intimation from CLIENT

Vendor shall also quote post warranty 5-year comprehensive annual maintenance contract price separately, as an option.

11. GENERAL CONDITIONS

Firms participating in this RFP should be technically competent and experienced in cleanroom design and installation projects for semiconductor/ MEMS/nano-fabrication facilities with the following eligibility criteria:

11.1.1. Build Clean Protocol

Entry to the work area shall be restricted to vendor's authorized personnel and Elevate Quantum concerned staff. Standard Build clean protocol during installation and testing/certification as applicable for Class 100 and Class 1000 Cleanroom shall be strictly followed by the vendor who shall arrange at their cost shoe covers, Booties, Masks, Hand Gloves etc. for vendor's workers, supervisor(s) and other staff. No street shoes shall be permitted in the work area. Regular cleaning of the workspace/area by deploying adequate workers and using industrial vacuum cleaners, lint free and low particulate Cleanroom wipes suitable for Class 100/Class 1000 etc. shall also be vendor's responsibility at no extra cost to Elevate Quantum. Vendor shall ensure that Tools for installation are cleaned using Class 100/1000 Cleanroom compatible tissue papers, lint free wipes, and Isopropyl alcohol wipes etc. to ensure use of clean tools & tackles.

11.1.2. Superclean

At the conclusion of the construction and prior to commissioning, an alcohol wipedown of all surfaces will be conducted by vendor using suitable lint-free cleanroom wipes.

11.1.3. Safety

Vendor shall ensure adherence to safe construction practices which shall include use of Personnel Protection Equipment (PPE) by their workmen, supervisors etc. deployed on the work. PPE viz., safety helmets, safety shoes, harnesses, safety glasses, gloves etc. shall be provided by the vendor for the safety of all the personnel at the site of work. Vendor shall take adequate measures to ensure that no damage or loss is caused to the CLIENT's buildings, equipment and personnel due to any activity carried out by the vendor relating to the performance of the Contract. Vendor shall be liable to make good the loss/damage including any consequential damage caused by them and in case of failure to do so, CLIENT shall effect financial recovery for the same from the vendor.

11.1.4. Coordination

Work shall be carried out in a coordinated manner by the vendor with all concerned

contractors, owners, agency(ies) for smooth implementation of the Project.

11.1.5. Electricity

Electricity required for installation shall be provided by the CLIENT on a no charge basis to the vendor. For this, electricity connections will be provided at a single point, and further distribution shall be the vendor's responsibility. Vendor shall provide wattage of all the electrical loads required for installation and install all safety and protection devices viz., MCB/MCCB/ELCB/RCCB etc. as per the applicable electricity rules.

APPENDICIES

12. APPENDIX A. Proposed Cleanroom Layout

13. APPENDIX B. Chemical Inventory

14. APPENDIX C. Tool-Utility Matrix

15. APPENDIX D. Central Utilities Layout

16. APPENDIX E. State Building Codes

17. APPENDIX F. Cost Proposal Form

18. APPENDIX G. Scope Matrix

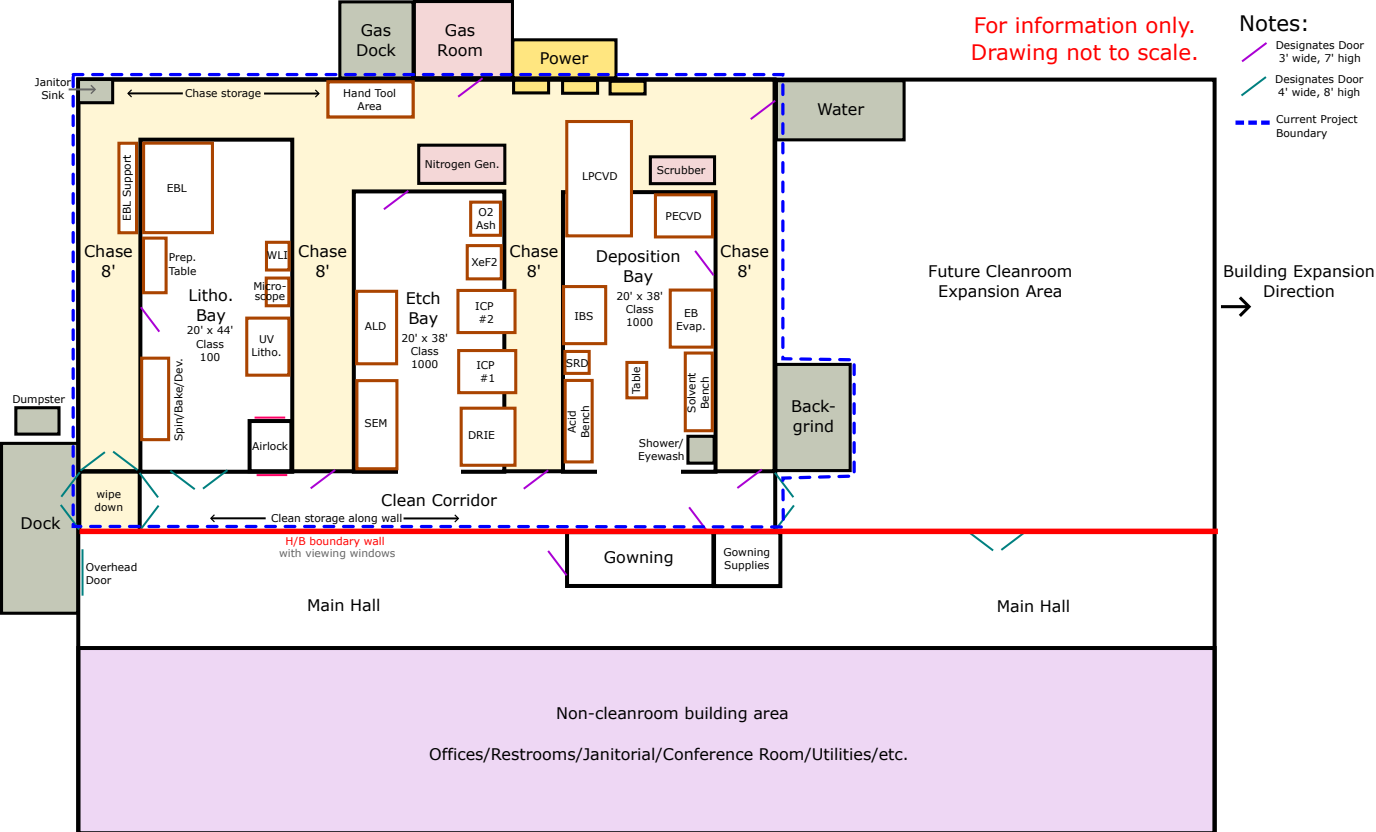
19. APPENDIX H. DBA Contract #530

20. APPENDIX I. Cleanroom RFP Info Session Slides

For information only.
Drawing not to scale.

Notes:

- Designates Door
3' wide, 7' high
- Designates Door
4' wide, 8' high
- Current Project
Boundary



[illegible]

Key: Blue means it will be required, but exact specs unknown
Yellow means a guess
Orange means some special consideration may be necessary

Tool ID #		location	Tool Name	wet process	Electrical Voltage	Electrical Power	Rejected Power to Room	CDA (to use N2)	PCW	UPW	N2 (all pneumatics)	process gases	Vacuum	Exhaust	Exhaust Abatement strategy	Footprint	Height	Bulkhead?	Weight	Temp.	Humidity
			EBL (heavy, vib. sensitive) 5,000 lbs dist. over # contact load points included vibration isolation pad		Single Phase 200-240V	6 kVA	1 kW	70-130 psi, 2.2cfm			30-60psi, 2.2cfm	N/A	dry pump	34mm pipe for pump exhaust	N/A	4x3m	2.5m		Main unit 5500 lbs (with Qty 4	20-25C, sta	<60%
1		nanolitho	UV Litho		Single Phase 230V	1.5 kva	500 W	>87 psi, 120 L/hr				N/A			N/A	0.9x1.3m	1.9m			40%	
2		nanolitho	Spin/Bake/Dev		Single Phase 208-240V	6.7 kVA	6 kW	70 psi		light	light	N/A		Point of use of 8" OD tube hood (540 cfm) and 8" OD tube cabinet (50 cfm)		1.6x1m	2.1m	Y			40%
3		nanolitho	Inspection microscope		Single Phase 120V	small	300 W					N/A			N/A						
4		etch	Atomic Layer Deposition		Three Phase 220-240V	30A+40A		7 bar, 30 SLM	maybe, if required by config		7 bar, 2 SLM	Ar-N2, O2	dry pump	>110 CFM for foreline pump, >80 CFM gas cabinet	not abated (low concentration of reactants)			Y	1800 lbs		
5		etch	SEM		Single Phase 208-240V	2.3 kVA		70-110 psi				N/A	roughing pump		N/A				980 kg	20 +/- 3C	<80%
6		etch	ICP FI Etcher		Three-phase 360-440V	17.5 kVA	2 kW	70-130 psi, 2.2cfm	8 L/min		chamber vent	O2, CHF3, CF4, Ar	dry pump	Fluorinated compounds	F concentration below threshold	1.6x0.8m	1.4m	Y			
7		etch	ICP FI Etcher		Three-phase 360-440V	17.5 kVA	2 kW	70-130 psi, 2.2cfm	8 L/min		chamber vent	O2, CHF3, CF4, Ar	dry pump	Fluorinated compounds	F concentration below threshold	1.6x0.8m	1.4m	Y			
8		etch	Standalone DRIE		Three-Phase 200V	75A	6kW	0.7 Mpa	10 L/min		chamber vent, 60 SLM	SF6, C4F8, Ar, O2	dry pump	Fluorinated compounds	F concentration below threshold	4x3m		Y	1100 kg		
9		etch	XeF2 etcher (Tier-2 priority)		Single phase 120V or 240V	20A or 10A	2 kW	70-100 psi			10-20 psi			100 cfm, acid contamination?	F concentration below threshold	0.6x0.6m	0.8m				
10		etch	O2 asher		Single phase 120V or 240V		500 W		4 L/min		chamber vent	O2	dry pump	roughing pump (CO2, H2O)	N/A	0.5x0.5m					
11		Dep	LPCVD Furnace		Three-phase 480V	55 kVA (80 A max)		70-110 psi	2-4 GPM @ 60 psi, 50 deg F plus qty 4 dry pump: 8 splm min at 100 psi		continuous dry pump purge 100 slpm flow rate	DCS, NH3, N2, O2	dry pump	100m³/hr, dichlorosilane, ammonia	Deposition abatement (Toxic/pyrophoric)	150 x 80 in	82 in	Y			
12		Dep	Ion-Beam Sputter (Tier-2)		Three Phase 220-240V							Ar	dry pump	roughing pump				Y			
13		Dep	autoclean workstation	drains to neutralization pit	Single phase 120V	15 A				3 gpm, 40 psi	6 cfm, 35 psi	N/A			acid exhaust						
14		Dep	autoclean workstation	drains to neutralization pit	Single phase 120V	15 A				3 gpm, 40 psi	6 cfm, 35 psi	N/A			acid exhaust						
15		Dep	SBD	drains to neutralization pit	Single phase 120V	15 A				3 gpm, 40 psi	6 cfm, 35 psi	N/A			N/A						
16		Dep	Acid wet bench	wink drains to neutralization pit	Single Phase 208-240V	5 kVA	6 kW	70 psi		light	light	N/A		acid fumes	acid exhaust			Y			
17		Dep	Solvent wet bench	sanitary sewer	Single Phase 208-240V	5 kVA	6 kW	70 psi		light	light			yes, exhausted	solvent exhaust			Y			
18		Dep	PECVD		Three Phase 200V	8 kVA (40A)	2 kW	75 psi	>2 L/min		chamber vent, >20 SLM	SiH4, O2, SF6, Ar	dry pump	SiH4	Deposition abatement (Toxic/pyrophoric)			Y			
19		Dep	E-beam evaporator		Three-phase 208V	60A	2 kW	70-100 psi	4 gpm		15 psi, 2cfm for vent		dry pump	roughing pump		1.6x1.6m	2.4m	Y			
20		Clean wkwy	Film thickness monitor		Single Phase 120V	small	300 W					N/A			N/A						
21		Clean wkwy	Surface profilometer		Single Phase 120V	small	300 W					N/A			N/A						
22																					
23		backgrind (outside of clean envelope)	Wafer grinder	needs venturi particle filter direct drain to sanitary sewer	Three Phase 200V	12 kVa (30A breaker)		70-110 psi, Scfm	2 L/min	5 gpm, but regular DI may be fine				4 to 6 m3/min displacement	exhaust filtered to room air or exhaust system	0.5x1.7m	2m		1300 kg	20-25 C	55+/-15%

Pure nitrogen generator
Process Chilled Water
Ultrapure DI water
HVAC system
Clean dry air (CDA)
Cleanroom shell (FFUs, lights, etc)

needs vibration isolation
needs sewer connection; needs vibration isolation
not required
Three-phase 400-480V

■ "BUILDING" – Core and shell structure, utility sources and distribution to outside of CR

■ "CLEANROOM" – Walls, ceiling, MEP required for cleanroom envelope

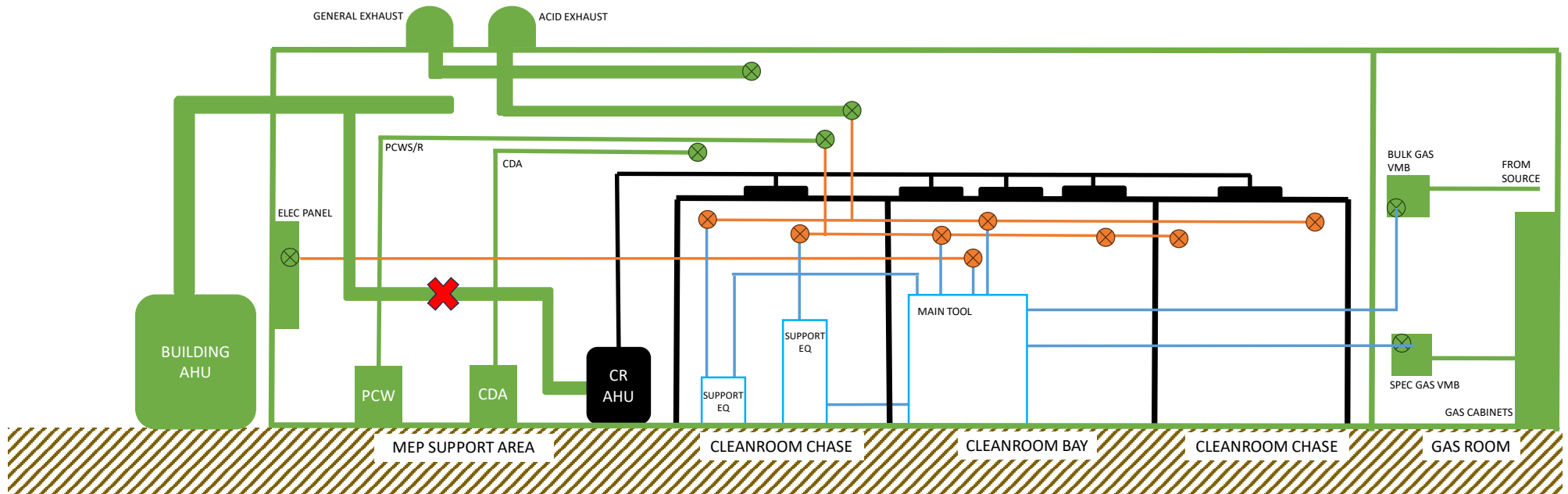
■ "CLEANROOM UTILITIES" – Distribution from Building POC to inside cleanroom

■ "TOOL INSTALL" – Rigging, placement and tool MEP connection to utility POC

Indirect costs for each scope such as design and certification should be included in each color.

CSM QCO Scope Breakdown

CONCEPT DIAGRAM – does not represent entire scope of project



APPROVED STATE BUILDING CODES

Approved building codes and standards are adopted by the Office of the State Architect (herein referred to as State Buildings Program (SBP)) and other state authorities, and are identified below. These minimum requirements are to be applied to all construction at state agencies and institutions of higher education owned facilities.

The 2021 edition of the International Building Code (IBC)

(As adopted by the Colorado State Buildings Program as follows: Chapter 1 as amended, Chapters 2-35 and Appendices C and I).

The 2021 edition of the International Existing Building Code (IEBC)

(As adopted by the Colorado State Buildings Program as follows: Chapters 2-16, Appendices A-C and Resource A) Effective December 2020.

The 2021 edition of the International Residential Code (IRC)

(As applicable)

The 2021 edition of the International Mechanical Code (IMC)

(As adopted by the Colorado State Buildings Program as follows: Chapters 2-15 and Appendix A)

The 2021 edition of the International Energy Conservation Code (IECC)

(As adopted by the Colorado State Buildings Program and Colorado Energy Office)

Colorado Model Electric Ready and Solar Ready Code

(Published by the Colorado Energy Office) Effective July 1, 2023

The 2023 edition of the National Electrical Code (NEC) (NFPA 70®)

(As adopted by the Colorado State Electrical Board) Effective July 30, 2023

The 2021 edition of the International Plumbing Code (IPC), first printing (March 2020)

(As adopted by the Colorado Examining Board of Plumbers Effective May 15, 2023)

The 2021 edition of the International Fuel Gas Code (IFGC) first printing (August 2020)

(As adopted by the Colorado Examining Board of Plumbers Effective May 15, 2023)

The National Fire Protection Association Standards (NFPA)

(As adopted by the Department of Public Safety/Division of Fire Prevention and Control)

The 2021 edition of the International Fire Code (IFC)

(As adopted by the Department of Public Safety/Division of Fire Prevention and Control (DFPC). Projects requiring DFPC review should be designed with the most restrictive requirements)

The 2015 edition of the ASME Boiler and Pressure Vessel Code

(As adopted by the Department of Labor and Employment/Boiler Inspection Section) Effective July 1, 2017.

The 2017 edition of the National Boiler Inspection Code (NBIC)

(As adopted by the Department of Labor and Employment/Boiler Inspection Section) Effective July 1, 2017.

The 2015 edition of the Controls and Safety Devices for Automatically Fired Boilers CSD-1

(As adopted by the Department of Labor and Employment/Boiler Inspection Section) Effective July 1, 2017.

The 2015 edition of the Boiler and Combustion Systems Hazards Code, NFPA 85

(As adopted by the Department of Labor and Employment/Boiler Inspection Section) Effective July 1, 2017.

The 2019 edition of ASME A17.1 Safety Code for Elevators and Escalators

(As adopted by the Department of Labor and Employment/Conveyance Section) Effective January 1, 2021.

The 2005 edition of ASME A17.3 Safety Code for Existing Elevators and Escalators

(As adopted by the Department of Labor and Employment/Conveyance Section Effective January 1, 2021.

The 2017 edition of ASME A18.1 Safety Standard for Platform Lifts and Stairway Chairlifts

(As adopted by the Department of Labor and Employment/Conveyance

The current edition of the Retail Food Establishment Rules and Regulations

(As adopted by the Department of Public Health and Environment/Division of Environmental Health and Sustainability)

The Current edition of ICC/ANSI A117.1, Accessible and Usable Buildings and Facilities

As referenced in the adopted edition of the International Building Code.

The Secretary of the Interior's Standards for Rehabilitation

(As required by the Colorado State Historic Preservation Office for designated historic properties)

Note: Additional codes, standards and appendices may be adopted by the state agencies and institutions in addition to the minimum codes and standards herein adopted by State Buildings Programs.

1. The 2021 edition of the IBC became effective on July 1, 2022. Consult the state electrical and plumbing boards and the state boiler inspector and conveyance administrator and the Division of Fire Prevention and Control for adoption of current editions and amendments to their codes.
2. Projects should be designed and plans and specifications should be reviewed based upon the approved codes at the time of A/E contract execution. If an agency prefers to design to a different code such as a newer edition of a code that State Buildings Programs has not yet adopted, the agency must contact SBP for approval and then amend the A/E contract with a revised Exhibit C, Approved State Building Codes. Please note that the state plumbing and electrical boards enforce the editions of their codes that are in effect at the time of permitting not design.
3. The state's code review agents, or the State Buildings Programs approved agency building official, shall review all documents for compliance with the codes stipulated herein. Note: The Department of Public Health and Environment, Division of Consumer Protection will review drawings for food service related projects.
4. This policy does not prohibit the application of various life safety codes as established by each agency for specific building types and funding requirements. NFPA 101 and other standards notwithstanding, approved codes will supersede where their minimum requirements are the most restrictive in specific situations. If a conflict arises, contact State Buildings Programs for resolution.
5. It is anticipated that compliance with the federal Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities (ADAAG) and Colorado Revised Statutes Section 9-5-101 will be met by compliance with the 2015 International Building Code and ICC/ANSI A117.1. However, each project may have unique aspects that may require individual attention to these legislated mandates.
6. The 2018 edition of the International Building Code (IBC) is to be applied to factory-built nonresidential structures as established by the Division of Housing within the Department of Local Affairs.

A. Appendices

Appendices are provided to supplement the basic provisions of the codes. Approved IBC Appendices are as follows:

1. Mandatory
IBC Appendix Chapter C - Agricultural Buildings
IBC Appendix Chapter I - Patio Covers

2. Optional

Any non-mandatory appendix published in the International Building Code may be utilized at the discretion of the agency. Use of an appendix shall be indicated in the project code approach.

B. Amendments

1. International Building Code, Chapter 1 as amended
2. International Building Code Chapter 29 as amended

AMENDMENTS TO THE *INTERNATIONAL BUILDING CODE*

CHAPTER 1

SCOPE AND ADMINISTRATION

PART 1—SCOPE AND APPLICATION

SECTION 101 GENERAL

101.1 Title. These regulations shall be known as the *Building Code* of the Department of Personnel & Administration/Office of the State Architect (DPA/OSA), hereinafter referred to as “this code”.

101.2 Scope. The provisions of this code shall apply to the construction, *alteration*, movement, enlargement, replacement, repair, equipment, use and occupancy, location, maintenance, removal and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures.

Exception: Detached one- and two-family *dwellings* and multiple single-family *dwellings* (*townhouses*) not more than three *stories* above *grade plane* in height with a separate *means of egress* and their accessory structures shall comply with the *International Residential Code*.

101.2.1 Appendices. Provisions in the appendices shall not apply unless specifically adopted.

101.3 Intent. The purpose of this code is to establish the minimum requirements to safeguard the public health, safety and general welfare through structural strength, *means of egress* facilities, stability, sanitation, adequate light and ventilation, energy conservation, and safety to life and property from fire and other hazards attributed to the built environment and to provide safety to fire fighters and emergency responders during emergency operations.

101.4 Referenced codes. The other codes listed in Sections 101.4.1 through 101.4.6 and referenced elsewhere in this code shall be considered part of the requirements of this code to the prescribed extent of each such reference.

101.4.1 Gas. The provisions of the *International Fuel Gas Code* shall apply to the installation of gas piping from the point of delivery, gas appliances and related accessories as covered in this code. These requirements apply to gas piping systems extending from the point of delivery to the inlet connections of appliances and the installation and operation of residential and commercial gas appliances and related accessories.

101.4.2 Mechanical. The provisions of the *International Mechanical Code* shall apply to the installation, alterations, repairs and replacement of mechanical systems, including equipment, appliances, fixtures, fittings and/or appurtenances, including ventilating, heating, cooling, air-conditioning and refrigeration systems, incinerators and other energy-related systems.

101.4.3 Plumbing. The provisions of the *International Plumbing Code* shall apply to the installation, *alteration*, repair and replacement of plumbing systems, including equipment, appliances, fixtures, fittings and appurtenances, and where connected to a water or sewage system and all aspects of a medical gas system.

101.4.6 Energy. The provisions of the *International Energy Conservation Code* shall apply to all matters governing the design and construction of buildings for energy efficiency.

SECTION 102 APPLICABILITY

102.1 General. Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall be applicable. Where, in any specific case, different sections of this code specify different materials, methods of construction or other requirements, the most restrictive shall govern.

102.2 Other laws. The provisions of this code shall not be deemed to nullify any provisions of local, state or federal law.

102.3 Application of references. References to chapter or section numbers, or to provisions not specifically identified by number, shall be construed to refer to such chapter, section or provision of this code.

102.4 Referenced codes and standards. The codes and standards referenced in this code shall be considered part of the requirements of this code to the prescribed extent of each such reference and as further regulated in Sections 102.4.1 and 102.4.2.

102.4.1 Conflicts. Where conflicts occur between provisions of this code and referenced codes and standards, the provisions of this code shall apply.

102.4.2. Provisions in referenced codes and standards. Where the extent of the reference to the referenced code or standard includes subject matter that is within the scope of this code or the International Codes listed in Section 101.4, the provisions of this code or the International Codes listed in Section 101.4, as applicable, shall take precedence over the provisions in the referenced code or standard.

102.5 Partial invalidity. In the event that any part or provision of this code is held to be illegal or void, this shall not have the effect of making void or illegal any of the other parts or provisions.

102.6 Existing structures. The legal occupancy of any structure existing on the date of adoption of this code shall be permitted to continue without change, except as is specifically covered in this code or as is deemed necessary by DPA/OSA through its code review agent for the general safety and welfare of the occupants and the public.

PART 2—ADMINISTRATION AND ENFORCEMENT

SECTION 104 DUTIES AND POWERS OF BUILDING OFFICIAL

104.1 General. DPA/OSA as the building official is hereby authorized and directed to enforce the provisions of this code. DPA/OSA shall have the authority to render interpretations of this code and to adopt policies and procedures in order to clarify

the application of its provisions. Such interpretations, policies and procedures shall comply with the intent and purpose of this code. Such policies and procedures shall not have the effect of waiving requirements specifically provided for in this code. Note that Section 104 of this code is not a delegated responsibility, unless noted otherwise in the *Policies and Procedures: Basic Steps Checklists*.

104.2 Plan reviews. DPA/OSA through its code review agent shall review *construction documents* and issue compliance notices for the erection, and *alteration*, demolition and moving of buildings and structures and inspect the premises for which such compliance notices have been issued.

104.4 Inspections. DPA/OSA through its code review agent shall make all of the required inspections, or DPA/OSA shall have the authority to accept reports of inspection by *approved agencies* or individuals. Reports of such inspections shall be in writing and be certified by a responsible officer of such *approved agency* or by the responsible individual. DPA/OSA is authorized to engage such expert opinion as deemed necessary to report upon unusual technical issues that arise.

104.9 Approved materials and equipment. Materials, equipment and devices *approved* by DPA/OSA through its code review agent shall be constructed and installed in accordance with such approval.

104.9.1 Used materials and equipment. The use of used materials which meet the requirements of this code for new materials is permitted. Used equipment and devices shall not be reused unless *approved* by DPA/OSA through its code review agent.

104.10 Modifications. Wherever there are practical difficulties involved in carrying out the provisions of this code, DPA/OSA shall have the authority to grant modifications for individual cases, upon application of the owner or owner's representative, provided DPA/OSA shall first find that special individual reason makes the strict letter of this code impractical and the modification is in compliance with the intent and purpose of this code and that such modification does not lessen health, accessibility, life and fire safety, or structural requirements. Note, this is not a delegated responsibility. The details of action granting modifications shall be recorded and entered in the files of DPA/OSA.

104.10.1 Flood hazard areas. DPA/OSA shall not grant modifications to any provision required in *flood hazard areas* as established by Section 1612.3 unless a determination has been made that:

1. A showing of good and sufficient cause that the unique characteristics of the size, configuration or topography of the site render the elevation standards of Section 1612 inappropriate.
2. A determination that failure to grant the variance would result in exceptional hardship by rendering the lot undevelopable.
3. A determination that the granting of a variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense, cause fraud on or victimization of the public, or conflict with existing laws or ordinances.
4. A determination that the variance is the minimum necessary to afford relief, considering the flood hazard.
5. Submission to the applicant of written notice specifying the difference between the *design flood elevation* and the elevation to which the building is to be built, stating that the cost of flood insurance will be commensurate with the increased risk resulting from the reduced floor elevation, and stating that construction below the *design flood elevation* increases risks to life and property.

104.11 Alternative materials, design and methods of construction and equipment. The provisions of this code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this code, provided that any such alternative has been *approved*. An alternative material, design or method of construction shall be *approved* where DPA/OSA through its code review agent finds that the proposed design is satisfactory and complies with the intent of the provisions of this code, and that the material, method or work offered is, for the purpose intended, at least the equivalent of that prescribed in this code in quality, strength, effectiveness, *fire resistance*, durability and safety.

104.11.1 Research reports. Supporting data, where necessary to assist in the approval of materials or assemblies not specifically provided for in this code, shall consist of valid research reports from *approved* sources.

104.11.2 Tests. Whenever there is insufficient evidence of compliance with the provisions of this code, or evidence that a material or method does not conform to the requirements of this code, or in order to substantiate claims for alternative materials or methods, DPA/OSA through its code review agent shall have the authority to require tests as evidence of compliance to be made at no expense to the jurisdiction. Test methods shall be as specified in this code or by other recognized test standards. In the absence of recognized and accepted test methods, DPA/OSA through its code review agent shall approve the testing procedures. Tests shall be performed by an *approved agency*.

SECTION 105 PLAN REVIEWS

105.1 Required. Any owner or authorized agent who intends to construct, enlarge, alter, repair, move, demolish, or change the occupancy of a building or structure, or to erect, install, enlarge, alter, repair, remove, convert or replace any electrical, gas, mechanical or plumbing system, the installation of which is regulated by this code, or to cause any such work to be done, shall first contact a DPA/OSA code review agent.

105.2 Work exempt from plan review. Exemptions from plan review requirements of this code shall not be deemed to grant authorization for any work to be done in any manner in violation of the provisions of this code or any other laws or ordinances of this jurisdiction. Plan review shall not be required for the following:

Building:

1. One-story detached accessory structures used as tool and storage sheds, playhouses and similar uses, provided the floor area does not exceed 120 square feet (11 m²).
2. Fences not over 6 feet (1829 mm) high.
3. Oil derricks.
4. Retaining walls that are not over 4 feet (1219 mm) in height measured from the bottom of the footing to the top of the wall, unless supporting a surcharge or impounding Class I, II or IIIA liquids.
5. Water tanks supported directly on grade if the capacity does not exceed 5,000 gallons (18 925 L) and the ratio

of height to diameter or width does not exceed 2:1.

6. Sidewalks and driveways not more than 30 inches (762 mm) above adjacent grade, and not over any basement or *story* below and are not part of an *accessible route*.
7. Painting, papering, tiling, carpeting, cabinets, counter tops and similar finish work.
8. Temporary motion picture, television and theater stage sets and scenery.
9. Prefabricated swimming pools accessory to a Group R-3 occupancy that are less than 24 inches (610 mm) deep, do not exceed 5,000 gallons (18 925 L) and are installed entirely above ground.
10. Shade cloth structures constructed for nursery or agricultural purposes, not including service systems.
11. Swings and other playground equipment accessory to detached one- and two-family *dwelling*s.
12. Window *awnings* supported by an *exterior wall* that do not project more than 54 inches (1372 mm) from the *exterior wall* and do not require additional support of Groups R-3 and U occupancies.
13. Nonfixed and movable fixtures, cases, racks, counters and partitions not over 5 feet 9 inches (1753 mm) in height.

Electrical:

Repairs and maintenance: Minor repair work, including the replacement of lamps or the connection of *approved* portable electrical equipment to *approved* permanently installed receptacles.

Radio and television transmitting stations: The provisions of this code shall not apply to electrical equipment used for radio and television transmissions, but do apply to equipment and wiring for a power supply and the installations of towers and antennas.

Temporary testing systems: A plan review shall not be required for the installation of any temporary system required for the testing or servicing of electrical equipment or apparatus.

Gas:

1. Portable heating appliance.
2. Replacement of any minor part that does not alter approval of equipment or make such equipment unsafe.

Mechanical:

1. Portable heating appliance.
2. Portable ventilation equipment.
3. Portable cooling unit.
4. Steam, hot or chilled water piping within any heating or cooling equipment regulated by this code.
5. Replacement of any part that does not alter its approval or make it unsafe.
6. Portable evaporative cooler.
7. Self-contained refrigeration system containing 10 pounds (5 kg) or less of refrigerant and actuated by motors of 1 horsepower (746 W) or less.

Plumbing:

1. The stopping of leaks in drains, water, soil, waste or vent pipe, provided, however, that if any concealed trap, drain pipe, water, soil, waste or vent pipe becomes defective and it becomes necessary to remove and replace the same with new material, such work shall be considered as new work and a plan review shall be obtained and inspection made as provided in this code.
2. The clearing of stoppages or the repairing of leaks in pipes, valves or fixtures and the removal and reinstallation of water closets, provided such repairs do not involve or require the replacement or rearrangement of valves, pipes or fixtures.

105.2.1 Emergency repairs. Where equipment replacements and repairs must be performed in an emergency, plan review information shall be submitted promptly to DPA/OSA through its code review agent.

105.2.2 Repairs. Application or notice to DPA/OSA through its code review agent is not required for ordinary repairs to structures, replacement of lamps or the connection of *approved* portable electrical equipment to *approved* permanently installed receptacles.

Such repairs shall not include the cutting away of any wall, partition or portion thereof, the removal or cutting of any structural beam or load-bearing support, or the removal or change of any required *means of egress*, or rearrangement of parts of a structure affecting the egress requirements; nor shall ordinary repairs include *addition* to, *alteration* of, replacement or relocation of any standpipe, water supply, sewer, drainage, drain leader, gas, soil, waste, vent or similar piping, electric wiring or mechanical or other work affecting public health or general safety.

105.2.3 Public service agencies. A plan review shall not be required for the installation, *alteration* or repair of generation, transmission, distribution or metering or other related equipment that is under the ownership and control of public service agencies by established right.

105.4 Validity of compliance notice. The issuance or granting of a compliance notice shall not be construed to be an approval of any violation of any of the provisions of this code or of any other ordinance of the jurisdiction. The issuance of a compliance notice based on *construction documents* and other data shall not prevent DPA/OSA through its code review agent from requiring the correction of errors in the *construction documents* and other data.

105.7 Placement of building inspection record. The building inspection record based on the compliance notice inspection recommendations shall be kept on the site of the work until the completion of the project.

SECTION 106 FLOOR AND ROOF DESIGN LOADS

106.1 Live loads posted. Where the live loads for which each floor or portion thereof of a commercial or industrial building is or has been designed to exceed 50 psf (2.40 kN/m²), such design live loads shall be conspicuously posted by the owner in that part of each *story* in which they apply, using durable signs. It shall be unlawful to remove or deface such notices

106.2 Issuance of notice of approval of occupancy/use. A notice of approval of occupancy/use required by Section 111 shall not be issued until the floor load signs, required by Section 106.1, have been installed.

106.3 Restrictions on loading. It shall be unlawful to place, or cause or permit to be placed, on any floor or roof of a building, structure or portion thereof, a load greater than is permitted by this code.

SECTION 107 SUBMITTAL DOCUMENTS

107.1 General. Submittal documents consisting of *construction documents*, statement of *special inspections*, geotechnical report and other data shall be submitted. The *construction documents* shall be prepared by a *registered design professional* where required by the statutes of the state of Colorado. Where special conditions exist, DPA/OSA through its code review agent is authorized to require additional *construction documents* to be prepared by a *registered design professional*.

Exception: DPA/OSA is authorized to waive the submission of *construction documents* and other data not required to be prepared by a *registered design professional* if it is found that the nature of the work applied for is such that review of *construction documents* is not necessary to obtain compliance with this code.

107.2 Construction documents. *Construction documents* shall be in accordance with Sections 107.2.1 through 107.2.5.

107.2.1 Information on construction documents. *Construction documents* shall be dimensioned and drawn upon suitable material. *Construction documents* shall be of sufficient clarity to indicate the location, nature and extent of the work proposed and show in detail that it will conform to the provisions of this code and relevant laws, ordinances, rules and regulations.

107.2.2 Fire protection system shop drawings. Shop drawings for the *fire protection system(s)* shall be submitted to indicate conformance to this code and the *construction documents* and shall be *approved* prior to the start of system installation. Shop drawings shall contain all information as required by the referenced installation standards in Chapter 9.

107.2.3 Means of egress. The *construction documents* shall show in sufficient detail the location, construction, size and character of all

portions of the *means of egress* including the path of the *exit discharge* to the *public way* in compliance with the provisions of this code. In other than occupancies in Groups R-2, R-3, and I-1, the *construction documents* shall designate the number of occupants to be accommodated on every floor, and in all rooms and spaces.

107.2.4 Exterior wall envelope. *Construction documents* for all buildings shall describe the *exterior wall envelope* in sufficient detail to determine compliance with this code. The *construction documents* shall provide details of the *exterior wall envelope* as required, including flashing, intersections with dissimilar materials, corners, end details, control joints, intersections at roof, eaves or parapets, means of drainage, water-resistive membrane and details around openings.

The *construction documents* shall include manufacturer's installation instructions that provide supporting documentation that the proposed penetration and opening details described in the *construction documents* maintain the weather resistance of the *exterior wall envelope*. The supporting documentation shall fully describe the *exterior wall* system which was tested, where applicable, as well as the test procedure used.

107.2.5 Site plan. The *construction documents* submitted with the application for *permit* shall be accompanied by a site plan showing to scale the size and location of new construction and existing structures on the site, distances from *lot lines*, the established street grades and the proposed finished grades and, as applicable, flood hazard areas, floodways, and *design flood* elevations; and it shall be drawn in accordance with an accurate boundary line survey. In the case of demolition, the site plan shall show construction to be demolished and the location and size of existing structures and construction that are to remain on the site or plot. DPA/OSA through its code review agent is authorized to waive or modify the requirement for a site plan when the application for *plan review* is for *alteration* or repair or when otherwise warranted.

107.2.5.1 Design flood elevations. Where *design flood* elevations are not specified, they shall be established in accordance with Section 1612.3.1.

107.3 Examination of documents. DPA/OSA through its code review agent shall examine or cause to be examined the accompanying submittal documents and shall ascertain by such examinations whether the construction indicated and described is in accordance with the requirements of this code and other pertinent laws or ordinances.

107.3.3 Phased approval. DPA/OSA through its code review agent is authorized to issue a compliance notice for the construction of foundations or any other part of a building or structure before the *construction documents* for the whole building or structure have been submitted, provided that adequate information and detailed statements have been filed complying with pertinent requirements of this code. The holder of such compliance notice for the foundation or other parts of a building or structure shall proceed at the holder's own risk with the building operation and without assurance that a compliance notice for the entire structure will be granted.

107.3.4 Design professional in responsible charge.

107.3.4.1 General.

The *registered design professional in responsible charge* shall be responsible for reviewing and coordinating submittal documents prepared by others, including phased and deferred submittal items, for compatibility with the design of the building.

107.3.4.2 Deferred submittals. For the purposes of this section, deferred submittals are defined as those portions of the design that are not submitted at the time of the plan review and that are to be submitted to DPA/OSA through its code review agent within a specified period.

Deferral of any submittal items shall have the prior approval of DPA/OSA through its code review agent. The *registered design professional in responsible charge* shall list the deferred submittals on the *construction documents* for review by DPA/OSA through its code review agent.

Documents for deferred submittal items shall be submitted to the *registered design professional in responsible charge* who

shall review them and forward them to DPA/OSA through its code review agent with a notation indicating that the deferred submittal documents have been reviewed and found to be in general conformance to the design of the building. The deferred submittal items shall not be installed until the deferred submittal documents have been approved by DPA/OSA through its code review agent.

107.4 Amended construction documents. Work shall be installed in accordance with the *approved construction documents*, and any changes made during construction that are not in compliance with the *approved construction documents* shall be resubmitted for approval as an amended set of *construction documents*.

SECTION 108 TEMPORARY STRUCTURES AND USES

108.1 General. DPA/OSA through its code review agent is authorized to issue a compliance notice for temporary structures and temporary uses. Such compliance notice shall be limited as to time of service, but shall not be permitted for more than 180 days. DPA/OSA through its code review agent is authorized to grant extensions for demonstrated cause.

108.2 Conformance. Temporary structures and uses shall conform to the structural strength, fire safety, *means of egress*, accessibility, light, ventilation and sanitary requirements of this code as necessary to ensure public health, safety and general welfare.

108.3 Temporary power. DPA/OSA through its code review agent is authorized to give permission to temporarily supply and use power in part of an electric installation before such installation has been fully completed and the final certificate of completion has been issued. The part covered by the temporary certificate shall comply with the requirements specified for temporary lighting, heat or power in NFPA 70.

SECTION 109 FEES

109.1 Payment of fees. Refer to DPA/OSA Building Code Compliance Policy.

SECTION 110 INSPECTIONS

110.1 General. Construction or work for which a plan review is required shall be subject to inspection by DPA/OSA through its code review agent and such construction or work shall remain accessible and exposed for inspection purposes until *approved*. Approval as a result of an inspection shall not be construed to be an approval of a violation of the provisions of this code or of other ordinances of the jurisdiction. Inspections presuming to give authority to violate or cancel the provisions of this code or of other ordinances of the jurisdiction shall not be valid. It shall be the duty of the holder of the notice to proceed to cause the work to remain accessible and exposed for inspection purposes. Neither DPA/OSA, its code review agent nor state agency shall be liable for expense entailed in the removal or replacement of any material required to allow inspection.

110.2 Preliminary inspection. Before issuing a compliance notice, DPA/OSA through its code review agent is authorized to examine or cause to be examined buildings, structures and sites for which an application has been filed.

110.3 Required inspections. DPA/OSA through its code review agent, upon notification, shall make the inspections set forth in Sections 110.3.1 through 110.3.10.

110.3.1 Footing and foundation inspection. Footing and foundation inspections shall be made after excavations for footings are complete and any required reinforcing steel is in place. For concrete foundations, any required forms shall be in place prior to inspection. Materials for the foundation shall be on the job, except where concrete is ready mixed in accordance with ASTM C 94, the concrete need not be on the job.

110.3.2 Concrete slab and under-floor inspection. Concrete slab and under-floor inspections shall be made after in-slab or under-floor reinforcing steel and building service equipment, conduit, piping accessories and other ancillary equipment items are in place, but before any concrete is placed or floor sheathing installed, including the subfloor.

110.3.3 Lowest floor elevation. In flood hazard areas, upon placement of the lowest floor, including the basement, and prior to further vertical construction, the elevation certification required in Section 1612.5 shall be

submitted to DPA/OSA through its code review agent.

110.3.4 Frame inspection. Framing inspections shall be made after the roof deck or sheathing, all framing, *fireblocking* and bracing are in place and pipes, chimneys and vents to be concealed are complete and the rough electrical, plumbing, heating wires, pipes and ducts are *approved*.

110.3.5 Lath and gypsum board inspection. Lath and gypsum board inspections shall be made after lathing and gypsum board, interior and exterior, is in place, but before any plastering is applied or gypsum board joints and fasteners are taped and finished.

Exception: Gypsum board that is not part of a fire-resistance-rated assembly or a shear assembly.

110.3.6 Fire- and smoke-resistant penetrations. Protection of joints and penetrations in fire-resistance-rated assemblies, *smoke barriers* and smoke partitions shall not be concealed from view until inspected and *approved*.

110.3.7 Energy efficiency inspections. Inspections shall be made to determine compliance with Chapter 13 and shall include, but not be limited to, inspections for: envelope insulation *R*- and *U*-values, fenestration *U*-value, duct system *R*-value, and HVAC and water-heating equipment efficiency.

110.3.8 Other inspections. In addition to the inspections specified above, DPA/OSA through its code review agent is authorized to make or require other inspections of any construction work to ascertain compliance with the provisions of this code and other laws that are enforced by DPA/OSA.

110.3.9 Special inspections. For *special inspections*, see Section 1704.

110.3.10 Final inspection. The final inspection shall be made after all work required is completed.

110.3.10.1 Flood hazard documentation. If located in a *flood hazard area*, documentation of the elevation of the lowest floor as required in Section 1612.5

shall be submitted to DPA/OSA prior to the final inspection.

110.4 Inspection agencies. DPA/OSA through its code review agent is authorized to accept reports of *approved* inspection agencies, provided such agencies satisfy the requirements as to qualifications and reliability.

110.5 Inspection requests. It shall be the duty of the holder of the notice to proceed or their duly authorized agent to notify DPA/OSA through its code review agent when work is ready for inspection. It shall be the duty of the notice to proceed holder to provide access to and means for inspections of such work that are required by this code.

110.6 Approval required. Work shall not be done beyond the point indicated in each successive inspection without first obtaining the approval of DPA/OSA through its code review agent. The code review agent, upon notification, shall make the requested inspections and shall either indicate the portion of the construction that is satisfactory as completed, or notify the holder of the notice to proceed or his or her agent wherein the same fails to comply with this code. Any portions that do not comply shall be corrected and such portion shall not be covered or concealed until authorized by the code review agent.

SECTION 111 CERTIFICATE OF OCCUPANCY

111.1 Use and occupancy. No building or structure shall be used or occupied, and no change in the existing occupancy classification of a building or structure or portion thereof shall be made, until DPA/OSA has issued a notice of approval of occupancy/use therefor as provided herein. Issuance shall not be construed as an approval of a violation of the provisions of this code or of other ordinances of the jurisdiction.

Exception: Notices of approval of occupancy/use are not required for work exempt from plan review under Section 105.2.

111.3 Temporary occupancy. DPA/OSA is authorized to issue a temporary notice of approval of occupancy/use for discrete portions of work before the completion of the entire work provided that such portion or portions shall be occupied safely.

EXHIBIT A

CHAPTER 29

PLUMBING SYSTEMS

The following requirements take precedence over Chapter 29 of the *International Building Code*, *International Existing Building Code* and the *International Plumbing Code*.

[P] 2904

STATE OF COLORADO REQUIREMENTS AMENITIES FOR ALL GENDERS

2904.1 DEFINITIONS.

- (1) "Accessible to the Public" means any indoor or outdoor space or area that is open to the public. This does not include private offices or workspaces that are generally not open to customers or public visitors.
- (2) "Certified Historic Structure" means a property located in Colorado that has been certified by the state historical society or an entity other than the owner of the property that is authorized, pursuant to section 24-80.1-105 (1), to nominate properties to the state register of historic properties as a historic structure because it has been:
 - (a) listed individually on, or as a contributing property in a district included within, the national register of historic places;
 - (b) listed individually on, or as a contributing property in a district that is included within, the state register of historic properties pursuant to C.R.S article 80.1 of title 24; or
 - (c) listed individually by, or as a contributing property within a designated historic district of, a certified local government.
- (3) "Gender-Specific Restroom" means a restroom that is designated for use by only one gender.
- (4) "LGBT Individual" means an individual who is a member of the lesbian, gay, bisexual, transgender, and non-binary community.
- (5) "Non-Gendered Multi-Stall Restroom" means a restroom with multiple toilets that is available for use by people of any gender, including a restroom with shared sinks but each toilet is in a private compartment.
- (6) "Non-Gendered Single-Stall Restroom" means a restroom that is available for use by people of any gender that is a fully enclosed room with a locking mechanism controlled by the user and contains a sink, toilet, and no more than one urinal.
- (7) (a) "Renovation of a Restroom" means construction to a restroom:
 - (I) for which a permit is required other than for a repair; and
 - (II) that includes changing the structure by:
 - (A) increasing the square footage;
 - (B) installing or modifying a plumbing or electric system;
 - (C) adding, gutting, or removing exterior restroom walls; or
 - (D) installing a heating, ventilation, or air conditioning system.
- (b) For purposes of this section, renovation does not include repairs to or replacement of fixtures or features of the restroom in order to restore something that is damaged, deteriorated, or broken in a restroom to its original function that does not meet the criteria described in subsection (7)(a) of this section.
- (8) "Public Entity" means a state department or state agency, state institution of higher education, as defined in C.R.S. 23-18-102 (10), a county, a city and county, or a municipality. A state agency does not include any building owned and operated as an education facility by the Department of Education or a school district, charter school, or institute charter school.

2904.2 RESTROOMS.

- (1) On and after January 1, 2024, a building that is wholly or partially owned by a public entity that is:

(a) Scheduled for renovation of a restroom must:

- (I) Provide a non-gendered single-stall restroom or a non-gendered multi-stall restroom where a restroom is accessible to the public;
- (II) Ensure that any single-stall restroom is not a gender-specific restroom;
- (III) Allow for the use of a multi-stall restroom by any gender if certain facility features are met pursuant to the IPC or any subsequent *International Plumbing Code* adopted as part of the *Colorado Plumbing Code* and the *Colorado Fuel Gas Code* adopted by the State Plumbing Board pursuant to C.R.S 12-155-106;
- (IV) Provide any caregiver on the gender binary that is caring for an infant access to at least one safe, sanitary, and convenient baby diaper changing station where a restroom is accessible to the public as follows:
 - (A) if only gender-specific restrooms are available, at least one changing table in each restroom;
 - (B) if a non-gendered single-stall restroom is available, at least one changing table in that restroom, and public entities are encouraged to also provide changing tables in each of the single-stall gender-specific restrooms;
 - (C) if a non-gendered multi-stall restroom is available, at least one changing table in that restroom, and public entities are encouraged to also provide changing tables in each of the gender-specific restrooms; or
 - (D) an easily accessible location with equivalent privacy and amenities as a restroom; and
- (V) Ensure that each baby diaper changing station is maintained, repaired, and replaced as necessary to ensure safety and ease of use and cleaned with the same frequency as the restroom in which it is located or restrooms on the same floor or in the same

space if the changing table is located in a restroom.

(b) A newly constructed building on each floor must:

- (I) Provide a non-gendered single-stall restroom or a non-gendered multi-stall restroom on each floor where a restroom is accessible to the public;
- (II) Ensure that any single-stall restroom is not a gender-specific restroom;
- (III) Allow for the use of a multi-stall restroom by any gender if certain facility features are met pursuant to the IPC. Or any subsequent *International Plumbing Code* adopted as part of the *Colorado Plumbing Code* and the *Colorado Fuel Gas Code* adopted by the State Plumbing Board pursuant to C.R.S 12-155-106; and
- (IV) Provide any caregiver on the gender binary that is caring for an infant access to at least one safe, sanitary, and convenient baby diaper changing station that is accessible to the public on each floor where there is a restroom accessible to the public and that includes:
 - (A) if only gender-specific restrooms are available, at least one changing table in each restroom;
 - (B) if a non-gendered single-stall restroom is available, at least one changing table in that restroom, and public entities are encouraged to also provide changing tables in each of the single-stall gender-specific restrooms;
 - (C) if a non-gendered multi-stall restroom is available, at least one changing table in that restroom, and public entities are encouraged to also provide changing tables in each of the gender-specific restrooms; or
 - (D) an easily accessible location with equivalent privacy and amenities as a restroom; and
- (V) Ensure that each baby diaper changing station is maintained, repaired, and replaced as necessary to ensure safety and ease of

use and cleaned with the same frequency as the restroom in which it is located or restrooms on the same floor or in the same space if the changing table is not located in a restroom.

(2) On and after July 1, 2025, a building that is wholly or partially owned by a public entity that:

(a) Is accessible to employees or enrolled students and that is scheduled for renovation of a restroom must:

(I) Provide a non-gendered single-stall restroom or a non-gendered multi-stall restroom;

(II) Ensure that any single-stall restroom is not a gender-specific restroom; and

(III) Allow for the use of a multi-stall restroom by any gender if certain facility features are met pursuant to the IPC or any subsequent *International Plumbing Code* adopted as part of the *Colorado Plumbing Code* and the *Colorado Fuel Gas Code* adopted by the State Plumbing Board pursuant to C.R.S 12-155-106; and

(b) Is a newly constructed building on each floor must:

(I) Provide a non-gendered single-stall restroom or a non-gendered multi-stall restroom;

(II) Ensure that any single-stall restroom is not a gender-specific restroom; and

(III) Allow for the use of a multi-stall restroom by any gender if certain facility features are met pursuant to the IPC or any subsequent *International Plumbing Code* adopted as part of the *Colorado Plumbing Code* and the *Colorado Fuel Gas Code* adopted by the State Plumbing Board pursuant to C.R.S 12-155-106.

(3) **EXCEPTIONS.** Subsections (1) and (2) of this section do not apply to the renovation of a restroom or a newly constructed building project if:

a. A local building permitting entity or building inspector determines that the installation of a baby diaper changing station in accordance with

subsection (1)(d) of this section would result in a failure to comply with applicable building standards governing the right of access for individuals with disabilities. the permitting entity or building inspector may grant an exemption from the requirements of this section under those circumstances, provided that there is documentation demonstrating that no alternative design is possible that complies with the right of access for individuals with disabilities and a good faith attempt has been made to design a restroom in a manner that would accommodate individuals with disabilities and the installation of a baby diaper changing station in accordance with subsection (1)(d) of this section.

b. The project has already progressed through the design review process, budgeting, and final approval by the governing body that has final approval over capital construction project expenditures as of the August 8, 2023

(a) The building is designated as a certified historic structure.

2904.3 SIGNAGE.

(1) Beginning July 1, 2024, but no later than July 1, 2026, subject to available appropriations for public entities that are a state agency, a building that is wholly or partially owned or leased by a public entity must ensure that signage for the building or the portion of the building leased or owned complies with the following signage requirements:

(a) Any restroom with a baby diaper changing station must have signage with a pictogram void of gender that indicates the presence of the baby diaper changing station;

(b) Any non-gendered multi-stall restroom or single-gendered or non-gendered single-stall restroom must have signage with a pictogram void of gender;

(c) Each building that is accessible to the public must include signage at or near the entrance to the building indicating the location of restrooms and baby diaper changing stations. If there is a central directory accessible to the public identifying the location of offices, restrooms, and other facilities in the buildings, that central directory must indicate with a pictogram void

of gender the location of any baby diaper changing station and the location of any non-gendered multi-stall restroom or single-stall restroom.

- (d) All buildings accessible to the public with non-gendered multi-stall restrooms or non-gendered single-stall restrooms must update signage, if necessary, to include a pictogram void of gender.

2904.4 ACCESSIBILITY.

- (1) All restrooms subject to 2904 shall comply with the current "**ADA** Standards for Accessible Design" set forth in 28 CFR 35, applicable to public entities and promulgated in accordance with the federal "Americans with Disabilities Act of 1990", 42 U.S.C. sec. 12101 et. seq., as amended.

End of Exhibit A: Amendments to the IBC

APPENDIX F

COST PROPOSAL FORM

DESIGN/INSTALL, PROCESS ENGINEERING SERVICES

Date: _____

Project Titled: Nanophotonics Cleanroom

1. Cleanroom Layout / Design	\$ _____
2. Process Engineering	\$ _____
3. Installation Cost (less any optional scope items below)	\$ _____
Subtotal Design / Install / Process Engineering Cost	\$ _____
4. Optional Scope #1: Toxic Gas Monitoring System	\$ _____
5. Optional Scope #2: Exhaust/Scrubber System	\$ _____
6. Optional Scope #3: N2 Generation and Distribution	\$ _____
7. Optional Scope #4: Processed Chilled Water (Equipment and Distribution)	\$ _____
8. Optional Scope #5: Ultra-Pure Water System	\$ _____
9. Optional Scope # 6: Electrical Distribution to Tool Sites within the Cleanroom	\$ _____
10. Optional Scope # 7: Commissioning & Certification	\$ _____
Subtotal Optional Scope	\$ _____
Potential Total Cost	\$ _____

Mines Elevate Quantum Cleanroom RFP

Note: light green cells are optional scope areas that may be shared/split/covered by base building team. However, for purposes of bidding please include these as options for this RFP.

Cleanroom Team				Fab (base building) Team				Elevate Quantum / Octave			NOT IN SCOPE
Design	Furnish	Install	Provide Space	Design	Furnish	Install	Provide Space	Design	Furnish	Install	

Permitting

Air permitting									X		
Water permit									X		

Site Utilities

Site Electrical Power					X	X	X				
Natural Gas					X	X	X				
Water Service (Fire/Domestic)					X	X	X				
Fiber/Telecom					X	X	X				

Architectural

ESD epoxy flooring within Cleanroom boundary	X	X	X								
Further develop & finalize Cleanroom layout w/ input from EQ & Octave (starting from drawings provided within Appendix A)	X										
Gowning room (ISO7)					X	X	X	X			
ISO5 Cleanroom Floor/Depressed Slab											X
Cleanroom Plenum Wall Returns	X	X	X	X							
Gas Dock / Gas Room					X	X	X	X			
FAB (Host) Shell Building					X	X	X	X			
FAB (Host) Building Offices, Restrooms, Janitors Closet/Conference Room					X	X	X	X			

Fire Suppression

Provide single point piping connection to Cleanroom					X	X	X				
Fire Suppression Water Entry					X	X	X				
Fire Suppression for Shell/Host Building					X	X	X				
Calculations for pre-action system	X										
Furnish & install of pre-action valve						X	X	X			
Fire suppression piping within Cleanroom	X	X	X								

Plumbing

Waste

Sanitary Building Main (Underground)	X				X	X	X				
FAB Building Waste Pipe Distribution (Host Building Fixtures)					X	X	X				
FAB Building Waste Pipe Distribution (Cleanroom Fixtures)	X	X	X			X	X				
Point of Use Neutralization (Under Sink)	X	X	X								
Limestone chip neutralization pit	X	X	X			X	X				
Underground waste & acid waste piping	X					X	X				
Acid waste neutralization system											X

Water

Mines Elevate Quantum Cleanroom RFP

	Cleanroom Team				Fab (base building) Team				Elevate Quantum / Octave			NOT IN SCOPE
	Design	Furnish	Install	Provide Space	Design	Furnish	Install	Provide Space	Design	Furnish	Install	
Domestic Water Entry	X				X	X	X					
Domestic Cold Water to Shell Building Fixtures					X	X	X					
Domestic Hot Water Generation Plant for Shell/Cleanroom					X	X	X					
Domestic Cold/Hot & Hot Circulation water provided to a single point connection at the Cleanroom boundary					X	X	X					
Domestic Cold/Hot & Hot Circulation water distribution within Cleanroom and to Cleanroom Fixtures	X	X	X									
Shell Building Plumbing Fixtures					X	X	X					
Cleanroom Plumbing Fixtures	X	X	X									
Cleanroom Safety Shower Plumbing Fixtures	X	X	X									

Process Utilities

Process Chilled Water

Process chilled water engineering, sizing of equipment, pipe sizing, specifications and drawings	X											
Process chilled water piping provided to a single point connection at the cleanroom boundary	X					X	X					
Process chiller, including piping from chiller to Cleanroom boundary		X	X			X	X					
Process chilled water piping distribution within Cleanroom, including isolation valves, pressure gauges & temperature gauges	X	X	X									
Process chilled water tooling hook-ups from the point of connection at the isolation valve, including any flow measuring devices, hoses, piping, fittings, supports									X	X	X	

Nitrogen (N2)

N2 system engineering, sizing of equipment, pipe sizing, specifications and drawings	X											
N2 generator		X	X			X	X					
N2 piping from bulk tank or N2 generator to Cleanroom boundary	X					X	X					
N2 piping distribution within Cleanroom chases, including gas manifolds		X	X									
Point of use filters for tools										X	X	

DCS, SIH4, NH3

Piping system engineering, pipe sizing, specifications and drawings	X											
Pipe distribution to gas manifold		X	X									
Gas cabinets		X	X					X				
K-Bottle Storage Cabinet									X	X	X	

CF4, SF6, CHF3 & C4F8

Piping system engineering, pipe sizing, specifications and drawings												X
Pipe distribution to gas manifold												X
Gas cabinets												X
K-Bottle Storage Cabinet									X	X	X	

Ultra Pure Water

Point of use UPW	X	X	X									
Ultra Pure Water system engineering, sizing of equipment, pipe sizing, specifications and drawings	X	X	X									
Domestic water supplied to UPW system via single-point connection	X					X	X					

Vacuum

Process Vacuum Central Plant												X
Process Vacuum Distribution Piping												X
Vacuum pumps provided with specific tools (such as PECVD)									X	X	X	

Mines Elevate Quantum Cleanroom RFP

	Cleanroom Team				Fab (base building) Team				Elevate Quantum / Octave			NOT IN SCOPE
	Design	Furnish	Install	Provide Space	Design	Furnish	Install	Provide Space	Design	Furnish	Install	
Vacuum piping from vacuum pumps (tool specific) to the tool itself									X	X	X	

Compressed Air

Compressed Air Central Plant												X
Compressed Air Distribution Piping												X
Compressed Air POU Regulators, Filters, Etc.												X
Compressed Air Tooling Connection												X

TGMS

Toxic Gas Monitoring System (TGMS)	X	X	X		X	X	X					
------------------------------------	---	---	---	--	---	---	---	--	--	--	--	--

Cleanroom Equipment & Tools

Foundation bolts, seismic restraints, finish grouting									X	X	X	
Making all other penetrations/cut-outs required for running pipelines /cables etc., for tool connections									X	X	X	
All pipe supports made of mild steel/RCC/GI uni-struts etc. for running utilities lines from skids /systems (generation/source) up to the parent building into the cleanroom									X	X	X	

HVAC

Supply Air

FAB (Host) Building Office, Conference Room, Restroom, Janitor closet HVAC					X	X	X	X				
FAB (Host) Building Supply Air Distribution Ductwork/Ductwork Accessories, Terminals, Air Devices, Etc.					X	X	X	X				
AHUs and MAUs dedicated to Cleanroom space	X	X	X					X				
Chiller System (Cooling/Dehumidification) - If Required	X	X	X					X				
Boiler System (Heating/Reheat) - If Required	X	X	X					X				
Humidifiers (Humidity Control)	X	X	X					X				
Hydronic/Steam Piping Distribution Systems - If Required	X	X	X					X				
Hydronic Pumps and Hydronic Specialities - If Required	X	X	X					X				
Energy Recovery System(s) for Cleanroom Exhaust - If Required												X
Housekeeping pads for cleanroom equipment	X	X	X									
Louvers in exterior wall of building for exhaust, relief and outside air for cleanroom AHUs and MAUs	X					X	X					
Cleanroom Supply Air Distribution Ductwork/Ductwork Accessories, Terminals, HEPA Filters, Air Devices, Etc.	X	X	X									

Exhaust Air

Solvent exhaust fan (mounted on roof of PEMB)	X					X	X	X				
Solvent exhaust duct from EF to Cleanroom boundary	X					X	X					
Solvent exhaust within Cleanroom to Cleanroom boundary	X	X	X									
Acid exhaust fan (mounted on roof of PEMB)	X					X	X					
Acid exhaust duct from EF to Cleanroom boundary	X					X	X					
Acid exhaust within Cleanroom to Cleanroom boundary	X	X	X									
General exhaust fan (mounted on roof of PEMB)	X					X	X	X				
General exhaust duct from EF to Cleanroom boundary	X					X	X					

Mines Elevate Quantum Cleanroom RFP	Cleanroom Team				Fab (base building) Team				Elevate Quantum / Octave			NOT IN SCOPE
	Design	Furnish	Install	Provide Space	Design	Furnish	Install	Provide Space	Design	Furnish	Install	
General exhaust within Cleanroom to Cleanroom boundary	X	X	X									
Return/Exhaust Ductwork accessories, air devices, dampers, air control devices, etc.	X	X	X									
Final Connections of Exhaust to Tooling									X	X	X	
Central Abatement System(s)	X	X	X									

Building Management System - for Fab building specific equipment					X	X	X				
Building Management System - for Cleanroom specific equipment	X	X	X								
Process Controls (PLC/HMI - I&C)	X	X	X								
Process P&IDs	X	X	X								

Building Main Distribution Gear					X						
Power Panels/Distribution (Non-Cleanroom)					X	X	X				
Single point power connections for 480V power to Cleanroom boundary	X				X						
Continuation of power from single point connection, including all 480V/277V distribution panels, step down transformers, isolation transformers, frequency converters, 120V/208V/230V/240V panels	X	X	X	X							
Power Panels/MCC for Cleanroom (no branch distribution)	X	X	X	X							
Branch power to tools & equipment from electrical panels, including disconnects, plugs & specialty plugs, fuses, VFDs, conduit, wire, penetrations in CR walls, supports for previously mentioned equipment, etc...									X	X	X
Power to AHUs, MAUs and any other cleanroom-specific equipment located in the utility area outside of the cleanroom space (derived from single point 480V power connection provided above)	X	X	X								
Standby/EM Power (Generator) and ATS (No Distribution)					X	X	X				
Emergency power panels and distribution for critical equipment	X	X	X								
Building Grounding Loop					X	X	X				
Dedicated earth grounding system, with grounding connections at Cleanroom boundary	X					X	X				
UPS power for critical utilities such as the BMS, TGMS and other life safety systems within the Cleanroom, including the UPS equipment itself and all power distribution	X	X	X		X	X	X	X			
120V convenience outlets within the Cleanroom bays & chases	X	X	X								

All light fixtures within the Cleanroom, including any necessary inverters, battery back-up	X	X	X	X							
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FAB (Host) Building Shell Fire Alarm					X	X	X				
Fire Alarm within Cleanroom Spaces	X	X	X								

Fiber and/or copper backbone to Cleanroom boundary	X					X	X				
IDF space or room within the Cleanroom, including racks, ladder racks, grounding, patch panels	X	X	X	X							
Wi-Fi coverage within the Cleanroom	X	X	X								

Standard Form of Agreement Between Owner and Design- Builder – Cost Plus Fee with an Option for a Guaranteed Maximum Price

Document No. 530

Second Edition, 2010

© Design-Build Institute of America
Washington, D.C.





Design-Build Institute of America - Contract Documents

LICENSE AGREEMENT

By using the DBIA Contract Documents, you agree to and are bound by the terms of this License Agreement.

- 1. License.** The Design-Build Institute of America ("DBIA") provides DBIA Contract Documents and licenses their use worldwide. You acknowledge that DBIA Contract Documents are protected by the copyright laws of the United States. You have a limited nonexclusive license to: (a) Use DBIA Contract Documents on any number of machines owned, leased or rented by your company or organization; (b) Use DBIA Contract Documents in printed form for bona fide contract purposes; and (c) Copy DBIA Contract Documents into any machine-readable or printed form for backup or modification purposes in support of your permitted use.
- 2. User Responsibility.** You assume sole responsibility for the selection of specific documents or portions thereof to achieve your intended results, and for the installation, use, and results obtained from the DBIA Contract Documents. You acknowledge that you understand that the text of the DBIA Contract Documents has important legal consequences and that consultation with an attorney is recommended with respect to use or modification of the text. You will not represent that any of the contract documents you generate from DBIA Contract Documents are DBIA documents unless (a) the document text is used without alteration or (b) all additions and changes to, and deletions from, the text are clearly shown.
- 3. Copies.** You may not use, copy, modify, or transfer DBIA Contract Documents, or any copy, modification or merged portion, in whole or in part, except as expressly provided for in this license. Reproduction of DBIA Contract Documents in printed or machine-readable format for resale or educational purposes is expressly prohibited. You will reproduce and include DBIA's copyright notice on any printed or machine-readable copy, modification, or portion merged into another document or program.
- 4. Transfers.** You may not transfer possession of any copy, modification or merged portion of DBIA Contract Documents to another party, except that a party with whom you are contracting may receive and use such transferred material solely for purposes of its contract with you. You may not sublicense, assign, or transfer this license except as expressly provided in this Agreement, and any attempt to do so is void.
- 5. Term.** The license is effective for one year from the date of purchase. DBIA may elect to terminate it earlier, by written notice to you, if you fail to comply with any term or condition of this Agreement.
- 6. Limited Warranty.** DBIA warrants the electronic files or other media by which DBIA Contract Documents are furnished to be free from defects in materials and workmanship under normal use during the Term. There is no other warranty of any kind, expressed or implied, including, but not limited to the implied warranties of merchantability and fitness for a particular purpose. Some states do not allow the exclusion of implied warranties, so the above exclusion may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state. DBIA does not warrant that the DBIA Contract Documents will meet your requirements or that the operation of DBIA Contract Documents will be uninterrupted or error free.
- 7. Limitations of Remedies.** DBIA's entire liability and your exclusive remedy shall be: the replacement of any document not meeting DBIA's "Limited Warranty" which is returned to DBIA with a copy of your receipt, or at DBIA's election, your money will be refunded. In no event will DBIA be liable to you for any damages, including any lost profits, lost savings or other incidental or consequential damages arising out of the use or inability to use DBIA Contract Documents even if DBIA has been advised of the possibility of such damages, or for any claim by any other party. Some states do not allow the limitation or exclusion of liability for incidental or consequential damages, so the above limitation or exclusion may not apply to you.
- 8. Acknowledgement.** You acknowledge that you have read this agreement, understand it and agree to be bound by its terms and conditions and that it will be governed by the laws of the District of Columbia. You further agree that it is the complete and exclusive statement of your agreement with DBIA which supersedes any proposal or prior agreement, oral or written, and any other communications between the parties relating to the subject matter of this agreement.

INSTRUCTIONS

For DBIA Document No. 530 Standard Form of Agreement Between Owner and Design-Builder - Cost Plus Fee with an Option for a Guaranteed Maximum Price (2010 Edition)

Checklist

Use this Checklist to ensure that the Agreement is fully completed and all exhibits are attached.

_____	Page 1	Owner's name, address and form of business
_____	Page 1	Design-Builder's name, address and form of business
_____	Page 1	Project name and address
_____	Section 2.1.3	Identify other exhibits to the Agreement
_____	Section 4.2	Note the optional provisions that are provided
_____	Section 4.3.2	Complete blanks for additional sum for use of Work Product
_____	Section 5.2.1	Complete blanks for calendar days and note the optional language that is provided
_____	Section 5.2.2	Insert any interim milestones (optional)
_____	Section 5.4	Complete blanks for liquidated damages and note the optional provisions that are provided
_____	Section 5.5	If the parties select the option provided they have to insert an amount
_____	Section 5.6	Complete blanks for early completion bonus and note the optional provision that is provided
_____	Section 5.7	Note the optional provisions that are provided
_____	Section 6.1.2	Insert basis for pricing preliminary services (optional)
_____	Section 6.2.1	Choose basis for Fee and complete blanks
_____	Section 6.2.2	Insert financial arrangements for adjustments and note optional provisions
_____	Section 6.3.3	Complete blanks for markup; insert or attach personnel names, etc.
_____	Section 6.3.4	Note the optional provision that is provided
_____	Section 6.4.4	Note the optional provision that is provided
_____	Section 6.6.1.1	Complete blanks for GMP, and note the optional provision that is provided
_____	Section 6.6.1.2	Complete blanks for Design-Builder's Contingency
_____	Section 6.6.3.1	Choose method for sharing savings; complete blanks
_____	Section 6.7.1	Note optional provision
_____	Section 7.1.1	Complete blanks for day of month
_____	Section 7.2.1	Complete blanks for retention percentage and note optional provision
_____	Section 7.2.2	Note the optional provision that is provided
_____	Section 7.4	Complete blanks for interest rate
_____	Section 8.1.3	Choose overhead/profit method for termination for convenience
_____	Section 8.2.1	Complete blanks for percentages
_____	Section 8.2.2	Complete blanks for percentages
_____	Section 9.1.1	Insert Owner's Senior Representative's name, etc. (optional)
_____	Section 9.1.2	Insert Owner's Representative's name, etc. (optional)
_____	Section 9.2.1	Insert Design-Builder's Senior Representative's name, etc. (optional)
_____	Section 9.2.2	Insert Design-Builder's Representative's name, etc. (optional)
_____	Section 10.1	Attach Insurance Exhibit
_____	Section 10.2	Insert amount and conditions of bonds or other security and note the options that are provided
_____	Section 11.1	Insert any other provisions (optional)
_____	Last Page	Owner's and Design-Builder's execution of the Agreement

General Instructions

No.	Subject	Instruction
1.	Standard Forms	Standard form contracts have long served an important function in the United States and international construction markets. The common purpose of these forms is to provide an economical and convenient way for parties to contract for design and construction services. As standard forms gain acceptance and are used with increased frequency, parties are able to enter into contracts with greater certainty as to their rights and responsibilities.
2.	DBIA Standard Form Contract Documents	Since its formation in 1993, the Design-Build Institute of America ("DBIA") has regularly evaluated the needs of owners, design-builders, and other parties to the design-build process in preparation for developing its own contract forms. Consistent with DBIA's mission of promulgating best design-build practices, DBIA believes that the design-build contract should reflect a balanced approach to risk that considers the legitimate interests of all parties to the design-build process. DBIA's Standard Form Contract Documents reflect a modern risk allocation approach, allocating each risk to the party best equipped to manage and minimize that risk, with the goal of promoting best design-build practices.
3.	Use of Non-DBIA Documents	To avoid inconsistencies among documents used for the same project, DBIA's Standard Form Contract Documents should not be used in conjunction with non-DBIA documents unless the non-DBIA documents are appropriately modified on the advice of legal counsel. Moreover, care should also be taken when using different editions of the DBIA Standard Form Documents on the same project to ensure consistency.
4.	Legal Consequences	DBIA Standard Form Contract Documents are legally binding contracts with important legal consequences. Contracting parties are advised and encouraged to seek legal counsel in completing or modifying these Documents.
5.	Reproduction	DBIA hereby grants to purchasers a limited license to reproduce its Documents consistent with the License Agreement accompanying these Documents. At least two original versions of the Agreement should be signed by the parties. Any other reproduction of DBIA Documents is strictly prohibited.
6.	Modifications	<p>Effective contracting is accomplished when the parties give specific thought to their contracting goals and then tailor the contract to meet the unique needs of the project and the design-build team. For that reason, these Documents may require modification for various purposes including, for example, to comply with local codes and laws, or to add special terms. DBIA's latest revisions to its Documents provide the parties an opportunity to customize their contractual relationship by selecting various optional contract clauses that may better reflect the unique needs and risks associated with the project.</p> <p>Any modifications to these Documents should be initialed by the parties. At no time should a document be re-typed in its entirety. Re-creating the document violates copyright laws and destroys one of the advantages of standard forms-familiarity with the terms.</p>
7.	Execution	It is good practice to execute two original copies of the Agreement. Only persons authorized to sign for the contracting parties may execute the Agreement.

Specific Instructions

Section	Title	Instruction
General	Purpose of This Agreement	<p>DBIA Document No. 530 ("Agreement") should be used when the parties intend that Owner pay Design-Builder the Cost of the Work plus a Fee, with or without a Guaranteed Maximum Price ("GMP"). If there is uncertainty about Owner's Project Criteria, or the Project Criteria remain to be developed by Owner and Design-Builder together, a cost-plus/GMP contracting approach is desirable.</p> <p>If there is certainty as to Owner's Project Criteria, a lump sum fixed price for the completion of all design and construction services may be suitable, especially when the Owner procures Design-Builder's services by competitive means. In such case, DBIA Document No. 525 should be used.</p>
General	Purpose of These Instructions	These Instructions are not part of this Agreement, but are provided to aid the parties in their understanding of the Agreement and in completing the Agreement.
General	Related Documents	This Agreement shall be used in conjunction with the General Conditions of Contract. Other related Contract Documents are listed in Article 2 of this Agreement.
General	Date	On Page 1, enter the date when both parties reach a final understanding. It is possible, due to logistical reasons, that the dates when the parties execute the Agreement may be different. Once both parties execute the Agreement, the effective date of the Agreement will be the date recorded on Page 1. This date does not, however, determine Contract Time, which is measured according to the terms of Article 5.
General	Parties: Owner and Design-Builder	On Page 1, enter the legal name and full address of Owner and Design-Builder, as well as the legal form of each entity, e.g., corporation, partnership, limited partnership, limited liability company, or other.
2.1.2	GMP Exhibit, GMP Proposal	If a GMP is established upon execution of this Agreement, the GMP Exhibit must be attached pursuant to Section 6.6.1.1. If a GMP is established after execution of this Agreement, the GMP Proposal must be attached pursuant to Section 6.6.2. Both the GMP Exhibit and GMP Proposal will include those Basis of Design Documents Design-Builder uses as the basis for its GMP.
2.1.5	Construction Documents	After execution of the Agreement, and consistent with the requirements of Section 2.4 of the General Conditions of Contract, Design-Builder will prepare Construction Documents, subject to Owner's review and approval.
3.2	Order of Precedence	The Contract Documents are listed in Section 2.1 in the order of their precedence. The GMP Exhibit and GMP Proposal are based on the Basis of Design Documents, which are comprised of various documents. The parties should strongly consider establishing the priority of the various documents comprising the GMP Exhibit or GMP Proposal to avoid disputes should discrepancies arise among the documents. Moreover, Section 2.1.3 recognizes that there may be other exhibits attached to this Agreement. If this is the case, the parties should discuss whether these exhibits should be part of the Basis of Design Documents. If these exhibits are not made part of the Basis of Design Documents, these exhibits will not take priority over the Basis of Design Documents in the event of a conflict.
3.3	Definitions	Terms, words and phrases used in the Agreement shall have the same meanings used in the General Conditions of Contract.
3.4	Design Specifications	The Owner is cautioned that if it includes design specifications in its Project Criteria there is case law holding that the Design-Builder is entitled to rely on such information, and to the extent such information is not accurate, the Design-Builder will be entitled to an adjustment in the Contract Price and/or Contract Time. Accordingly, the Owner to avoid such potential liability should consider using performance specifications.

Section	Title	Instruction
4.1	Work Product	This Agreement provides that the Design-Builder shall retain ownership of the Work Product it produces, but obligates Design-Builder to grant a limited license to Owner to use the Work Product according to the terms and circumstances described in Sections 4.2, 4.3, 4.4 and 4.5.
4.2	Owner's Limited License Upon Payment in Full	Design-Builder shall grant Owner, at Owner's sole risk, a limited license to use the Work Product at the completion of the Work in connection with Owner's occupation of the Project. This Section also provides the parties with the option of transferring ownership of some or all of the Work Product to the Owner upon payment in full for all Work performed. Generally, where the Owner desires ownership of Work Product, it is sufficient to transfer ownership of unique architectural and design elements.
4.3	Owner's Limited License Upon Owner's Termination for Convenience or Design-Builder's Election to Terminate	Owner should not use the Termination for Convenience Clause to obtain Design-Builder's valuable design concepts, and then seek lower bids from other design-builders. Therefore, where Owner terminates this Agreement for its convenience, and then decides to complete the Project with its own or thirdparty forces, Design-Builder shall grant Owner the rights set forth in Section 4.2, provided Owner pays Design-Builder all amounts due Design-Builder as required by the Contract Documents, including paying Design-Builder an additional sum per Section 4.3.2 for the use of the Work Product. In the event Design-Builder elects to terminate this Agreement for cause, for reasons set forth in Section 11.4 of the General Conditions of Contract, these same conditions apply to Owner's use of the Work Product.
4.3.2	Additional Compensation	To minimize disputes, the parties should negotiate prior to the execution of the Agreement the amount Owner shall pay Design-Builder for the use of Design-Builder's Work Product in the event Owner terminates this Agreement for its convenience or Design-Builder elects to terminate this Agreement for cause. Enter this amount.
4.4	Owner's Limited License Upon Design-Builder's Default	If Design-Builder is properly terminated for default, Owner is granted a limited license to use the Work Product, to complete the Project, and Owner shall thereafter have the same rights and obligations as set forth in Section 4.2.
4.5	Owner's Indemnification for Use of Work Product	Owner's use or alteration of the Work Product shall be at its sole risk, and Owner must agree to defend, indemnify and hold harmless Design-Builder and anyone working by or through Design-Builder, including Design Consultants of any tier.
5.1	Date of Commencement	Design-Builder's obligation to commence work is triggered by its receipt of a Notice to Proceed unless the parties mutually agree otherwise.
5.2.1	Substantial Completion of the Entire Work	Enter the calendar days duration by which Substantial Completion has to be achieved. The parties in this Section have the option of modifying the definition of Substantial Completion set forth in the General Conditions of Contract if they want to use a Temporary Certificate of Occupancy as the benchmark. If this option is selected, Substantial Completion will be deemed to be achieved no later than the date a Temporary Certificate of Occupancy is issued if applicable to the Project.

Section	Title	Instruction
5.2.2	Interim Milestones	It may be that some portions of the Work must be completed in phases or within a prescribed period of time to accommodate Owner's needs. The parties may, at their option, identify these portions of the Work to be completed prior to Substantial Completion of the entire Work. Enter the calendar days, starting from the Date of Commencement, for achieving Substantial Completion of these identified portions of the Work. If these portions of the Work are required to be substantially completed by certain milestone dates, enter those dates. As presently drafted, no remedy is provided to the Owner if an interim milestone is not met. If the Owner has special requirements as it relates to interim milestones, the Owner may want to consider a remedy for the Design-Builder's failure to meet an interim milestone, as well as providing a bonus to the Design-Builder for satisfying such interim milestone.
5.4	Liquidated Damages	<p>Owner should make a good faith evaluation of the amount that is reasonably necessary to compensate it for delay. Owner should not establish liquidated damages to penalize Design-Builder. Moreover, in the event a GMP is not established upon execution of the Agreement, it appears prudent for the parties to refrain from establishing liquidated damages until such time as the GMP is established.</p> <p>Section 5.4 establishes a grace period between the Scheduled Substantial Completion Date and the assessment of liquidated damages in order to prevent disputes as to which party bears responsibility for only a few days of delay. The parties should enter the calendar days that may pass following the Scheduled Substantial Completion Date before liquidated damages will be assessed.</p> <p>The parties are also provided the option of establishing liquidated damages if the Design-Builder fails to achieve Final Completion within a specified number of days after Substantial Completion. If this option is selected, the parties have to negotiate the number of days, as well as the liquidated damages amount. The parties in negotiating liquidated damages should keep in mind that the amount of liquidated damages for failing to achieve Final Completion should be a considerably scaled down amount and should reflect the financial harm to the Owner. In no case should the total amount of liquidated damages for the Project exceed an amount that is reasonably necessary to compensate Owner for Project delay.</p> <p>The parties also have the option here of eliminating liquidated damages altogether, in which case the Owner can recover actual damages for Project delay at an amount that is capped by the parties. The Owner is cautioned that it still cannot recover consequential damages, as they are waived under Section 10.5.1 of the General Conditions of Contract.</p>
5.5	Liquidated Damages Cap	The parties can agree to cap liquidated damages for delay at a negotiated amount.

Section	Title	Instruction
5.6	Early Completion Bonus	If the Project economics justify liquidated damages, then it is appropriate to couple these liquidated damages with an early completion bonus. The parties should enter the number of calendar days prior to the Scheduled Substantial Completion Date that will set the Bonus Date. Also, enter the amount of the bonus to be paid per day that will allow Owner to share with Design-Builder the economic benefits of early completion. Moreover, in the event a GMP is not established upon execution of the Agreement, it appears prudent for the parties to refrain from establishing an early completion bonus until such time as the GMP is established. The parties also have the option in Section 5.6 of capping the early completion bonus at a negotiated amount.
5.7	Compensation for Force Majeure Events	The parties are provided the opportunity of providing the Design-Builder the right to receive compensation for Force Majeure Events. By selecting this option, the parties agree to modify Section 8.2.2 of the General Conditions of Contract, in which case the parties have to negotiate how many cumulative days of Force Majeure delays must occur before the Design-Builder is entitled to either a negotiated amount per day for delay or the direct costs it has incurred as a result of such delay.
6.1.2	Optional Pricing	This Agreement allows the parties the flexibility to establish within the Contract Price a different payment basis for certain preliminary portions of the Work which may be necessary to permit Design-Builder to furnish Owner with a GMP. Alternatively, the parties may use DBIA Document No. 520 to perform certain preliminary design services prior to setting the GMP. Enter a description of any such services, the basis for determining the price, and the price to be paid.
6.2.1	Design-Builder's Fee	Enter the amount of Design-Builder's Fee as a sum certain or as a percentage of the Cost of the Work. Design-Builder's Fee shall be commensurate with the services it provides and the risk it assumes in providing single point responsibility to Owner.
6.2.2	Adjustments to Design-Builder's Fee	For additive Change Orders, the parties have to negotiate the Fee the Design-Builder will receive. For deductive Change Orders, the parties have the option by checking the appropriate box to signify whether there will be no additional reduction or whether there will be an additional reduction based on a negotiated percentage.
6.3.3	Wages for Design-Builder's Employees at Principal or Branch Offices	DBIA endorses reimbursing salaries and associated benefits of Design-Builder's Project personnel, such as accountants, stationed at offices other than the field office, when to do so is more efficient and cost effective. Enter the percentage markup to be applied for Project-related overhead associated with such personnel. Insert, or attach as an exhibit, a list of such personnel and their job functions.
6.3.4	Employee Benefits	It may be simpler for the parties to agree on a multiplier (rather than actual costs) to compensate the Design-Builder for employee benefits. Accordingly, the parties may want to insert the multiplier to be applied to the wages and salaries of such reimbursable employees.

Section	Title	Instruction
6.3.7	Costs for Defective/Non-Conforming Work	The Cost of the Work shall include the costs to repair or correct defective or non-conforming Work (including warranty or corrective work performed after Substantial Completion) unless caused by Design-Builder's negligence. DBIA believes that Design-Builder should not be penalized for inadvertent mistakes which are inevitable when designing and constructing a Project. To do so would encourage ultra-conservatism in every task, the ultimate cost of which would be greater than a proactive approach to performing the Work.
6.3.23	Warranty Escrow	At this section, the parties are provided the opportunity to establish prior to Final Completion an escrow account in a negotiated amount to be used to reimburse the Design-Builder for its costs incurred in performing warranty Work. If funds remain in the escrow account after the expiration of the warranty period, the funds are returned to the Owner subject to Design-Builder's share of any savings. Note that even if the escrow account is exhausted, if funds remain under the GMP, the Owner is still obligated to reimburse the Design-Builder for its warranty Work.
6.4.4	Allowance Value	This section recognizes that the parties may agree that certain items of Work should be treated as an Allowance Item and priced based on Allowance Values. The Allowance Value for which the Design-Builder will be entitled to receive compensation includes direct cost of labor, materials, equipment, transportation, taxes and insurance associated with the Allowance Item. All other costs associated with the Allowance Item, such as design fees, general conditions costs and fee, are deemed to be included in the Contract Price. However, by checking the box, the parties agree that in the event the actual cost of the Allowance Item is greater than or less than the Allowance Value by a negotiated percentage, then Design-Builder's right to Fee and markup shall be determined pursuant to Section 6.2.2.
6.6	The Guaranteed Maximum Price	<p>This Agreement provides the parties flexibility in establishing the Contract Price. Parties can establish a GMP before or after entering into this Agreement, or elect to proceed on the basis of costs plus a fee, without a GMP.</p> <p>If a GMP method is elected, the GMP should not be established until the Basis of Design Documents are sufficiently defined to make the GMP realistic and meaningful. Setting it too early does not permit reasonable opportunity for scope definition and evaluation of Project risk. On the other hand, setting it too late may not achieve Owner's objective of having an early price guarantee to enable it to make decisions relative to the Project.</p>

Section	Title	Instruction
6.6.1.1	GMP at Agreement Execution	<p>Enter the GMP, if appropriate. Attach as an exhibit to this Agreement the Basis of Design Documents used to establish the GMP. These documents comprise the GMP Exhibit which shall become a Contract Document pursuant to Section 2.1.1 of the Agreement. The Design-Builder does not guarantee any specific line item provided as part of the GMP.</p> <p>By selecting the alternate option, the Design-Builder agrees to guarantee the line item in its GMP for general conditions costs only. The Design-Builder agrees that it is responsible for paying general conditions costs in excess of this line item. The Design-Builder does not guarantee any other line items in the GMP.</p>
6.6.1.2	GMP Contingency	<p>Enter the amount of Design-Builder's Contingency. The Contingency is for the exclusive use of the Design-Builder and covers all unanticipated costs incurred that are not the basis of a Change Order. This section sets forth by way of example only the type of costs that would be funded out of the Contingency. Other costs, such as but not limited to any deductibles the Design-Builder is obligated to pay, would be subject to reimbursement. The Design-Builder is also required to provide the Owner with a monthly status report accounting for the Contingency, including all reasonably foreseen uses and potential uses of the Contingency for the upcoming three months.</p> <p>While not provided for in the Contingency provision, DBIA recognizes that there may be situations where the Owner will want to recapture the Contingency prior to Final Completion. For example, the Owner may want to use amounts in the Contingency to fund changes to the Project. The Owner's desire has to be balanced against the Design-Builder's need to use the Contingency to fund unanticipated costs for which it is liable. Accordingly, balancing these competing concerns is usually accomplished by releasing some of the Contingency to the Owner after the Design-Builder has bought out the Subcontractors, providing that the Design-Builder is not obligated to release Contingency amounts in excess of amounts identified for reasonably foreseen uses or potential uses of the Contingency.</p>

Section	Title	Instruction
6.6.2.1	GMP Proposal After Execution of This Agreement	<p>At the request of Owner, Design-Builder shall submit its GMP Proposal, which shall include the items listed in Sections 6.6.2.1.1 to 6.5.2.1.9. If the parties agree to additions or deletions from this list, modify this Section 6.6.2.1 appropriately.</p> <p>The Agreement provides the parties with flexibility as to when the GMP Proposal will be submitted after execution of the Agreement. Prior to execution of the Agreement the parties should discuss when Owner desires Design-Builder to submit its GMP Proposal.</p>
6.6.2.1.4	Schedule	<p>Given that expedited delivery is one of the primary factors driving many owners to select the design-build method, DBIA strongly believes that the parties should discuss and understand what each party must do to support the Project schedule. The entire Work, both design and construction, should be scheduled. The schedule should indicate the dates for the start and completion of the various stages of the Work, including the date when Owner information and approvals are required, and any Owner created constraints. The Agreement also provides flexibility to establish the Scheduled Substantial Completion Date prior to submission of the GMP Proposal.</p>
6.6.2.3	Acceptance of GMP Proposal	<p>If Owner accepts the GMP Proposal, the parties should amend this Agreement to add the final GMP Proposal as a Contract Document pursuant to Section 2.1.2.</p>
6.6.2.4	Failure to Accept the GMP Proposal	<p>This Agreement provides three options for Owner in the event it fails to accept the GMP Proposal and two choices for Design-Builder if Owner fails to exercise any of the three options. These options are specifically designed to prevent one party from receiving a windfall in the event the parties cannot agree on the GMP and the Agreement is terminated.</p> <p>The parties should take note that if Owner exercises its option to terminate for convenience, or Design-Builder suspends performance, Design-Builder will not be entitled to payment for uncompleted Work provided by Section 8.2. However, additional payment for Owner's use of Work Product will be due Design-Builder pursuant to Section 4.3, if Owner proceeds to complete the Project using Design-Builder's Work Product.</p>
6.6.3	Savings	<p>One of the benefits of a GMP approach is the possibility that with good management by Design-Builder and timely support from Owner the actual Cost of the Work and Fee may be less than the GMP. This creates a savings pool that should result in a benefit to both Design-Builder and Owner. Sharing these savings creates an incentive for Design-Builder to save costs. Some factors to consider in determining how the Savings are shared include the timing for the establishment of the GMP and the amount of Design-Builder's Fee established under Section 6.2.1.</p>
6.6.3.1	Savings Calculations	<p>This section provides that if the actual Cost of the Work and Design-Builder's Fee is less than the GMP, as such GMP may have been adjusted, the savings, if any, shall be shared. The Agreement offers two choices for distributing Savings. Choose a method and enter the appropriate figures.</p>

Section	Title	Instruction
6.7	Performance Incentives	In addition for the potential of the Design-Builder to share in Savings as set forth in Section 6.6.3, there may be other performance incentives that will influence Project success. Such incentives may include award fees tied to the Design-Builder achieving certain standards relative to client satisfaction, safety, and personnel retention. The parties are encouraged to discuss the use of such incentives during negotiation of this Agreement. Any agreement on the use of incentives should be set forth in an exhibit attached to this Agreement.
7.1.1	Progress Payments	Enter the day of the month when Design-Builder shall submit its Application for Payment.
7.2.1	Retainage	<p>Enter the percentage Owner will retain from Progress Payments to Design-Builder until fifty percent (50%) of the Work is completed. Owner should recognize that it creates undue hardship to hold retainage on Subcontractors that have completed their work early in the Project. Owner should accordingly consider releasing retainage on Subcontractors that complete work early in the Project, providing that these Subcontractors have satisfactorily performed their portion of the Work.</p> <p>The parties are provided the option of modifying the retainage provision by checking the box. This option excludes from retainage the Design-Builder's General Conditions costs and amounts paid to Design-Builder's Design Consultant. The rationale for selecting this option is that the Design-Builder is obligated to pay its General Conditions costs in full each month and that under the design-bid-build delivery method, the Owner typically does not retain sums from its Designer.</p>
7.2.2	Release of Retainage	This section requires the Owner to release retainage to the Design-Builder. If the Design-Builder and Owner have established a warranty reserve in accordance with Section 6.3.2.4, the parties shall establish an escrow account at this time.
7.4	Interest	The parties should enter the rate at which interest will accrue on Design-Builder's payments if unpaid five (5) days after due. Late payment creates a hardship for Design-Builder, its Design Consultants and Subcontractors.
7.5	Record Keeping	The Owner is provided access to Design-Builder's accounting information as it relates to Costs of the Work. However, if the parties have agreed to multipliers or markups, the time to challenge and negotiate those percentages is at the time the parties execute the Agreement and not during the Project or after it has been completed. Accordingly, the Owner can at any time audit these percentages only to confirm that such percentage has been properly charged and not to challenge the composition of such percentage.

Section	Title	Instruction
8.1.3	Termination for Convenience: Overhead and Profit	The parties should choose prior to execution of the Agreement the method that will be used to determine overhead and profit paid to Design-Builder in the event Owner terminates Design-Builder for its convenience. The parties may choose to set percentage rates for overhead and profit prior to execution of the Agreement, or may choose to determine reasonable sums to be paid for overhead and profit at the time of the termination. If the parties choose to set overhead and profit rates prior to execution of the Agreement, the percentages should be entered in Section 8.1.3.
8.2	Termination for Convenience: Additional Payments	Although it is important for Owner to have a process for terminating this Agreement for convenience, the process must consider the interests of Design-Builder. If Owner terminates this Agreement for its own convenience, compensating Design-Builder for its costs will not be adequate because Design-Builder will have committed its resources for a small amount of revenue. Therefore, in addition to the overhead and profit paid in Section 8.1, Owner shall pay Design-Builder an additional sum, calculated as a percentage of the remaining balance of the Contract Price or, if a GMP has not been established, the remaining balance of the most recent estimated Contract Price. Enter the percentages Owner shall pay Design-Builder if Owner terminates this Agreement for its own convenience prior to or after the start of construction.
8.3	Termination for Convenience: Owner's Use of Work Product	Owner should not use the Termination for Convenience clause to obtain Design-Builder's valuable design concepts and then seek lower bids from another design-builder. If Owner terminates this Agreement for its own convenience, and chooses to proceed with the Project using Design-Builder's Work Product, Owner should pay an additional sum for the use of Design-Builder's Work Product pursuant to Section 4.3.
Article 9	Representatives of the Parties	<p>Enter the name, title, address and telephone number of Owner's Senior Representative and Owner's Representative at Sections 9.1.1 and 9.1.2, respectively.</p> <p>Enter the name, title, address and telephone number of Design-Builder's Senior Representative and Design-Builder's Representative at Sections 9.2.1 and 9.2.2, respectively.</p> <p>The parties can elect to establish these Representatives during the performance of the Project rather than at the time of execution of this Agreement. If Representatives are identified after execution of the Agreement, an appropriate amendment should be made to the Agreement at the time these individuals are designated.</p>
10.1	Insurance	Attach an Insurance Exhibit setting forth in detail the insurance coverages required for the Project. Parties are advised to familiarize themselves with the terms of Article 5 of the General Conditions of Contract, Insurance and Bonds, and to consult their insurance advisor.
10.2	Bonds	Enter the type and amount of bonds or other performance security required for the Project. Where bonding is not required by statute, Owner may want to evaluate the project risks versus the bonding costs in deciding what type of performance security to require.

Section	Title	Instruction
11.1	Other Provisions	Insert any other provisions. For example, the parties may elect to have disputes resolved through litigation rather than arbitration in which case the optional language in this Section should be included.

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Standard Form of Agreement Between Owner and Design-Builder - Cost Plus Fee with an Option for a Guaranteed Maximum Price

*This document has important legal consequences. Consultation with
an attorney is recommended with respect to its completion or modification.*

This **AGREEMENT** is made as of the _____ day of _____
in the year of 20_____, by and between the following parties, for services in connection with the Project
identified below:

OWNER:

(Name and address)

DESIGN-BUILDER:

(Name and address)

PROJECT:

(Include Project name and location as it will appear in the Contract Documents)

In consideration of the mutual covenants and obligations contained herein, Owner and Design-Builder
agree as set forth herein.

Article 1

Scope of Work

1.1 Design-Builder shall perform all design and construction services, and provide all material, equipment, tools and labor, necessary to complete the Work described in and reasonably inferable from the Contract Documents.

Article 2

Contract Documents

2.1 The Contract Documents are comprised of the following:

2.1.1 All written modifications, amendments, minor changes, and Change Orders to this Agreement issued in accordance with DBIA Document No. 535, *Standard Form of General Conditions of Contract Between Owner and Design-Builder* (2010 Edition) ("General Conditions of Contract");

2.1.2 The GMP Exhibit referenced in Section 6.6.1.1 herein or, if applicable, the GMP Proposal accepted by Owner in accordance with Section 6.6.2 herein;

2.1.3 This Agreement, including all exhibits (List for example, performance standard requirements, performance incentive arrangements, markup exhibits, allowances, unit prices, or exhibit detailing offsite reimbursable personnel) but excluding, if applicable, the GMP Exhibit;

2.1.4 The General Conditions of Contract; and

2.1.5 Construction Documents prepared and approved in accordance with Section 2.4 of the General Conditions of Contract.

Article 3

Interpretation and Intent

3.1 Design-Builder and Owner, prior to execution of the Agreement (and again, if applicable, at the time of acceptance of the GMP Proposal by Owner in accordance with Section 6.6.2 hereof), shall carefully review all the Contract Documents, including the various documents comprising the Basis of Design Documents, for any conflicts or ambiguities. Design-Builder and Owner will discuss and resolve any identified conflicts or ambiguities prior to execution of the Agreement or, if applicable, prior to Owner's acceptance of the GMP Proposal.

3.2 The Contract Documents are intended to permit the parties to complete the Work and all obligations required by the Contract Documents within the Contract Time(s) for the Contract Price. The Contract Documents are intended to be complementary and interpreted in harmony so as to avoid conflict, with words and phrases interpreted in a manner consistent with construction and design industry standards. In the event inconsistencies, conflicts, or ambiguities between or among the Contract Documents are discovered after execution of the Agreement, or if applicable, after Owner's acceptance of the GMP Proposal, Design-Builder and Owner shall attempt to resolve any ambiguity, conflict or inconsistency informally, recognizing that the Contract Documents shall take precedence in the order in which they are listed in Section 2.1 hereof. *(Note, the parties are strongly encouraged to establish in the GMP Exhibit or GMP Proposal (as applicable) the priority of the various documents comprising such exhibit or proposal.)*

3.3 Terms, words and phrases used in the Contract Documents, including this Agreement, shall have the meanings given them in the General Conditions of Contract.

3.4 If Owner's Project Criteria contain design specifications: (a) Design-Builder shall be entitled to reasonably rely on the accuracy of the information represented in such design specifications and their compatibility with other information set forth in Owner's Project Criteria, including any performance specifications; and (b) Design-Builder shall be entitled to an adjustment in the Contract Price and/or Contract Time(s) to the extent Design-Builder's cost and/or time of performance have been adversely impacted by such inaccurate design specification.

3.5 The Contract Documents form the entire agreement between Owner and Design-Builder and by incorporation herein are as fully binding on the parties as if repeated herein. No oral representations or other agreements have been made by the parties except as specifically stated in the Contract Documents.

Article 4

Ownership of Work Product

4.1 Work Product. All drawings, specifications and other documents and electronic data, including such documents identified in the General Conditions of Contract, furnished by Design-Builder to Owner under this Agreement ("Work Product") are deemed to be instruments of service and Design-Builder shall retain the ownership and property interests therein, including but not limited to any intellectual property rights, copyrights and/or patents, subject to the provisions set forth in Sections 4.2 through 4.5 below.

4.2 Owner's Limited License upon Project Completion and Payment in Full to Design-Builder. Upon Owner's payment in full for all Work performed under the Contract Documents, Design-Builder shall grant Owner a limited license to use the Work Product in connection with Owner's occupancy of the Project, conditioned on Owner's express understanding that its alteration of the Work Product without the involvement of Design-Builder is at Owner's sole risk and without liability or legal exposure to Design-Builder or anyone working by or through Design-Builder, including Design Consultants of any tier (collectively the "Indemnified Parties"), and on the Owner's obligation to provide the indemnity set forth in Section 4.5 below.

[At the parties' option, one of the following may be used in lieu of Section 4.2.]

☐ Upon Owner's payment in full for all Work performed under the Contract Documents, Design-Builder: (a) grants Owner a limited license to use the Work Product in connection with Owner's occupancy of the Project; and (b) transfers all ownership and property interests, including but not limited to any intellectual property rights, copyrights and/or patents, in that portion of the Work Product that consists of architectural and other design elements and specifications that are unique to the Project. The parties shall specifically designate those portions of the Work Product for which ownership in the Work Product shall be transferred. Such grant and transfer are conditioned on Owner's express understanding that its alteration of the Work Product without the involvement of Design-Builder is at Owner's sole risk and without liability or legal exposure to Design-Builder or anyone working by or through Design-Builder, including Design Consultants of any tier (collectively the "Indemnified Parties"), and on the Owner's obligation to provide the indemnity set forth in Section 4.5 below.

or

☐ Upon Owner's payment in full for all Work performed under the Contract Documents, Design-Builder transfers to Owner all ownership and property interests, including but not limited to any intellectual property rights, copyrights and/or patents, in the Work Product. Such transfer is conditioned on Owner's express understanding that its alteration of the Work Product without the involvement of Design-Builder is at Owner's sole risk and without liability or legal exposure to Design-Builder or anyone working by or

through Design-Builder, including Design Consultants of any tier (collectively the "Indemnified Parties"), and on the Owner's obligations to provide the indemnity set forth in Section 4.5 below.

4.3 Owner's Limited License upon Owner's Termination for Convenience or Design-Builder's Election to Terminate. If Owner terminates this Agreement for its convenience as set forth in Article 8 hereof, or if Design-Builder elects to terminate this Agreement in accordance with Section 11.4 of the General Conditions of Contract, Design-Builder shall, upon Owner's payment in full of the amounts due Design-Builder under the Contract Documents, grant Owner a limited license to use the Work Product to complete the Project and subsequently occupy the Project, and Owner shall thereafter have the same rights as set forth in Section 4.2 above, conditioned on the following:

4.3.1 Use of the Work Product is at Owner's sole risk without liability or legal exposure to any Indemnified Party, and on the Owner's obligation to provide the indemnity set forth in Section 4.5 below, and

4.3.2 Owner agrees to pay Design-Builder the additional sum of _____ Dollars (\$_____) as compensation for the right to use the Work Product to complete the Project and subsequently use the Work Product in accordance with Section 4.2 if Owner resumes the Project through its employees, agents, or third parties.

4.4 Owner's Limited License upon Design-Builder's Default. If this Agreement is terminated due to Design-Builder's default pursuant to Section 11.2 of the General Conditions of Contract, then Design-Builder grants Owner a limited license to use the Work Product to complete the Project and subsequently occupy the Project, and Owner shall thereafter have the same rights and obligations as set forth in Section 4.2 above. Notwithstanding the preceding sentence, if it is ultimately determined that Design-Builder was not in default, Owner shall be deemed to have terminated the Agreement for convenience, and Design-Builder shall be entitled to the rights and remedies set forth in Section 4.3 above.

4.5 Owner's Indemnification for Use of Work Product. If Owner is required to indemnify any Indemnified Parties based on the use or alteration of the Work Product under any of the circumstances identified in this Article 4, Owner shall defend, indemnify and hold harmless such Indemnified Parties from and against any and all claims, damages, liabilities, losses and expenses, including attorneys' fees, arising out of or resulting from the use or alteration of the Work Product.

Article 5

Contract Time

5.1 Date of Commencement. The Work shall commence within five (5) days of Design-Builder's receipt of Owner's Notice to Proceed ("Date of Commencement") unless the parties mutually agree otherwise in writing.

5.2 Substantial Completion and Final Completion.

5.2.1 Substantial Completion of the entire Work shall be achieved no later than _____ (_____) calendar days after the Date of Commencement ("Scheduled Substantial Completion Date").

[At the parties' option, the following supplemental language may be inserted at the end of Section 5.2.1 if the Project is subject to a Temporary Certificate of Occupancy.]

☐ The parties agree that the definition for Substantial Completion set forth in Section 1.2.18 of the General Conditions of Contract is hereby modified to read as follows:

"*Substantial Completion* is the date on which the Work, or an agreed upon portion of the Work, is sufficiently complete in accordance with the Contract Documents so that Owner can occupy and use the Project or a portion thereof for its intended purposes, provided, however, that Substantial Completion shall be deemed to have been achieved no later than the date of issuance of a Temporary Certificate of Occupancy issued by the local building official."

5.2.2 Interim milestones and/or Substantial Completion of identified portions of the Work ("Scheduled Interim Milestone Dates") shall be achieved as follows: *(Insert any interim milestones for portions of the Work with different scheduled dates for Substantial Completion)*

5.2.3 Final Completion of the Work or identified portions of the Work shall be achieved as expeditiously as reasonably practicable. Final Completion is the date when all Work is complete pursuant to the definition of Final Completion set forth in Section 1.2.7 of the General Conditions of Contract.

5.2.4 All of the dates set forth in this Article 5 (collectively the "Contract Time(s)") shall be subject to adjustment in accordance with the General Conditions of Contract.

5.3 Time is of the Essence. Owner and Design-Builder mutually agree that time is of the essence with respect to the dates and times set forth in the Contract Documents.

5.4 Liquidated Damages. Design-Builder understands that if Substantial Completion is not attained by the Scheduled Substantial Completion Date, Owner will suffer damages which are difficult to determine and accurately specify. Design-Builder agrees that if Substantial Completion is not attained by _____ (_____) days after the Scheduled Substantial Completion Date (the "LD Date"), Design-Builder shall pay Owner _____ Dollars (\$ _____) as liquidated damages for each day that Substantial Completion extends beyond the LD Date. *(If a GMP is not established upon execution of this Agreement, the parties should consider setting liquidated damages after GMP negotiations.)*

[The parties may want to consider the following supplemental language within Section 5.4 if they want to assess liquidated damages for failing to meet Final Completion. In this case, the first sentence in Section 5.2.3 should be deleted and replaced with the following language.]

☐ Design-Builder understands that if Final Completion is not achieved within _____ days of the Substantial Completion Date, Owner will suffer damages which are difficult to determine and accurately specify. Design-Builder agrees that if Final Completion is not achieved within _____ (_____) days of Substantial Completion, Design-Builder shall pay to Owner _____ Dollars (\$ _____), as liquidated damages for each calendar day that Final Completion is delayed beyond the above-referenced number of days.

[In lieu of the liquidated damages specified in Section 5.4 or the alternate provided herein, the Parties may decide that the Agreement will provide for actual damages in the event of Project delay, with Owner being cautioned that there is a waiver of consequential damages under Section 10.5.1 of the General Conditions of Contract. In this case, delete Sections 5.4 and 5.5 and insert the following.]

☐ **5.4** Design-Builder and Owner have agreed not to provide for liquidated damages in this Agreement for failure of Design-Builder to achieve the Contract Time(s) set forth in this Article 5. Design-Builder understands, however, that Owner may suffer actual damages in the event the Contract Time(s) set forth herein are not timely achieved. Owner shall be able to recover such actual damages from Design-Builder to the extent it can demonstrate that actual damages have been incurred, are directly related and caused by Design-Builder's failure to meet the Contract Time(s) set forth herein, and are not

waived by Section 10.5.1 of the General Conditions of Contract. Notwithstanding the foregoing, in no event shall Design-Builder's liability for actual damages for delays exceed _____ Dollars (\$_____).

5.5 Any liquidated damages assessed pursuant to this Agreement shall be in lieu of all liability for any and all extra costs, losses, expenses, claims, penalties and any other damages, whether special or consequential, and of whatsoever nature, incurred by Owner which are occasioned by any delay in achieving the Contract Time(s).

[The Parties may also desire to cap the liquidated damages payable under this Agreement, in which case the following language should be included at the end of Section 5.5.]

☐ Owner and Design-Builder agree that the maximum aggregate liability Design-Builder has for any liquidated damages that may be assessed under this Agreement for failure to achieve the Contract Time(s) shall be _____ Dollars (\$_____).

5.6 Early Completion Bonus. If Substantial Completion is attained on or before _____ (_____) days before the Scheduled Substantial Completion Date (the "Bonus Date"), Owner shall pay Design-Builder at the time of Final Payment under Section 7.3 hereof an early completion bonus of _____ Dollars (\$_____) for each day that Substantial Completion is attained earlier than the Bonus Date. *(If a GMP is not established upon execution of this Agreement, the parties should consider setting the early completion bonus after GMP negotiations. If an early completion bonus is applicable to any dates set forth in Section 5.2.2 or 5.2.3 hereof, this Section 5.6 will need to be modified accordingly.)*

[The Parties may also desire to cap the early completion bonus payable under Section 5.6, in which case the following language should be included.]

☐ Owner and Design-Builder agree that the maximum aggregate amount that Design-Builder shall receive as the early Completion Bonus is _____ Dollars (\$_____).

5.7 ***[The Parties may also desire to modify Article 8.2.2 of the General Conditions of Contract relative to compensability of delays that would cause the Contract Time(s) to be extended. In such case, the following option can be used.]***

☐ In addition to Design-Builder's right to a time extension for those events set forth in Section 8.2.1 of the General Conditions of Contract, Design-Builder shall also be entitled to an appropriate adjustment of the Contract Price for those events set forth in Section 8.2.1 of the General Conditions of Contract, provided, however, for Force Majeure Events, Design-Builder shall only be entitled to an increase in the Contract Price if said events exceed _____ (_____) cumulative days. Said additional compensation shall be limited to:

[Check one box only]

☐ \$ _____ dollars a day for each day work is delayed beyond the Scheduled Substantial Completion Date.

or

☐ the direct costs and expenses Design-Builder can demonstrate it has reasonably and actually incurred as a result of such event.

Article 6

Contract Price

6.1 Contract Price.

6.1.1 Owner shall pay Design-Builder in accordance with Article 6 of the General Conditions of Contract a contract price ("Contract Price") equal to Design-Builder's Fee (as defined in Section 6.2 hereof) plus the Cost of the Work (as defined in Section 6.3 hereof), subject to any GMP established in Section 6.6 hereof and any adjustments made in accordance with the General Conditions of Contract.

6.1.2 For the specific Work set forth below, Owner agrees to pay Design-Builder, as part of the Contract Price, on the following basis: *(This is an optional section intended to provide the parties with flexibility to identify and price limited preliminary services, such as a lump sum or cost-plus arrangement for preliminary design, programming, or services necessary to enable Design-Builder to furnish Owner with a GMP before execution of this Agreement.)*

6.2 Design-Builder's Fee.

6.2.1 Design-Builder's Fee shall be:

[Choose one of the following:]

☐ _____ Dollars (\$ _____), as adjusted in accordance with Section 6.2.2 below.

or

☐ _____ percent (_____%) of the Cost of the Work, as adjusted in accordance with Section 6.2.2 below.

6.2.2 Design-Builder's Fee will be adjusted as follows for any changes in the Work:

6.2.2.1 For additive Change Orders, including additive Change Orders arising from both additive and deductive items, it is agreed that Design-Builder shall receive a Fee of _____ percent (_____%) of the additional Costs of the Work incurred for that Change Order, plus any other markups set forth in Exhibit _____ hereto.

6.2.2.2 For deductive Change Orders, including deductive Change Orders arising from both additive and deductive items, the deductive amounts shall include:

[Check one box only]

☐ No additional reduction to account for Design-Builder's Fee or any other markup.

or

☐ An amount equal to the sum of: (a) _____ percent (_____%) applied to the direct costs of the net reduction (which amount will account for a

reduction associated with Design-Builder's Fee); plus (b) any other markups set forth in Exhibit _____ hereto applied to the direct costs of the net reduction.

6.3 Cost of the Work. The term Cost of the Work shall mean costs reasonably and actually incurred by Design-Builder in the proper performance of the Work. The Cost of the Work shall include only the following:

6.3.1 Wages of direct employees of Design-Builder performing the Work at the Site or, with Owner's agreement, at locations off the Site; provided, however, that the costs for those employees of Design-Builder performing design services shall be calculated on the basis of prevailing market rates for design professionals performing such services or, if applicable, those rates set forth in an exhibit to this Agreement.

6.3.2 Wages or salaries of Design-Builder's supervisory and administrative personnel engaged in the performance of the Work and who are located at the Site or working off-Site to assist in the production or transportation of material and equipment necessary for the Work.

6.3.3 Wages or salaries of Design-Builder's personnel stationed at Design-Builder's principal or branch offices, but only to the extent said personnel are identified in Exhibit _____ and performing the function set forth in said Exhibit. The reimbursable costs of personnel stationed at Design-Builder's principal or branch offices shall include a _____ percent (_____%) markup to compensate Design-Builder for the Project-related overhead associated with such personnel.

6.3.4 Costs incurred by Design-Builder for employee benefits, premiums, taxes, insurance, contributions and assessments required by law, collective bargaining agreements, or which are customarily paid by Design-Builder, to the extent such costs are based on wages and salaries paid to employees of Design-Builder covered under Sections 6.3.1 through 6.3.3 hereof.

[In lieu of the language in Section 6.3.4 above, Design-Builder and Owner may want to include the following language:]

☐ A multiplier of _____ percent (_____%) shall be applied to the wages and salaries of the employees of Design-Builder covered under Sections 6.3.1 through 6.3.3 hereof.

6.3.5 The reasonable portion of the cost of travel, accommodations and meals for Design-Builder's personnel necessarily and directly incurred in connection with the performance of the Work.

6.3.6 Payments properly made by Design-Builder to Subcontractors and Design Consultants for performance of portions of the Work, including any insurance and bond premiums incurred by Subcontractors and Design Consultants.

6.3.7 Costs incurred by Design-Builder in repairing or correcting defective, damaged or nonconforming Work (including any warranty or corrective Work performed after Substantial Completion), provided that such Work was beyond the reasonable control of Design-Builder, or caused by the ordinary mistakes or inadvertence, and not the negligence, of Design-Builder or those working by or through Design-Builder. If the costs associated with such Work are recoverable from insurance, Subcontractors or Design Consultants, Design-Builder shall exercise its best efforts to obtain recovery from the appropriate source and provide a credit to Owner if recovery is obtained.

6.3.8 Costs, including transportation, inspection, testing, storage and handling, of materials, equipment and supplies incorporated or reasonably used in completing the Work.

6.3.9 Costs (less salvage value) of materials, supplies, temporary facilities, machinery, equipment and hand tools not customarily owned by the workers that are not fully consumed in the performance of the Work and which remain the property of Design-Builder, including the costs of transporting, inspecting, testing, handling, installing, maintaining, dismantling and removing such items.

6.3.10 Costs of removal of debris and waste from the Site.

6.3.11 The reasonable costs and expenses incurred in establishing, operating and demobilizing the Site office, including the cost of facsimile transmissions, long-distance telephone calls, postage and express delivery charges, telephone service, photocopying and reasonable petty cash expenses.

6.3.12 Rental charges and the costs of transportation, installation, minor repairs and replacements, dismantling and removal of temporary facilities, machinery, equipment and hand tools not customarily owned by the workers, which are provided by Design-Builder at the Site, whether rented from Design-Builder or others, and incurred in the performance of the Work.

6.3.13 Premiums for insurance and bonds required by this Agreement or the performance of the Work.

6.3.14 All fuel and utility costs incurred in the performance of the Work.

6.3.15 Sales, use or similar taxes, tariffs or duties incurred in the performance of the Work.

6.3.16 Legal costs, court costs and costs of mediation and arbitration reasonably arising from Design-Builder's performance of the Work, provided such costs do not arise from disputes between Owner and Design-Builder.

6.3.17 Costs for permits, royalties, licenses, tests and inspections incurred by Design-Builder as a requirement of the Contract Documents.

6.3.18 The cost of defending suits or claims for infringement of patent rights arising from the use of a particular design, process, or product required by Owner, paying legal judgments against Design-Builder resulting from such suits or claims, and paying settlements made with Owner's consent.

6.3.19 Deposits which are lost, except to the extent caused by Design-Builder's negligence.

6.3.20 Costs incurred in preventing damage, injury or loss in case of an emergency affecting the safety of persons and property.

6.3.21 Accounting and data processing costs related to the Work.

6.3.22 Other costs reasonably and properly incurred in the performance of the Work to the extent approved in writing by Owner.

[Design-Builder and Owner may want to consider adding the following Section 6.3.23 to address the payment of warranty work:]

☐ **6.3.23** Owner and Design-Builder agree that an escrow account in the amount of _____ Dollars (\$_____) shall be established prior to Final Completion, which escrow shall be used to reimburse Design-Builder for the Costs of the Work incurred after Final Completion to perform warranty Work. The escrow agreement will provide that any sums not used at the expiration of the warranty period shall be returned to Owner, subject to any savings Design-Builder may be entitled to under this Agreement. In the event the warranty escrow account is exhausted, but funds remain under the GMP, Owner shall be obligated to pay

Design-Builder the Costs of the Work incurred after Final Completion to perform warranty Work up to the GMP.

6.4 Allowance Items and Allowance Values.

6.4.1 Any and all Allowance Items, as well as their corresponding Allowance Values, are set forth in the GMP Exhibit or GMP Proposal and are included within the GMP.

6.4.2 Design-Builder and Owner have worked together to review the Allowance Items and Allowance Values based on design information then available to determine that the Allowance Values constitute reasonable estimates for the Allowance Items. Design-Builder and Owner will continue working closely together during the preparation of the design to develop Construction Documents consistent with the Allowance Values. Nothing herein is intended in any way to constitute a guarantee by Design-Builder that the Allowance Item in question can be performed for the Allowance Value.

6.4.3 No work shall be performed on any Allowance Item without Design-Builder first obtaining in writing advanced authorization to proceed from Owner. Owner agrees that if Design-Builder is not provided written authorization to proceed on an Allowance Item by the date set forth in the Project schedule, due to no fault of Design-Builder, Design-Builder may be entitled to an adjustment of the Contract Time(s) and Contract Price.

6.4.4 The Allowance Value for an Allowance Item includes the direct cost of labor, materials, equipment, transportation, taxes and insurance associated with the applicable Allowance Item. All other costs, including design fees, Design-Builder's overall project management and general conditions costs, overhead and fee, are deemed to be included in the original Contract Price, and are not subject to adjustment, regardless of the actual amount of the Allowance Item.

[In the alternative, the parties may want to delete Section 6.4.4 and add the following provision.]

☐ In the event the actual direct cost of labor, materials, equipment, transportation, taxes and insurance associated with an Allowance Item is _____ percent (_____%) greater than or less than the Allowance Value for such Allowance Item, Design-Builder and Owner agree that Design-Builder's right to Fee and markup shall be adjusted in accordance with Section 6.2.2.

6.4.5 Whenever the actual costs for an Allowance Item is more than or less than the stated Allowance Value, the Contract Price shall be adjusted accordingly by Change Order, subject to Section 6.4.4. The amount of the Change Order shall reflect the difference between actual costs incurred by Design-Builder for the particular Allowance Item and the Allowance Value.

6.5 Non-Reimbursable Costs.

6.5.1 The following shall not be deemed as costs of the Work:

6.5.1.1 Compensation for Design-Builder's personnel stationed at Design-Builder's principal or branch offices, except as provided for in Sections 6.3.1, 6.3.2 and 6.3.3 hereof.

6.5.1.2 Overhead and general expenses, except as provided for in Section 6.3 hereof, or which may be recoverable for changes to the Work.

6.5.1.3 The cost of Design-Builder's capital used in the performance of the Work.

6.5.1.4 If the parties have agreed on a GMP, costs that would cause the GMP, as adjusted in accordance with the Contract Documents, to be exceeded.

[The parties shall comply with the following Section 6.6 based upon whether the GMP is agreed upon before the execution of this Agreement or will be developed and agreed upon after execution of this Agreement. If the parties do not use a GMP, this Section 6.6 shall be deemed inapplicable and compensation to Design-Builder shall be based on those fees and costs identified in the balance of this Article 6.]

6.6 The Guaranteed Maximum Price ("GMP").

6.6.1 GMP Established Upon Execution of this Agreement.

6.6.1.1 Design-Builder guarantees that it shall not exceed the GMP of _____ Dollars (\$_____). Documents used as a basis for the GMP shall be identified in an exhibit to this Agreement ("GMP Exhibit"). Design-Builder does not guarantee any specific line item provided as part of the GMP, and has the sole discretion to apply payment due to overruns in one line item to savings due to underruns in any other line item. Design-Builder agrees, however, that it will be responsible for paying all costs of completing the Work which exceed the GMP, as adjusted in accordance with the Contract Documents. *(While the GMP Exhibit will be developed in advance or concurrently with the execution of this Agreement, it is recommended that such exhibit include the items set forth in Section 6.6.2.1 below, to ensure that the basis for the GMP is well-understood).*

[In lieu of 6.6.1.1, Owner and Design-Builder may want to include the following language.]

☐ Design-Builder guarantees that it shall not exceed the GMP of _____ Dollars (\$_____). Documents used as basis for the GMP shall be identified as an exhibit to this Agreement ("GMP Exhibit"). Design-Builder does not guarantee any specific line item provided as part of the GMP, provided, however, that it does guarantee the line item for its general project management and general conditions costs, in the amount of _____ Dollars (\$_____), and as set forth in the GMP Exhibit ("General Conditions Cap"). Design-Builder agrees that it will be responsible for paying the applicable general conditions costs in excess of the General Conditions Cap, as well as be responsible for all costs of completing the Work which exceed the GMP, as said General Conditions Cap and the GMP may be adjusted in accordance with the Contract Documents.

6.6.1.2 The GMP includes a Contingency in the amount of _____ Dollars (\$_____). which is available for Design-Builder's exclusive use for unanticipated costs it has incurred that are not the basis for a Change Order under the Contract Documents. By way of example, and not as a limitation, such costs may include: (a) trade buy-out differentials; (b) overtime or acceleration; (c) escalation of materials; (d) correction of defective, damaged or nonconforming Work, design errors or omissions, however caused; (e) Subcontractor defaults; or (f) those events under Section 8.2.2 of the General Conditions of Contract that result in an extension of the Contract Time but do not result in an increase in the Contract Price. The Contingency is not available to Owner for any reason, including, but not limited to changes in scope or any other item which would enable Design-Builder to increase the GMP under the Contract Documents. Design-Builder shall provide Owner notice of all anticipated charges against the Contingency, and shall provide Owner as part of the monthly status report required by Section 2.1.2 of the General Conditions of Contract an accounting of the Contingency, including all reasonably foreseen uses or potential uses of the Contingency in the upcoming three (3) months. Design-Builder agrees that with respect to any expenditure from the Contingency relating to a Subcontractor default or an event for which insurance or bond may provide reimbursement, Design-Builder will in good faith exercise reasonable steps to obtain performance from the Subcontractor and/or recovery from any surety or insurance company. Design-Builder agrees that if Design-Builder is

subsequently reimbursed for said costs, then said recovery will be credited back to the Contingency.

6.6.2 GMP Established after Execution of this Agreement.

6.6.2.1 GMP Proposal. If requested by Owner, Design-Builder shall submit a GMP Proposal to Owner which shall include the following, unless the parties mutually agree otherwise:

6.6.2.1.1 A proposed GMP, which shall be the sum of:

i. Design-Builder's Fee as defined in Section 6.2.1 hereof;

ii. The estimated Cost of the Work as defined in Section 6.3 hereof, inclusive of any Design-Builder's Contingency as defined in Section 6.6.1.2 hereof; and

iii. If applicable, any prices established under Section 6.1.2 hereof.

6.6.2.1.2 The Basis of Design Documents, which may include, by way of example, Owner's Project Criteria, which are set forth in detail and are attached to the GMP Proposal;

6.6.2.1.3 A list of the assumptions and clarifications made by Design-Builder in the preparation of the GMP Proposal, which list is intended to supplement the information contained in the drawings and specifications and is specifically included as part of the Basis of Design Documents;

6.6.2.1.4 The Scheduled Substantial Completion Date upon which the proposed GMP is based, to the extent said date has not already been established under Section 5.2.1 hereof, and a schedule upon which the Scheduled Substantial Completion Date is based;

6.6.2.1.5 If applicable, a list of Allowance Items, Allowance Values, and a statement of their basis;

6.6.2.1.6 If applicable, a schedule of alternate prices;

6.6.2.1.7 If applicable, a schedule of unit prices;

6.6.2.1.8 If applicable, a statement of Additional Services which may be performed but which are not included in the GMP and which, if performed, shall be the basis for an increase in the GMP and/or Contract Time(s); and

6.6.2.1.9 The time limit for acceptance of the GMP Proposal.

6.6.2.2 Review and Adjustment to GMP Proposal. After submission of the GMP Proposal, Design-Builder and Owner shall meet to discuss and review the GMP Proposal. If Owner has any comments regarding the GMP Proposal, or finds any inconsistencies or inaccuracies in the information presented, it shall promptly give written notice to Design-Builder of such comments or findings. If appropriate, Design-Builder shall, upon receipt of Owner's notice, make appropriate adjustments to the GMP Proposal.

6.6.2.3 Acceptance of GMP Proposal. If Owner accepts the GMP Proposal, as may be amended by Design-Builder, the GMP and its basis shall be set forth in an amendment to this Agreement.

6.6.2.4 Failure to Accept the GMP Proposal. If Owner rejects the GMP Proposal, or fails to notify Design-Builder in writing on or before the date specified in the GMP Proposal that it accepts the GMP Proposal, the GMP Proposal shall be deemed withdrawn and of no effect. In such event, Owner and Design-Builder shall meet and confer as to how the Project will proceed, with Owner having the following options:

6.6.2.4.1 Owner may suggest modifications to the GMP Proposal, whereupon, if such modifications are accepted in writing by Design-Builder, the GMP Proposal shall be deemed accepted and the parties shall proceed in accordance with Section 6.6.2.3 above;

6.6.2.4.2 Owner may authorize Design-Builder to continue to proceed with the Work on the basis of reimbursement as provided in Section 6.1 hereof without a GMP, in which case all references in this Agreement to the GMP shall not be applicable; or

6.6.2.4.3 Owner may terminate this Agreement for convenience in accordance with Article 8 hereof; provided, however, in this event, Design-Builder shall not be entitled to the payment provided for in Section 8.2 hereof.

If Owner fails to exercise any of the above options, Design-Builder shall have the right to (i) continue with the Work as if Owner had elected to proceed in accordance with Item 6.6.2.4.2 above, and be paid by Owner accordingly, unless and until Owner notifies it in writing to stop the Work, or (ii) suspend performance of Work in accordance with Section 11.3.1 of the General Conditions of Contract, provided, however, that in such event Design-Builder shall not be entitled to the payment provided for in Section 8.2 hereof.

6.6.3 Savings.

6.6.3.1 If the sum of the actual Cost of the Work and Design-Builder's Fee (and, if applicable, any prices established under Section 6.1.2 hereof) is less than the GMP, as such GMP may have been adjusted over the course of the Project, the difference ("Savings") shall be shared as follows:

[Choose one of the following:]

☐ _____ percent (_____ %) to Design-Builder
and _____ percent (_____ %) to Owner.

or

☐ The first _____ Dollars (\$ _____) of Savings shall be provided to *(choose either Design-Builder or Owner)* _____, with the balance of Savings, if any, shared _____ percent (_____ %) to Design-Builder and _____ percent (_____ %) to Owner.

6.6.3.2 Savings shall be calculated and paid as part of Final Payment under Section 7.3 hereof, with the understanding that to the extent Design-Builder incurs costs after Final Completion which would have been payable to Design-Builder as a Cost of the Work, the parties shall recalculate the Savings in light of the costs so incurred, and Design-Builder shall be paid by Owner accordingly.

6.7 Performance Incentives

6.7.1 Owner and Design-Builder have agreed to the performance incentive arrangements set forth in Exhibit _____.

[The parties are encouraged to discuss and agree upon performance incentives that will influence project success. These incentives may consist of Award Fees, incentives for safety, personnel retention, client satisfaction and similar items.]

Article 7

Procedure for Payment

7.1 Progress Payments.

7.1.1 Design-Builder shall submit to Owner on the _____ (_____) day of each month, beginning with the first month after the Date of Commencement, Design-Builder's Application for Payment in accordance with Article 6 of the General Conditions of Contract.

7.1.2 Owner shall make payment within ten (10) days after Owner's receipt of each properly submitted and accurate Application for Payment in accordance with Article 6 of the General Conditions of Contract, but in each case less the total of payments previously made, and less amounts properly withheld under Section 6.3 of the General Conditions of Contract.

7.1.3 If Design-Builder's Fee under Section 6.2.1 hereof is a fixed amount, the amount of Design-Builder's Fee to be included in Design-Builder's monthly Application for Payment and paid by Owner shall be proportional to the percentage of the Work completed, less payments previously made on account of Design-Builder's Fee.

7.2 Retainage on Progress Payments.

7.2.1 Owner will retain _____ percent (_____%) of each Application for Payment provided, however, that when fifty percent (50%) of the Work has been satisfactorily completed by Design-Builder and Design-Builder is otherwise in compliance with its contractual obligations, Owner will not retain any additional retention amounts from Design-Builder's subsequent Applications for Payment. Owner will also reasonably consider reducing retainage for Subcontractors completing their work early in the Project.

[Design-Builder and Owner may want to consider substituting the following retainage provision.]

☐ Owner will retain _____ percent (_____%) of the cost of Work, exclusive of general conditions costs, and any amounts paid to Design-Builder's Design Consultant, from each Application for Payment provided, however, that when fifty percent (50%) of the Work has been satisfactorily completed by Design-Builder and Design-Builder is otherwise in compliance with its contractual obligations, Owner will not retain any additional amounts from Design-Builder's subsequent Applications for Payment. Owner will also reasonably consider reducing retainage for Subcontractors completing their work early in the Project.

7.2.2 Within fifteen (15) days after Substantial Completion of the entire Work or, if applicable, any portion of the Work, pursuant to Section 6.6 of the General Conditions of Contract, Owner shall release to Design-Builder all retained amounts relating, as applicable, to the entire Work or completed portion of the Work, less an amount equal to: (a) the reasonable value of all remaining or incomplete items of Work as noted in the Certificate of Substantial Completion; and (b) all

other amounts Owner is entitled to withhold pursuant to Section 6.3 of the General Conditions of Contract.

[If Owner and Design-Builder have established a warranty reserve pursuant to Section 6.3.23 above, the following provision should be included.]

☐ If a warranty reserve has been established pursuant to Section 6.3.23 above, Owner shall at the time of Substantial Completion retain the agreed-upon amounts and establish an escrow account as contemplated by Section 6.3.24 above.

7.3 Final Payment. Design-Builder shall submit its Final Application for Payment to Owner in accordance with Section 6.7 of the General Conditions of Contract. Owner shall make payment on Design-Builder's properly submitted and accurate Final Application for Payment (less any amount the parties may have agreed to set aside for warranty work) within ten (10) days after Owner's receipt of the Final Application for Payment, provided that Design-Builder has satisfied the requirements for final payment set forth in Section 6.7.2 of the General Conditions of Contract.

7.4 Interest. Payments due and unpaid by Owner to Design-Builder, whether progress payments or final payment, shall bear interest commencing five (5) days after payment is due at the rate of _____ percent (_____ %) per month until paid.

7.5 Record Keeping and Finance Controls. Design-Builder acknowledges that this Agreement is to be administered on an "open book" arrangement relative to Costs of the Work. Design-Builder shall keep full and detailed accounts and exercise such controls as may be necessary for proper financial management, using accounting and control systems in accordance with generally accepted accounting principles and as may be provided in the Contract Documents. During the performance of the Work and for a period of three (3) years after Final Payment, Owner and Owner's accountants shall be afforded access to, and the right to audit from time-to-time, upon reasonable notice, Design-Builder's records, books, correspondence, receipts, subcontracts, purchase orders, vouchers, memoranda and other data relating to the Work, all of which Design-Builder shall preserve for a period of three (3) years after Final Payment. Such inspection shall take place at Design-Builder's offices during normal business hours unless another location and time is agreed to by the parties. Any multipliers or markups agreed to by the Owner and Design-Builder as part of this Agreement are only subject to audit to confirm that such multiplier or markup has been charged in accordance with this Agreement, with the composition of such multiplier or markup not being subject to audit.

Article 8

Termination for Convenience

8.1 Upon ten (10) days' written notice to Design-Builder, Owner may, for its convenience and without cause, elect to terminate this Agreement. In such event, Owner shall pay Design-Builder for the following:

8.1.1 All Work executed and for proven loss, cost or expense in connection with the Work;

8.1.2 The reasonable costs and expenses attributable to such termination, including demobilization costs and amounts due in settlement of terminated contracts with Subcontractors and Design Consultants; and

8.1.3 ***[Choose one of the following:]***

☐ The fair and reasonable sums for overhead and profit on the sum of items 8.1.1 and 8.1.2 above.

or

☐ Overhead and profit in the amount of _____ percent (_____%)
on the sum of items 8.1.1 and 8.1.2 above.

8.2 In addition to the amounts set forth in Section 8.1 above, Design-Builder shall be entitled to receive one of the following as applicable:

8.2.1 If Owner terminates this Agreement prior to commencement of construction, Design-Builder shall be paid _____ percent (_____%) of the remaining balance of the Contract Price, provided, however, that if a GMP has not been established, the above percentage shall be applied to the remaining balance of the most recent estimated Contract Price.

8.2.2 If Owner terminates this Agreement after commencement of construction, Design-Builder shall be paid _____ percent (_____%) of the remaining balance of the Contract Price, provided, however, that if a GMP has not been established, the above percentage shall be applied to the remaining balance of the most recent estimated Contract Price.

8.3 If Owner terminates this Agreement pursuant to Section 8.1 above and proceeds to design and construct the Project through its employees, agents or third parties, Owner's rights to use the Work Product shall be as set forth in Section 4.3 hereof. Such rights may not be transferred or assigned to others without Design-Builder's express written consent and such third parties' agreement to the terms of Article 4.

[The following Article 9 should only be used if Owner and Design-Builder agree to establish their respective representatives at the time the Agreement is executed rather than during the performance of the Project.]

Article 9

Representatives of the Parties

9.1 Owner's Representatives.

9.1.1 Owner designates the individual listed below as its Senior Representative ("Owner Senior Representative"), which individual has the authority and responsibility for avoiding and resolving disputes under Section 10.2.3 of the General Conditions of Contract: *(Identify individual's name, title, address and telephone numbers)*

9.1.2 Owner designates the individual listed below as its Owner's Representative, which individual has the authority and responsibility set forth in Section 3.4 of the General Conditions of Contract: *(Identify individual's name, title, address and telephone numbers)*

9.2 Design-Builder's Representatives.

9.2.1 Design-Builder designates the individual listed below as its Senior Representative ("Design-Builder's Senior Representative"), which individual has the authority and responsibility for avoiding and resolving disputes under Section 10.2.3 of the General Conditions of Contract: *(Identify individual's name, title, address and telephone numbers)*

9.2.2 Design-Builder designates the individual listed below as its Design-Builder's Representative, which individual has the authority and responsibility set forth in Section 2.1.1 of the General Conditions of Contract: *(Identify individual's name, title, address and telephone numbers)*

Article 10

Bonds and Insurance

10.1 Insurance. Design-Builder and Owner shall procure the insurance coverages set forth in the Insurance Exhibit attached hereto and in accordance with Article 5 of the General Conditions of Contract.

10.2 Bonds and Other Performance Security. Design-Builder shall provide the following performance bond and labor and material payment bond or other performance security:

Performance Bond.

[Check one box only. If no box is checked, then no bond is required.]

☐ Required ☐ Not Required

Payment Bond.

[Check one box only. If no box is checked, then no bond is required.]

☐ Required ☐ Not Required

Other Performance Security.

[Check one box only. If no box is checked, then no other performance security is required. If the "Required" box is checked, identify below the specific performance security that is being required and all salient commercial terms associated with that security.]

☐ Required ☐ Not Required

Article 11

Other Provisions

11.1 Other provisions, if any, are as follows: *(Insert any additional provisions)*

[Section 2.3.1 of the General Conditions of Contract sets forth a traditional negligence standard as it relates to the Design-Builder's performance of design professional services. If the Basis of Design Documents identify specific performance standards that can be objectively measured, the parties, by including the following language, agree that the Design-Builder is obligated to achieve such standards.]

☐ Notwithstanding Section 2.3.1 of the General Conditions of Contract, if the parties agree upon specific performance standards in the Basis of Design Documents, the design professional services shall be performed to achieve such standards.

[In lieu of Sections 10.3.1 through 10.3.3 of the General Conditions of Contract, the Parties may want to delete such sections and include the following alternative dispute resolution clause.]

☐ Any claims, disputes, or controversies between the parties arising out of or related to the Agreement, or the breach thereof, which have not been resolved in accordance with the procedures set forth in Section 10.2 of the General Conditions of Contract shall be resolved in a court of competent jurisdiction in the state in which the Project is located.

In executing this Agreement, Owner and Design-Builder each individually represents that it has the necessary financial resources to fulfill its obligations under this Agreement, and each has the necessary corporate approvals to execute this Agreement, and perform the services described herein.

OWNER:

DESIGN-BUILDER:

(Name of Owner)

(Name of Design-Builder)

(Signature)

(Signature)

(Printed Name)

(Printed Name)

(Title)

(Title)

Date: _____

Date: _____

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Elevate Quantum Cleanroom RFP Information Session

8 JANUARY 2025

Outline

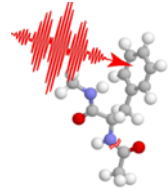
- 1) Introduction
- 2) Cleanroom RFP Overview
- 3) Administrative Details
- 4) Questions/Feedback

Elevate Quantum Tech Hub

- ▶ Quantum technologies will shape the 21st century



Quantum Computing



Chemical/Drug
Discovery



Defense



Secure Communications

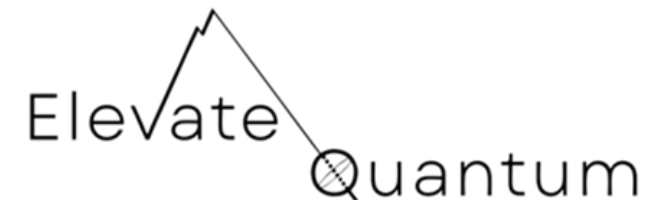
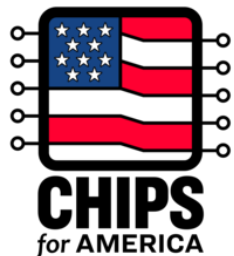


Remote Sensing

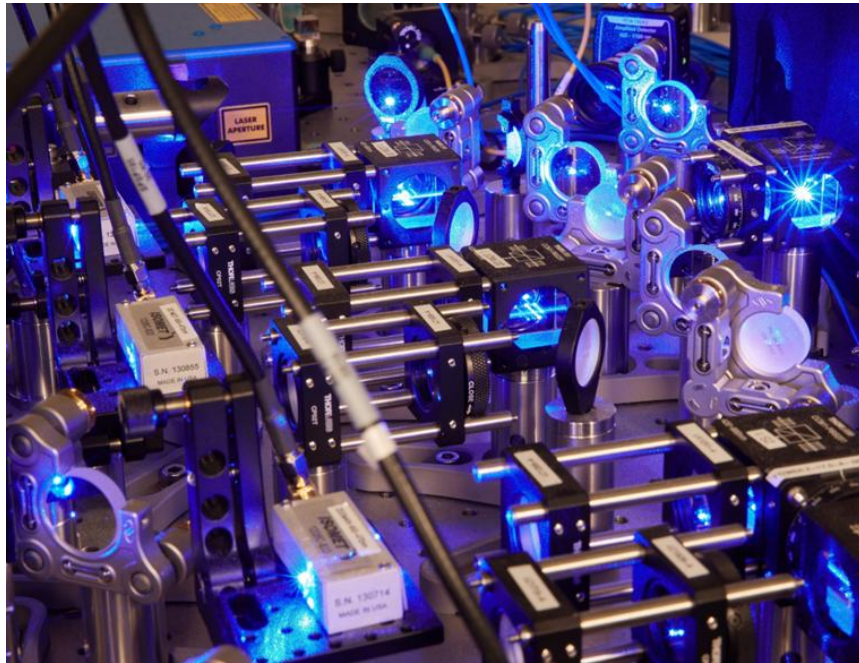


Disease Diagnosis and
Treatment

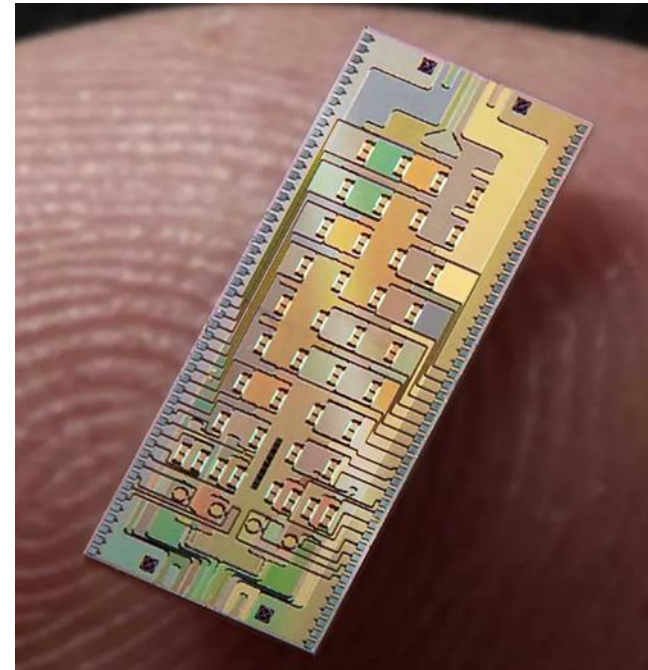
- ▶ Colorado is the world leader in quantum!
- ▶ EDA "Tech Hub" designation will catalyze innovation and create jobs



Quantum Needs Integrated Photonics



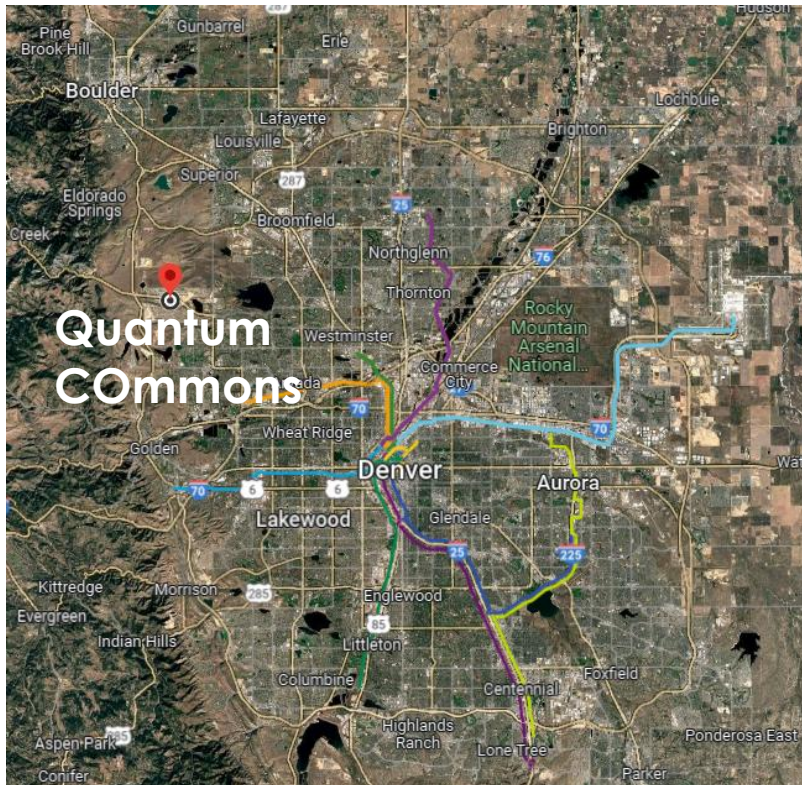
Chip
Integration



A nanofabrication cleanroom is the critical piece of infrastructure!

The Quantum COMmons

- New innovation campus for quantum technology R&D



Our Team

Elevate Quantum

- Non-profit head of Tech Hub
- Administrative and contracting lead
- Purchaser of the cleanroom equipment



Colorado School of Mines

- Owner of the Quantum COMmons site
- In charge of physical structures on the campus (including the fab)
- Overseeing design and construction of the fab building



Octave Photonics

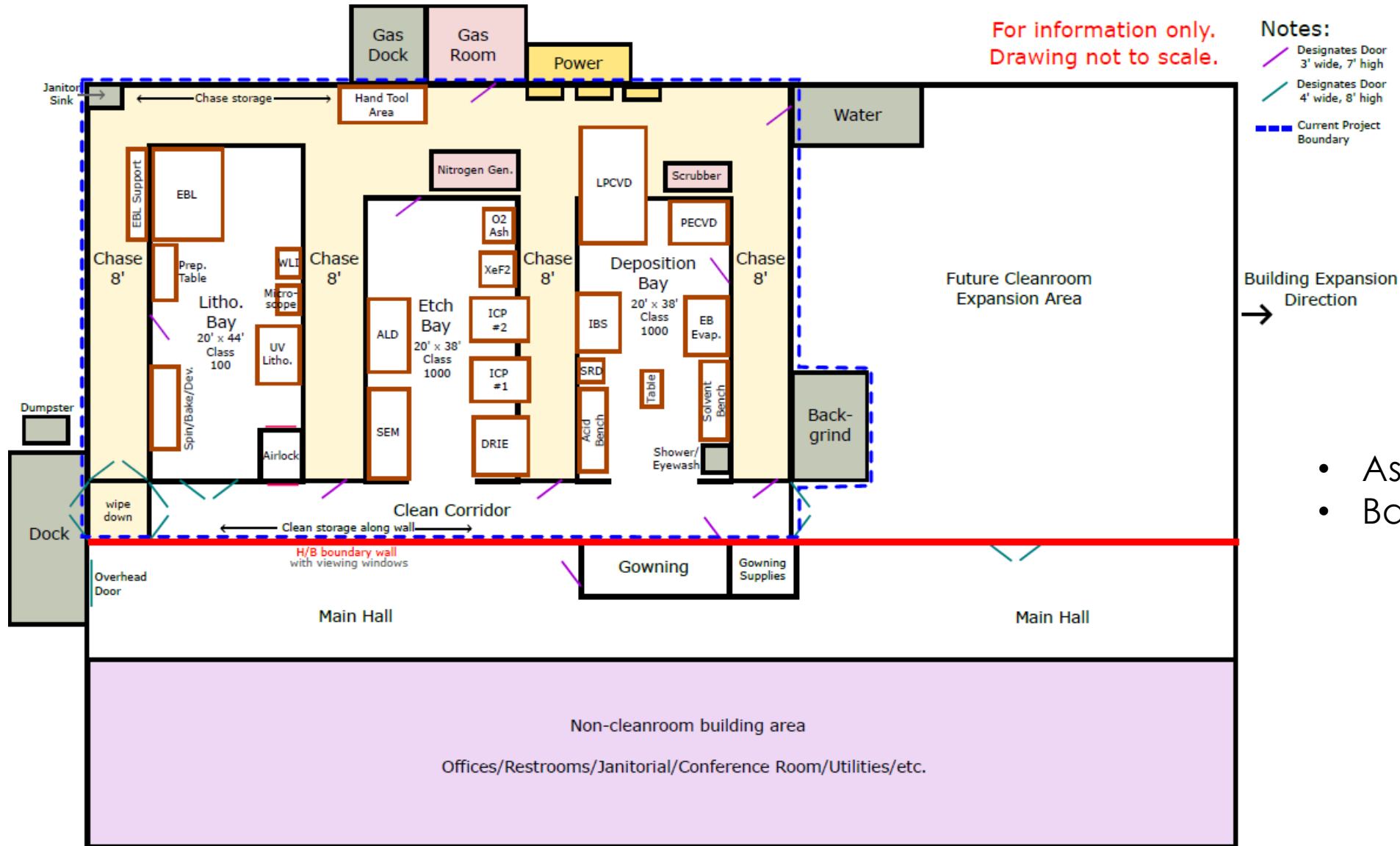
- Manufacturer of photonics devices for quantum
- Technical lead for cleanroom infrastructure and process tooling
- Will operate the cleanroom and run fab service upon completion



The Cleanroom RFP

- ▶ Dedicated to rapid-turn production of photonic chips
- ▶ Roughly 5k sqft footprint
- ▶ Class 100/1000 spaces
- ▶ Plan for future facility expansion
- ▶ To be installed within new building on QCO campus currently being designed
- ▶ **Tight coordination with building and cleanroom design critical to success**

Concept layout



- Assume 5k sqft footprint
- Bay and Chase layout

Project Scope

- ▶ Grant funding requires separate allocations for the cleanroom, building, tooling
- ▶ Process tools will purchased and installed separately
- ▶ In general, things inside the cleanroom walls are within scope for this RFP and things outside are part of the building.
- ▶ However, this is not simply a box inside of a box given all the critical touchpoints
 - ▶ Many of these are listed in RFP Section 3.8

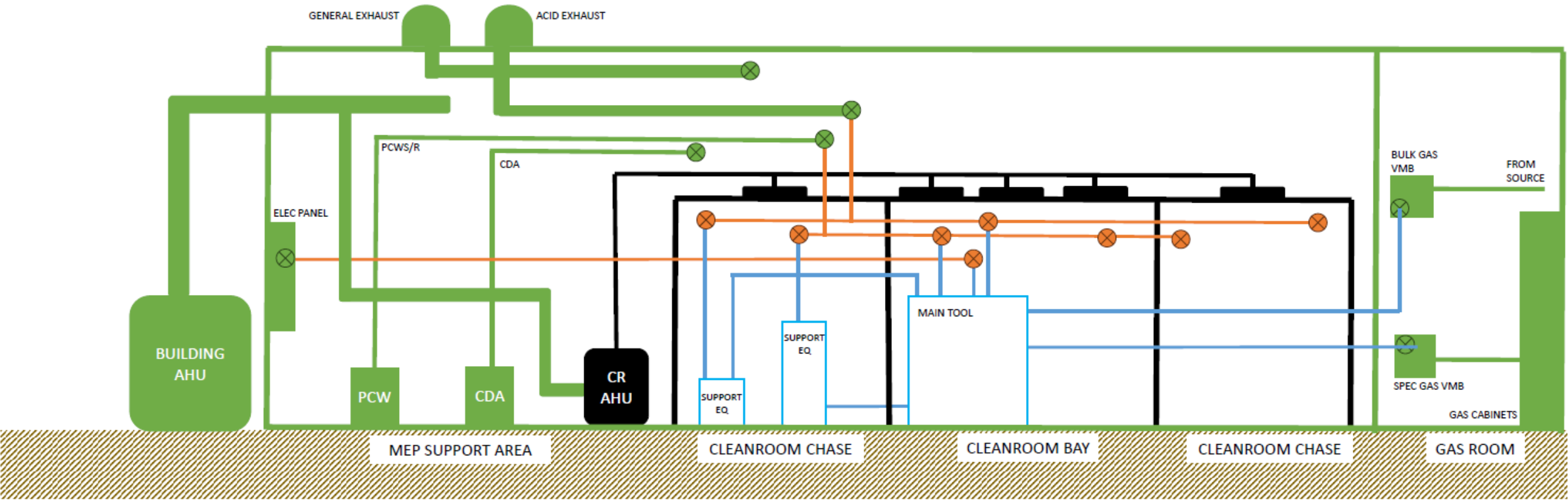


CSM QCO Scope Breakdown

CONCEPT DIAGRAM – does not represent entire scope of project

- "BUILDING" – Core and shell structure, utility sources and distribution to outside of CR
- "CLEANROOM" – Walls, ceiling, MEP required for cleanroom envelope
- "CLEANROOM UTILITIES" – Distribution from Building POC to inside cleanroom
- "TOOL INSTALL" – Rigging, placement and tool MEP connection to utility POC

Indirect costs for each scope such as design and certification should be included in each color.



Preliminary Tool/Utility Matrix

- ▶ Captures anticipated utility connections and requirements by tool
 - ▶ Cells may have color coding according to legend
 - ▶ Some items may not be installed on Day 1
- ▶ Special considerations needed for certain processes
 - ▶ Toxic/Pyrophoric gases (e.g. silane, dichlorosilane, ammonia)
 - ▶ Acid waste (HF, sulphuric acid)

Tool ID	Location	Tool Name	Electrical Voltage	Electrical Power	Gas	Other	Notes
1	Reaction	Reactor	Single Phase 208V	1000W	None	None	Standard reactor
2	Reaction	Reactor	Single Phase 208V	1000W	None	None	Standard reactor
3	Reaction	Reactor	Single Phase 208V	1000W	None	None	Standard reactor
4	Reaction	Reactor	Single Phase 208V	1000W	None	None	Standard reactor
5	Reaction	Reactor	Single Phase 208V	1000W	None	None	Standard reactor
6	Reaction	Reactor	Single Phase 208V	1000W	None	None	Standard reactor
7	Reaction	Reactor	Single Phase 208V	1000W	None	None	Standard reactor
8	Reaction	Reactor	Single Phase 208V	1000W	None	None	Standard reactor
9	Reaction	Reactor	Single Phase 208V	1000W	None	None	Standard reactor
10	Reaction	Reactor	Single Phase 208V	1000W	None	None	Standard reactor
11	Reaction	Reactor	Single Phase 208V	1000W	None	None	Standard reactor
12	Reaction	Reactor	Single Phase 208V	1000W	None	None	Standard reactor
13	Reaction	Reactor	Single Phase 208V	1000W	None	None	Standard reactor
14	Reaction	Reactor	Single Phase 208V	1000W	None	None	Standard reactor
15	Reaction	Reactor	Single Phase 208V	1000W	None	None	Standard reactor
16	Reaction	Reactor	Single Phase 208V	1000W	None	None	Standard reactor
17	Reaction	Reactor	Single Phase 208V	1000W	None	None	Standard reactor
18	Reaction	Reactor	Single Phase 208V	1000W	None	None	Standard reactor
19	Reaction	Reactor	Single Phase 208V	1000W	None	None	Standard reactor
20	Reaction	Reactor	Single Phase 208V	1000W	None	None	Standard reactor
21	Reaction	Reactor	Single Phase 208V	1000W	None	None	Standard reactor
22	Reaction	Reactor	Single Phase 208V	1000W	None	None	Standard reactor
23	Reaction	Reactor	Single Phase 208V	1000W	None	None	Standard reactor
24	Reaction	Reactor	Single Phase 208V	1000W	None	None	Standard reactor
25	Reaction	Reactor	Single Phase 208V	1000W	None	None	Standard reactor
26	Reaction	Reactor	Single Phase 208V	1000W	None	None	Standard reactor
27	Reaction	Reactor	Single Phase 208V	1000W	None	None	Standard reactor
28	Reaction	Reactor	Single Phase 208V	1000W	None	None	Standard reactor
29	Reaction	Reactor	Single Phase 208V	1000W	None	None	Standard reactor
30	Reaction	Reactor	Single Phase 208V	1000W	None	None	Standard reactor

See p. 28 in RFP

We need a great partner!

- ▶ Teaming is encouraged when capabilities cannot be provided by a single organization
- ▶ Evaluation based on combination of factors
 - ▶ Technical plan
 - ▶ Experience
 - ▶ Team/Communication
 - ▶ Proposed Schedule
 - ▶ Cost
- ▶ Help us understand why your team is the right fit

Budget

- ▶ Total budget for cleanroom: \$2M
- ▶ What can we get within this budget?
- ▶ If the specs can't be met at this level, please price additional components separately.
- ▶ Granularity in budget is appreciated when possible

Schedule

Action	Due By (5pm MT)
RFP Document Release	12/20/2024
Pre-Submission Information Session	1/08/2024
Submit Clarification Questions	1/14/2025
Respond to Clarification Questions	1/17/2025
Submit Proposal	1/24/2025
Notify Selection of Finalists	1/28/2025
Presentations and Oral Interviews with Finalists	2/3 – 2/5/2025
Selection Announced	2/7/2025

Next Tuesday

Next Friday

← Top 3 Teams

Targeting cleanroom commissioning and tool installation early Spring 2026

Draft Contract

- ▶ Draft contract from EQ in progress
 - ▶ Will include anticipated terms, including flow-downs from the federal award
- ▶ Will share no later than Monday 1/13

RFP Errata

- ▶ Paragraphs 3.9 – 3.19 should have an additional indent. These are a list of important touchpoints between the building and cleanroom and not things that need to be engineered at the time of bid submission.
- ▶ Section 4.3 paragraph c should reference Section 3.8 instead of II.8
- ▶ Table 6.6.3: The “Tool Hookup” row should be removed. C/R vendor not expected to make final connection to process tooling within this scope.
- ▶ Please inform us of any other errors, inconsistencies, or missing details!

Questions and Feedback

- ▶ Technical questions should be submitted via email to rfp@elevatequantum.org
- ▶ Responses will be collected and published to EQ website by 17 Jan 2025.
- ▶ Any RFP amendments will be published to EQ site, and sent out to this group