Design Criteria:
Experimental Floor/Access Corridor/Ring Mezzanine:

Size:
- Room: 2559' (780m) (L) x 56'-0"(W) x TBD(H).
- Doors: exterior man access doors and overhead rolling doors

Structural Data:
- Floor loading: 250 psf, 12" to 18" thick
- Vibration Limits: VC-E

Finishes:
- Walls: Gypsum Bd.
- Floor: Concrete
- Ceiling: Exposed Steel

Environmental:
- Acoustical treatment:
  - Design Noise level: NC 60-65 Sound absorbent material in rafters.
  - Temperature (max/min): 75 F ± 5 degree F
  - Humidity (max/min): 50% (± 10%)
  - Room Pressure: no requirement
  - Air changes/Hr: TBD

Special Requirements:
- EMI/ELF Magnetic Field shielding: Sensitivity to AC fields. Local shielding if required

Electrical:
- Footcandles: 50 fc at task
- Light Type: Fluorescent or metal halide
- 120V Convenience outlets
- 208V/220V (1-3 phase): yes
- Clean power: No power conditioning required
- Grounding: special
- 75 – 95 kVA per sector, dedicated panel(s) per beamline
- 3000 – 3500 kW total demand
- Emergency Power: cold boxes, critical systems
- UPS: central UPS for control room. Other applications will be user provided

Telecommunication and special systems:
- Voice connection: Y
- Data connection: Y
- Card access control: Y

Specialty Gases:
- Nitrogen Y
- Liquid Nitrogen Y

Process Piping:
- DI Water N
- Compressed Air Y
Design Criteria: 
Ring Tunnel:

Size:
• Room: 2559’ (780m) (L) x 9’-8” (W) x 9’-0” (H).
• Doors: exterior man access doors and overhead rolling doors (Approx. 500’ O.C.)

Structural Data:
• Floor loading: 250 psf, 12” to 18” thick
• Vibration Limits: 4 to 50 hz25 nm.

Finishes:
• Walls: Concrete
• Floor: Concrete
• Ceiling: Concrete @ 9’-0”(2.75m)

Environmental:
Acoustical treatment:
• Design Noise level: NA
• Temperature (max/min): 78 F ± 0.18 degree F (.1 degree C)
• Humidity (max/min): 50% ± 10%
• Room Pressure: no requirement
• Air changes/Hr: 6 per hour

Special Requirements:
• EMI/ELF Magnetic Field shielding: Local shielding if required

Electrical:
• Footcandles: 15 - 30 fc
• Light Type: Fluorescent impact resistant
• 120V Convenience outlets
• 208V /220V (1-3 phase): yes
• Clean power: No power conditioning required
• Grounding: special
• 4000 – 4500 kW total demand
• Emergency Power: compressors
• UPS: user provided
• Radiation: minimize penetrations, provide off-sets within the penetration

Telecommunication and special systems:
• Voice connection: Y
• Data connection: Y
• Card access control: Y

Sprinklers:
BNL normal design is wet design.

Process Piping:
• DI Water N
• Clean Compressed Air TBD

Specialty Gases:
• Nitrogen TBD
• Liquid Nitrogen maybe
Design Criteria:
Chemical Laboratory:

Size:
- Room: 20’ (L) x 24’ (W) x 10’-0” to 12’-0”(H).
- Doors: (1) double door to the access corridor and (1) single door to LOB

Structural Data:
- Floor loading: 125 psf, 6” thick
- Vibration Limits: 4 to 50 hz, 25nm

Finishes:
- Walls: Gypsum Board
- Floor: Gypsum Board
- Ceiling: Acoustical Ceiling Grid

Environmental:
- Acoustical treatment: NC 45-50
- Design Noise level: NC 45-50
- Temperature (max/min): 75 F ± 5 degree F
- Humidity (max/min): 50% ± 10%
- Room Pressure: negative
- Air changes/Hr: 10 per hour

Special Requirements:
- EMI/ELF Magnetic Field shielding: Local shielding if required

Electrical:
- Footcandles: 50 - 75 fc
- Light Type: Fluorescent
- 120V Convenience outlets
- 208V /220V (1-3 phase): yes
- Clean power: No power conditioning required
- Grounding: single point ground
- Emergency Power: none
- UPS: user provided

Telecommunication and special systems:
- Voice connection: Y
- Data connection: Y
- Card access control: Y

Sprinklers:
- BNL normal design is wet design.

Process Piping:
- DI Water Y
- Clean Compressed Air Y

Specialty Gases:
- Nitrogen Y
- Liquid Nitrogen maybe

Other:
- HEPA Filtered Fume Hood Required
- Typical Laboratory Cabinetry Required
- Sink Required
Design Criteria:  
Biology Laboratory:

Size:
- Room: 20’ (L) x 24’ (W) x 10’-0” to 12’-0”(H).
- Doors: (1) double door to the access corridor and (1) single door to LOB

Structural Data:
- Floor loading: 125 psf, 6” thick
- Vibration Limits: 4 to 50 hz, 25nm

Finishes:
- Walls: Gypsum Board
- Floor: Gypsum Board
- Ceiling: Acoustical Ceiling Grid

Environmental:
Acoustical treatment:
- Design Noise level: NC 45-50
- Temperature (max/min): 75 °F ± 5 degree F
- Humidity (max/min): 50% ± 10%
- Room Pressure: negative
- Air changes/Hr: 10 per hour

Special Requirements:
- EMI/ELF Magnetic Field shielding: Local shielding if required

Electrical:
- Footcandles: 50 - 75 fc
- Light Type: Fluorescent
- 120V Convenience outlets
- 208V /220V (1-3 phase): yes
- Clean power: No power conditioning required
- Grounding: single point ground
- Emergency Power: none
- UPS: user provided

Telecommunication and special systems:
- Voice connection: Y
- Data connection: Y
- Card access control: Y

Sprinklers:
BNL normal design is wet design.

Process Piping:
- DI Water: Y
- Clean Compressed Air: Y

Specialty Gases:
- Nitrogen: Y
- Liquid Nitrogen: maybe

Other:
- HEPA Filtered Fume Hood Required
- Typical Laboratory Cabinetry Required
- Sink Required
Design Criteria:  
Electronics Laboratory:

Size:
- Room: 20’ (L) x 24’ (W) x 10’-0” to 12’-0”(H).
- Doors: (1) double door to the access corridor and (1) single door to LOB

Structural Data:
- Floor loading: 125 psf, 6” thick
- Vibration Limits: 4 to 50 hz, 25nm

Finishes:
- Walls: Gypsum Board
- Floor: Gypsum Board
- Ceiling: Acoustical Ceiling Grid

Environmental:
- Acoustical treatment:
  - Design Noise level: NC 45-50
  - Temperature (max/min): 75 F ± 5 degree F
  - Humidity (max/min): 50% ± 10%
  - Room Pressure: no requirement
  - Air changes/Hr: 10 per hour

Special Requirements:
- EMI/ELF Magnetic Field shielding: Local shielding if required

Electrical:
- Footcandles: 50 - 75 fc
- Light Type: Fluorescent
- 120V Convenience outlets
- 208V /220V (1-3 phase): yes
- Clean power: No power conditioning required
- Grounding: single point ground

Telecommunication and special systems:
- Voice connection: Y
- Data connection: Y
- Card access control: Y

Sprinklers:
- BNL normal design is wet design.

Process Piping:
- DI Water Y
- Clean Compressed Air Y

Specialty Gases:
- Nitrogen Y
- Liquid Nitrogen maybe

Other:
- No Fume Hood Required
- Typical Laboratory Cabinetry Required
Design Criteria:  
Assembly Laboratory:

Size:
- Room: 20’ (L) x 24’ (W) x 10’-0” to 12’-0”(H).
- Doors: (1) double door to the access corridor and (1) single door to LOB

Structural Data:
- Floor loading: 125 psf, 6" thick
- Vibration Limits: 4 to 50 hz, 20 to 30nm, 20nm for water in pipes.

Finishes:
- Walls: Gypsum Board
- Floor: Gypsum Board
- Ceiling: Acoustical Ceiling Grid

Environmental:
- Acoustical treatment:
  - Design Noise level: NC 45-50
  - Temperature (max/min): 75 F ± 5 degree F
  - Humidity (max/min): 50% ± 10%
  - Room Pressure: no requirement
  - Air changes/Hr: 10 per hour

Special Requirements:
- EMI/ELF Magnetic Field shielding: Local shielding if required

Electrical:
- Footcandles: 50 - 75 fc
- Light Type: Fluorescent
- 120V Convenience outlets
- 208V /220V (1-3 phase): yes
- Clean power: No power conditioning required
- Grounding: single point ground
- Emergency Power: none
- UPS: user provided

Telecommunication and special systems:
- Voice connection: Y
- Data connection: Y
- Card access control: Y

Sprinklers:
- BNL normal design is wet design.

Process Piping:
- DI Water  Y
- Clean Compressed Air  Y

Specialty Gases:
- Nitrogen  Y
- Liquid Nitrogen  maybe

Other:
- No Fume Hood Required
- Typical Laboratory Cabinetry Required
Design Criteria:
Sample Characterization Laboratory:

Size:
- Room: 20’ (L) x 24’ (W) x 10’-0” to 12’-0”(H).
- Doors: (1) double door to the access corridor and (1) single door to LOB.

Structural Data:
- Floor loading: 125 psf, 6” thick
- Vibration Limits: 4 to 50 hz, 25nm

Finishes:
- Walls: Gypsum Board
- Floor: Gypsum Board
- Ceiling: Acoustical Ceiling Grid

Environmental:
Acoustical treatment:
- Design Noise level: NC 45-50
- Temperature (max/min): 75 F ± 5 degree F
- Humidity (max/min): 50% ± 10%
- Room Pressure: no requirement
- Air changes/Hr: 10 per hour

Special Requirements:
- EMI/ELF Magnetic Field shielding: Local shielding if required

Electrical:
- Footcandles: 50 - 75 fc
- Light Type: Fluorescent
- 120V Convenience outlets
- 208V /220V (1-3 phase): yes
- Clean power: No power conditioning required
- Grounding: single point ground
- Emergency Power: none
- UPS: user provided

Telecommunication and special systems:
- Voice connection: Y
- Data connection: Y
- Card access control: Y

Sprinklers:
BNL normal design is wet design.

Process Piping:
- DI Water Y
- Clean Compressed Air Y

Specialty Gases:
- Nitrogen Y
- Liquid Nitrogen maybe

Other:
- No Fume Hood Required
- Typical Laboratory Cabinetry Required
Design Criteria:
Metrology Laboratory:

Size:
- Room: 20’ (L) x 24’ (W) x 10’-0” to 12’-0”(H).
- Doors: (1) double door to the access corridor and (1) single door to LOB

Structural Data:
- Floor loading: 125 psf, 6”thick
- Vibration Limits: 4 to 50 hz, 20 to 30nm, 20nm for water in pipes.

Finishes:
- Walls: Gypsum Board
- Floor: Gypsum Board
- Ceiling: Acoustical Ceiling Grid

Environmental:
  Acoustical treatment:
  - Design Noise level: NC 45-50
  - Temperature (max/min): 75°F ± 5 degree F
  - Humidity (max/min): 50% ± 10%
  - Room Pressure: no requirement
  - Air changes/Hr: 1 to 2 per hour

Special Requirements:
- EMI/ELF Magnetic Field shielding: Local shielding if required

Electrical:
- Footcandles: 50 - 75 fc
- Light Type: Fluorescent
- 120V Convenience outlets
- 208V/220V (1-3 phase): yes
- Clean power: No power conditioning required
- Grounding: single point ground

- Emergency Power: none
- UPS: user provided

Telecommunication and special systems: Sprinklers:
- Voice connection: Y
- Data connection: Y
- Card access control: Y
- BNL normal design is wet design.

Process Piping:
- DI Water Y
- Clean Compressed Air Y

Specialty Gases:
- Nitrogen Y
- Liquid Nitrogen maybe

Other:
- No Fume Hood Required
- Typical Laboratory Cabinetry Required
Design Criteria:
X-Ray Source/Crystal Polishing Laboratory:

Size:
- Room: 20’ (L) x 24’ (W) x 10'-0” to 12'-0”(H).
- Doors: (1) double door to the access corridor and (1) single door to LOB

Structural Data:
- Floor loading: 125 psf, 6” thick
- Vibration Limits: 4 to 50 hz, 25nm

Finishes:
- Walls: Gypsum Board
- Floor: Gypsum Board
- Ceiling: Acoustical Ceiling Grid

Environmental:
Acoustical treatment:
- Design Noise level: NC 45-50
- Temperature (max/min): 75 °F ± 5 degree F
- Humidity (max/min): 50% ± 10%
- Room Pressure: no requirement
- Air changes/Hr: 10 per hour

Special Requirements:
- EMI/ELF Magnetic Field shielding: Local shielding if required

Electrical:
- Footcandles: 50 - 75 fc
- Light Type: Fluorescent
- 120V Convenience outlets
- 208V /220V (1-3 phase): yes
- Clean power: No power conditioning required
- Grounding: single point ground
- Emergency Power: none
- UPS: user provided

Telecommunication and special systems:
- Voice connection: Y
- Data connection: Y
- Card access control: Y

Sprinklers:
- BNL normal design is wet design.

Process Piping:
- DI Water Y
- Clean Compressed Air Y

Specialty Gases:
- Nitrogen Y
- Liquid Nitrogen maybe

Other:
- Fume Hood Required
- Typical Laboratory Cabinetry Required
Design Criteria:
Ultra High Vacuum Laboratory:

Size:
- Room: 20’ (L) x 24’ (W) x 10’-0” to 12’-0”(H).
- Doors: (1) double door to the access corridor and (1) single door to LOB

Structural Data:
- Floor loading: 125 psf, 6” thick
- Vibration Limits: 4 to 50 hz, 25nm

Finishes:
- Walls: Gypsum Board
- Floor: Gypsum Board
- Ceiling: Acoustical Ceiling Grid

Environmental:
- Acoustical treatment:
  - Design Noise level: NC 45-50
  - Temperature (max/min): 75 F ±5 degree F
  - Humidity (max/min): 50% ± 10%
  - Room Pressure: no requirement
  - Air changes/Hr: 10 per hour

Special Requirements:
- EMI/ELF Magnetic Field shielding: Local shielding if required

Electrical:
- Footcandles: 50 - 75 fc
- Light Type: Fluorescent
- 120V Convenience outlets
- 208V /220V (1-3 phase): yes
- Clean power: No power conditioning required
- Grounding: single point ground
- Emergency Power: none
- UPS: user provided

Telecommunication and special systems:
- Voice connection: Y
- Data connection: Y
- Card access control: Y

Sprinklers:
- BNL normal design is wet design.

Process Piping:
- DI Water Y
- Clean Compressed Air Y

Specialty Gases:
- Nitrogen Y
- Liquid Nitrogen maybe

Other:
- Fume Hood Required
- Typical Laboratory Cabinetry Required