

COLUMBIA UNIVERSITY

Laboratory Commissioning Check-List

Part One

FDNY Laboratory Permit Documents² (documents required for FDNY permit; must be submitted in aggregate)

Completion Date and Initials	Laboratory Permit	Document Source	Project Manager Task	Comments
	Architectural Floor Plans: Copy of DOB approved floor plans, with DOB barcode and stamp* indicating fire rating of walls, partitions and fire doors. Square footage of lab clearly stated on plan. Any existing wall that borders lab, hourly fire rating to be shown on plan. Ensure floor configuration matches approved plans. (walls, etc.)	Architect / Expeditor	Collect the required A/MEP/FP set.	Prior to start of construction.
	Fire Protection Plans: Copy of DOB approved and stamped* fire suppression system (i.e., sprinkler) diagram.	Engineer / Expeditor		
	Mechanical Plans: Copy of DOB approved with barcode and stamp indicating fume hood duct systems. Also show on plan, or provide supplemental stamped affidavit, that exhaust ducts from the fume hoods have been ducted to a point outside of the building. Manifold closets: Submit affidavit from a NYS licensed professional stating that closet is provided with approved continuous ventilation ACH that exhausts to the outdoors and complies with the NYC Mechanical Code. Place label inside closet with rooms served by manifold.	Engineer / Expeditor		
	Basis of Design Report: Provide a copy of the report indicating design air changes per hour. Per room (min. 6 ACH)	Architect / Engineer	Collect the required air change information.	Schematic Design approval
	ASHRAE 110: Stamped test report for all chemical fume hoods.*	Commissioning (Cx)	1. Design team includes test requirement in project specifications. 2. PM coordinates test with Contractor. 3. Contractor issues report to Cx 4. Cx provides a copy to PM	Project Closeout
	Testing and Balancing Report: Stamped copy of room air balance report showing the calculated Air Changes per hour, per room (min. 6 ACH)*	Cx		

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	Fume hood face velocity certification: after successful ASHRAE 110. ⁶	EH&S	PM coordinates with EH&S post ASHRAE 110.	Project Closeout
	Compressed Gases: Evidence from manufacturer that manifold headers for compressed cylinders are capable of withstanding 3000 psig (e.g., manufacturer’s specifications or product literature).	Contractor	Collects manifold design criteria	Construction Submittal Phase
	Compressed Gas Distribution: Notarized affidavit/statement from NYC licensed plumber that piping from manifold header has been tested at 150% (1.5 times) the maximum allowable working (or design) pressure (MAWP) but no less than 100 psi. No drop in pressure for 30 minutes. Must state building and room numbers and MAWP on affidavit. Provide copy of approved plan showing manifold and piping location on the floor including valves, safety devices, etc.	Cx	1. Design team includes test requirement in project specifications. 2. PM coordinates test with Contractor. 3. Contractor issues report to Cx. 4. Cx provides a copy to PM.	Project Closeout
	Blackout and Laser Curtains- (Inherently Flame Resistant): (if installed). Curtains require documentation or affidavit from the manufacturer stating such curtains are Inherently Flame Resistant as per NFPA 701. These curtains must also be tested, and documentation issued, by a FDNY Certificate of Fitness holder (C-15) as to their flame resistance. Notarized Affidavit must also state building and room numbers where curtains are installed.	Curtain Vendor (Columbia University preferred vendor is G.M.I. Inc.)	Collect document	Project Closeout
Completion Date and Initials	Chemical/Waste Storage Room Permit (provided in addition to Laboratory Permit Documents)^{2,*}	Document Source	Project Manager Task	Timeline
	Fire Alarm Drawings: Copy of DOB and FDNY Tech Management barcode approved plans with copy of FDNY Tech. Mgmt. Approval Letter. Note: Chemical Storage Room plans must be submitted in triplicate, along with fee and TM-1 & PW-1 application (link below) to FDNY Tech Management prior to FDNY Inspection. http://www.nyc.gov/html/fdny/pdf/fire_prevention/otmb_tm_1.pdf	Expeditor	Collect drawings and letter.	Prior to start of construction.
	Electrical Approval: Notarized affidavit/statement from NYC licensed electrician on company letterhead that all electrical equipment has been installed in accordance with the NYC Electrical Code. Affidavit must include building and room number and statement “... were installed in compliance with 3RCNY 2706.01(C) (1) in accordance with NYC Electrical Code and complies with the requirements for Class 1, Group D, Division 2 locations.”	Expeditor	Collect letter	Project Closeout

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Part Two

Project Closeout Checklist

Completion Date and Initials	Plumbed Eyewash/Deluge Hose ¹	Document Source	Project Manager Task	Timeline
	All eyewash or deluge components tested and operational	PM / Cx	Design team includes test requirement in project specifications. PM coordinates test with Plumbing contractor. Commissioning witnesses test	Prior to occupancy
	Water pressure/temperature confirmed			
Overhead Emergency Shower ¹				
	Water pressure/temperature confirmed	PM / Cx	PM coordinates test with contractor Commissioning will engage Operations personnel on this task	Prior to occupancy
	Tested and dated on inspection tag (month, year, initials) after installation	PM / Cx	Design team is to include test requirement in project specifications. PM will coordinate first test with contractor - Commissioning will engage Operations personnel on this task	Prior to occupancy
Fire Safety				
	Penetrations are sealed around pipes, ducts and electrical conduits with approved materials and properly sleeved as applicable.	PM / Cx		Prior to occupancy
	Oxygen sensor for storage of over 60 US gallons of cryogenic gases or other oxygen depleting substances. ⁸	PM		Prior to occupancy
	Fire extinguisher mounted (10 lb. ABC), with current inspection tag	PM / Operations		Prior to occupancy
	Compressed Gas Cylinders restraints installed, as needed (e.g., inside cylinder closets) Cylinder closets labeled "COMPRESSED GAS"	PM		Prior to occupancy

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	All laboratory entrance doors have metal tag indicating fire rating, as required by code.	PM		Prior to occupancy
	All laboratory entrance doors with glass panels (e.g., Firelite) are stamped (embossed) with the fire rating of the glass. Doors must have self-closing hardware. Ensure room numbers posted and floor layout match approved plans.	PM		Prior to occupancy
Completion Date and Initials	Laboratory Signage - Perform walkthrough with PM and EH&S for all signage requirements.			Timeline
	No Smoking Signage (outside rooms or areas where hazardous materials are stored or used)	PM / EH&S	PM must purchase and supply the signs, as applicable	Project Closeout
	Laboratory Placard template (inclusive of FDNY language requirement ²) ("LABORATORY – POTENTIALLY HAZARDOUS SUBSTANCES" posted at each laboratory entrance door to lab from corridor, or from interior hallways of space into laboratory area)			
	Placard inserts with laboratory hazard pictograms and emergency contact information			
	Label Flammables, Acids, cabinets, Eyewash, Shower, No Flammables in Refrigerator, Compressed Gas etc.			
	Eyewash location/testing signage			
	Overhead emergency shower testing signage tag installed on or near shower with month/year tested indicated on tag.			
	Posting and signage - "Caution Class IIIB Laser" or "Danger Class IV Laser" for areas containing Class IIIB or IV lasers			
	Provide placard inserts with laboratory hazard pictograms and emergency contact information	EH&S		Post Occupancy
	Provide RAM "Sign of Signs" ³	EH&S		Prior to occupancy
	Entry survey completed by Radiation Safety personnel	EH&S		Prior to occupancy
	Hazardous waste, and recycling guide <u>and 5Ls</u> posted inside laboratories	EH&S		Prior to occupancy
	Non-Ionizing Radiation Safety Documents- MRI Unit			
	Shielding Evaluation upon installation - <i>Magnetic fields</i>	Contractor		Prior to occupancy
	Shielding Evaluation upon installation – <i>Radiofrequency</i>	Contractor		Prior to occupancy

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	Acoustic evaluation/vibration analysis upon installation	Contractor		Prior to occupancy
	Laser Safety Documents and Equipment¹¹			
	Interlocks installed and functional for Class IV lasers as necessary	EH&S w/installer confirmation		Prior to occupancy
	Chemical Dark Room¹⁰			
	Notify EH&S of wet chemistry dark room. EH&S to coordinate vendor installation of silver recovery unit.	Laboratory / PM		Prior to installation
	Provide laboratory with chemical dark room procedures and log	EH&S		At time of installation
	Provide a labeled scrap film container in chemical dark room or in appropriate area	Laboratory		At time of installation
	Additional Required Documents or Other			
	Biosafety Cabinet certification. Please visit http://EHS.columbia.edu/bsccert.html for a list of Columbia University approved vendors. ⁴	Laboratory / PM		For new cabinets, prior to occupancy. For relocated cabinets, prior to use.
	Ensure a labeled battery recycling container is accessible and available to the laboratory ⁷	EH&S		Prior to occupancy
	ATF Alcohol Storage Permit (if storing ethanol for laboratory distribution)	Occupant / Operator		Project Closeout
	EH&S Documents and Supplies			
	DOT Security Plan Updated ¹³	EH&S		Prior to occupancy
	Hazardous Waste Contingency Plan Updated ¹⁴	EH&S		Prior to occupancy
	EPA ID Number requested/revised (as needed) ¹⁴	EH&S		Prior to occupancy
	Radioactive Materials (RAM) License	EH&S		Prior to occupancy
	Radioactive Equipment Permit	EH&S		Prior to occupancy
	DEC Air Discharge Permit for RAM (if applicable)	EH&S		Prior to occupancy
	ChemTracker empty reagent collection containers	EH&S		Prior to occupancy
	Regulated Medical Waste containers (as needed) ⁵	PM / Operations		Prior to occupancy
	Spill kit present	Laboratory / EH&S		Prior to occupancy
	DEA Controlled Substances – Lockbox installed prior to occupation of laboratory. ⁹	Laboratory / PM		Laboratory/PM to agree on type and location of box. Box

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				to be procured by Laboratory or PM prior to installation. Consult EH&S prior to installation.
	Dry and liquid RAM waste storage containers, as appropriate	EH&S		Prior to occupancy

REFERENCES

1. Columbia University Guidelines for Laboratory Design - <http://www.EHS.columbia.edu/LabDesignGuideline%28v3%20Dec%202011%29.pdf>
2. New York City Fire Code - http://www.nyc.gov/html/fdny/html/firecode/table_of_contents_2014.shtml
3. Radiation Safety Manual - <http://EHS.columbia.edu/RadiationSafetyManual.pdf>
4. Biological Safety Cabinet Policy- <http://EHS.columbia.edu/BiosafetyCabinetsPolicy.pdf>
5. Biological Safety Manual - RMW - <http://EHS.columbia.edu/Policy2.12.html>
6. Chemical Fume Hood Use in Research Laboratories - <http://EHS.columbia.edu/ChemFHUsInResearchLaboratories.pdf>
7. Battery Collection, Storage and Shipping - <http://EHS.columbia.edu/BatteryCollectionStorageAndShipping.pdf>
8. Oxygen Sensors in Research Laboratories - <http://EHS.columbia.edu/O2OxygenSensors.html>
9. Controlled Substances Policy - <http://EHS.columbia.edu/ControlledSubstancesPolicy.pdf>
10. Silver Management for Wet Chemistry Photo Processing - <http://EHS.columbia.edu/SilverManagemenForWetChemistryPhotoProcessing.pdf>
11. Laser Safety Policy - <http://EHS.columbia.edu/LaserSafety.pdf>
12. Occupational Noise Exposure- https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=standards&p_id=9735
13. 49 CFR 172 Subpart I – Safety & Security Plans- http://www.ecfr.gov/cgi-bin/text-idx?tpl=/ecfrbrowse/Title49/49cfr172_main_02.tpl
14. 40 CFR Part 262 – Hazardous Waste Generator Standards - <http://www.ecfr.gov/cgi-bin/text-idx?rgn=div5;node=40%3A26.0.1.1.3>

* Unless otherwise noted, Stamped by NYS Registered engineer or architect

DEFINITIONS

1. Commissioning (Cx) – Personnel responsible for commissioning the project. May vary by campus.