

ENVIRONMENT SAFETY AND HEALTH DIVISION BUILDING INSPECTION OFFICE



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ENVIRONMENT SAFETY AND HEALTH DIVISION

BUILDING INSPECTION OFFICE

Project Review and Authorization Manual
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Revision Information

Rev #	Date	Author (s)	Description of Revision
1	4/2010	M. McDaniel	Initial publication
2	01/05/2011	M. McDaniel	Updated Section 3 chart to reflect latest version of standards/codes to latest adopted editions (i.e. - 2010 CA Building Code, etc.). Added NFPA 72, National Fire Alarm Code.
3	04/11/2011	M. McDaniel	Updated Section 3 chart to reflect latest version of standards/codes to include California Energy Code as per J. Sevilla e-m 1/6/2011 and ADA 2010 as per M Loomis review of Enforceable Standards Access.
4	03/07/2013	M. McDaniel	Updated Sections 5.2.10 and 5.3.7 to clarify the following: (1) How the building inspector and BIO document field requests to deviate from approved plans; established distinct criteria for minor vs. major changes. (2) Building Inspector will verify that the construction conforms to the approved drawings and specifications, in addition to verifying code conformance only. Throughout doc, updated with current personnel names and current acronyms. A more thorough revision is planned for later this year.
5	12/20/13	M. McDaniel	Updated ESH throughout, deleted Project Review Tracker from references throughout, updated submittal document sections, plan review process rewritten to reflect computer-based system, PRS, deleted language in project file section, clarified turnaround section timeframes, deleted item 1 in exhibits and renumbered remaining sections.
6	1/23/2014	M. McDaniel	SMEs updated standards and codes
7	9/25/2015	M. McDaniel	Replaced ESH&Q with ES&H, SMEs updated, added new Section 5.5:” Deactivation and Decommissioning of Buildings or Structures”, added new definitions and other revisions to support this new business process.
8	1/28/2016	M. McDaniel	Added reference to Ergonomic review in Sect 2.5. Removed reference to SLAC BIO Application Form. Removed reference to SOC in Definitions. Removed reference to BIO Dashboard. Added text to Sect 5.2.9 Deferred Submittals from CBC 107.3.4.1. Updated various dept names that changed and other minor edits.
9	4/28/2017	M. McDaniel	SMEs updated and standards and codes
10	6/22/2017	M. McDaniel	SMEs updated
11	7/03/2018	M. Ratelle	SME updated, added wet-stamped and signed drawing requirement in Section 5.2.1.1, and replaced Project Safety Team Department Head in Section 5.2.05
12	8/21/2020	R. Kerwin	Extensive reformat/reorganization for ease of use. Updated references. Deleted Point of Contact section. Addressed Statement of Work quality check process. Added description of certificate of completion. Added sections for Procurement Interface. Added/revised definitions. New appendix on stamps.

Rev #	Date	Author (s)	Description of Revision
13	2/23/2021	R. Kerwin	SME Matrix updated along with standards and codes references. Changes to 4.101.1, 5.2.3.2 and 5.2.1. Miscellaneous minor clarifications to address changes to terminology of SLAC AHJ roles. Editorial changes and new definitions in Appendix B.
14	2/23/2022	R. Kerwin	Comparable to 2021 modifications. Extensive editorial changes and updates, such as recognizing new SMEs and new NFPA standards editions
15	3/1/2023	M. Matthews	Extensive editorial changes and updates, Added 4.101.4.5, 4.104.12, 4.114.4, 5.2.8.4, 5.2.8.5, 5.3.4.14, Added Structural / Seismic Authority (SSA) . Added F&O and DCS stamp types. Incorporated June 2022 Comments by DS, RK, MKM, Added BIO Web page 5.6, deleted BIO reference links, Updated Footer.
16	1/16/24	M. Matthews	Extensive Editorial Changes and Updates, Updated Review status, added to definitions, Added 5.5.8. Control of hazardous energy in out of service equipment, Added UTI to Definition, Updated Footer. Add Sections 5.2.4.9 / 5.2.4.10 / 5.2.4.11. Added to 5.2.4, 5.2.1 Reworded / numbered sections, Updates, and changes plan verification, Reject & Hold Status Use & meaning, Added Section 5.2.3.10 Adding and removing reviewers. Updated Table 1 with Keith Jobe, Updated Keith Jobe in Table 2 Update Table 1 Names, Added Section 5.1.3.2 Exploratory Investigation, Changed Section numbers 5.2.3.9 & 5.2.3.10 & 5.2.3.11 Updated Table 1 Names of reviewers & Added EPD QA/QC & DCS Constructability, Extensive Minor changes throughout document, added 5.2.3.11 Adding or removing aspect reviewers Section, Section 5.2.4 modified, 5.3.4.13 added to special inspection, 5.3.4.14 added Agencies names. 5.3.6.11 Added for canceled inspections, Section renumbered. Added Temporary Equipment Acceptance to 5.4.4, renumbered 5.4.4 to 5.4.5, Updated 4.112 1 & 2, Change FCM to CM, Ralphs Comment changes, added section 5.2.2.4 Added "Approval of Construction Documents", Added Section 5.2.2.6 "Phased Approval", Changes to Table 1, Table 2, 4.101, 4.101.4.5, 4.1010.4.8, 5.1.1, 5.1.2, 5.2.4, Added Stamp "Job copy to remain on site at all times", Added Section 4.101.4.7 Sustainability Renumber remaining section through 4.101.4.10, Updated table 1 notes
17	3/7/24	M. Matthews	Changes to condense into a code compliance only, added R2A2 to document Update Rev 17 to make changes to BIO.
17.1	3/12/24	M. Matthews	Update Table 1 Delete OSHA & Delete EPD QA/QC, Modify Section 5.3.2.9, Delete Sections 5.2.3.10 & 5.2.3.11, Remove Draft from R2A2. Updated distribution list. Added Section 5.2.1.1,2,3 Building Numbering, Update 5.2.6.1 Scope of Work

Plan updates are to be communicated and/or distributed to the following, where relevant:

- ESH Website
- Current SLAC ESH Building Inspection Office Reviewers
- ESH Director
- FCMTEAM
- F&O DCS-PM
- SLAC ESH Coordinators
- SLAC Procurement
- EP, RP, IH, WM, Security-BIO-INSPECTIONS
- ESH Website Liaison
- SLAC Document Control

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1. Overview

The ESH Building Inspection Office (BIO) provides review and authorization for construction, modifications, renovations, deactivation, decommissioning, use, occupancy, alteration and retrofits of all buildings, structures and areas at SLAC. BIO draws its foundational requirements from 10 CFR 851 ("Worker Safety

and Health Program”) as modified by the SLAC RWG and DOE Order 420.1C (“Facilities Safety”), thereby reinforcing SLAC’s commitment to safeguard its employees, scientists, visitors, and infrastructure.

This document complies with the SLAC “ESH Project Review Procedure” (http://www-group.slac.stanford.edu/esh/general/general_policy/) for conventional (non-experimental) projects and for conventional aspects of experimental projects (refer to the discussion of BIO triggers in sections 2 and 5 of this document).

Section 4 of this document entitled “Administration” defines the administrative requirements of BIO. The format is loosely aligned with (unadopted) Chapter 1 requirements of the California Building Code. Five subsections of the administrative requirements are expanded in Section 5 to provide detailed information about the most important BIO processes and their requirements.

2. Scope

2.1 ESH Building Inspection Office Review and Authorization

BIO review and authorization is required on all SLAC construction projects as described in section 5.1.1, and alternately work that does not require review and authorization is described in section 5.1.2. To determine whether or not a BIO review and authorization is required for a project, refer to the BIO Review Triggers (<http://www-group.slac.stanford.edu/esh/eshmanual/references/eshFormThresholdReview.pdf>) or contact the Building Inspection Office (650-926-4363).

The mechanism used to submit a project for Building Inspection Office review is the online BIO Plan Review System, also known as “PRS,” (<https://oraweb.slac.stanford.edu/apex/slacprod/f?p=203>). Online tutorials for new users of PRS are located on the homepage of the system. Using this tool, projects are submitted for review by the requester (typically a PM or their designee). Once the requester and the subject matter experts resolve all open comments, the project is authorized by the BIO Plan Review Coordinator.

2.2 Representative functions of the Building Inspection Office

- Oversees the BIO and ESH review of ESH Manual Chapter 1 Project Review Procedure for conventional (non-experimental) construction projects to provide reasonable assurance of compliance with required building codes and standards, and ESH external mandates. Reviews aspects (responsible organization):
- Title 24 California Building, Plumbing, Mechanical, Fire, and Energy Codes, the National Electrical Code, and NFPA 101 Fire Life Safety Code (BIO)
- Electrical Safety (ESH)
- Structural/Seismic (BIO)
- Sustainability (BIO and F&O)
- ADA (BIO)
- SLAC Structural Authority (F&O)
- Pressure Systems Safety (ESH)
- Industrial Safety (OSHA and Cal/OSHA) (ESH)
- Construction Safety (ESH)
- Industrial Hygiene (ESH)
- Air Quality (ESH)
- Hazardous Materials (ESH)
- Waste Management (ESH)
- Environmental Protection (ESH)
- Radiation Protection (ESH)
- NEPA (ESH)
- Plants/Wildlife (ESH)
- Wastewater and Storm Water (ESH)
- Spill Prevention Controls and Countermeasures (ESH)
- Environmental Restoration (ESH)

- Site Security (ESH)
- Performs Authority Having Jurisdiction (AHJ) operational responsibilities as assigned by the DOE Head of Field element and SLAC Director.
- Provides interpretations of required building codes and standards.
- Works with the SLAC Fire Marshal as fire protection and life safety AHJ to provide assurance of compliance with construction aspects of California Fire Code and other external mandates.
- Works in conjunction with SLAC Electrical Safety Officer as electrical safety AHJ to provide assurance of compliance with construction aspects of NFPA 70E.
- Works in conjunction with SLAC electrical installations AHJ to provide reasonable assurance of compliance with NFPA 70 NEC and the California Electrical Code, whichever is stricter.
- Conducts quality check of Statement of Work documents, as referred by Procurement, to verify alignment with BIO and ESH requirements.
- Works closely with SLAC CMs and PMs to provide progress inspections during various stages of construction for compliance with applicable building codes and construction standards.
- Provides final inspection and authorization for occupancy, in conjunction with SLAC Fire Marshal, the SLAC electrical installations AHJ, and the SLAC Electrical Safety Officer.
- Keeps records of inspections and approvals for future use and accountability.

2.3 Project submittal review by Subject Matter Experts SLAC SMEs review compliance with SLAC external mandates and internal policies, including various State and Federal regulations and ESH Manual Chapters. Primary reviewers and their specific compliance regulation responsibilities are listed in Table 1 below. Other reviewers listed below oversee shared resource systems.

Table 1 – Building Inspection Office Plan Review Matrix

ENTITY PERFORMING REVIEW	NFPA CODES	CBC CPC CMC	NFPA 70 NEC	CA FIRE CODE	Accessibility	29 CFR 1910, 1926 (OSHA)	CAL/OSHA CCR Title 8	OTHER REVIEW
BIO Plan Reviewers M. Matthews, K. Brenton	X	X	X	X	X	X		X ^{3,4,5,13,14}
Fire Marshal Office R. Kerwin, S. Coleman	X	X ¹	X	X	X ²			X ¹⁷
Electrical Systems – NFPA 70 D. Stickney			X			X		X ¹⁶
Electrical Safety Officer - NFPA 70E Keith Jobe								X ¹⁶
Structural Review B. Brunette, 4 Leaf SME		X ³						
Pressure Systems Program Manuel Gonzalez								X ^{4, 15}
Construction and Industrial Safety, OSHA G. Johnson, R. Razik						X (1910 & 1926)	X	X ⁵
Industrial Hygiene M. McDaniel, R. Razik						X (1910 & 1926)	X	X ¹¹
Air Quality M. Coladonato								X ⁶ X ⁷
Hazardous Materials A. Alexiev				X				X ⁸
Waste Management A. Alexiev	X			X				X ^{16,4,6,7,9}

Waste Minimization M. DeCamara								X¹²
Environmental Compliance M. DeCamara								X⁹
Radiation Protection H. Brogonia, J. Blaha, J. Liu								X⁴
NEPA W. Greene								X¹⁸
Plants/Wildlife W. Greene								X
Wastewater and Storm Water (SWPPP) H. Benz								X
Spill Prevention Controls and Countermeasures C. Daqiq								X¹⁹
Environmental Restoration A. Ng,								X

Table 1 Notes:

1. Review limited to CBC Life Safety and Fire Protection considerations.
2. Review Limited to Accessibility requirements for Fire Alarm System components.
3. Review of Structural Plans, Specs, Calcs, for CBC compliance and for compliance with SLAC *Seismic Design Specification for Buildings, Structures, Equipment and Systems: 2023* (SLAC-I-720-0A24E-001-R007)
4. 10 CFR 851, as modified by RWG Contract
5. SLAC ESH Manual
6. National Emission Standards for Hazardous Air Pollutants (NESHAP)
7. Bay Area Air Quality Management District (BAAQMD)
8. SLAC ESH Manual Chapter 40 – Hazardous Materials
9. Spill, Hazard Material, PCB, Hazard Waste, Excavation and Storm water Chapter, Spill Prevention Controls and Countermeasures (SPCC) and the Storm Water Prevention Program (SWPPP). See SLAC ESH Manual Chapters 16, 17, 22, 26, 30 and 43.
10. Shared area or system managers. Divisional Safety Coordinators included-for advisory, review and coordination purposes.
11. CGA P-1 – 2000 Safe Handling of Compressed Gases in Containers
12. SLAC ESH Manual Chapter 22; DOE Orders 450.1A and 430.2B
13. Leadership in Energy and Environmental Designs (LEED), CA Energy Code, SLAC Division 1 Section 0118113
14. Damage Assessment and California Safety Assessment Program (SAP)
15. Pressure Vessels, Process Piping, Vacuum Systems, ASME B31 series, SLAC ESH Manual Chapter 14
16. ANSI/IEEE C-2, National Electrical Safety Code (Underground 12kV) and NFPA 70E, Electrical Safety in the Workplace.
17. DOE-O-420.1C, Facility Safety, FSR Chapter 2, Fire Protection (See SLAC EHS Manual Chapter 12)
18. National Environmental Policy Act (NEPA) - 42 U.S.C. 4321 et seq. (see SLAC ESH Manual Chapter 22)
19. Spill Prevention, Controls, and Countermeasures (SPCC) - 40 CFR 112 (also see SLAC ESH Manual Chapter 16)

3. Adopted Codes and Standards

This manual describes acceptable methods for verifying construction project compliance with required building codes and standards, external mandates, and SLAC Policies. The purpose of this manual is to promote uniform plan review criteria and to guide the evaluation of SLAC construction projects for compliance with Users of this manual should bring-conflicts between overlapping codes to the attention of the SLAC Building Code Official, cognizant SLAC AHJ or responsible external mandate SME for interpretation and resolution. (In general, the more specific or stringent requirement shall be selected.)

**Table 2 – Codes and Standards Adopted by SLAC effective Jan 1, 2023
Updated 2/6/2024, 3/11/24**

BIO Adopted Codes and Standards	Responsible Person	Edition
DOE Order 420.1C, Facility Safety, Attachment II, Facility Safety Requirements, Chapter 2, Fire Protection ¹	R. Kerwin	C, Change 3
DOE Standard 1066-2016, Fire Protection	R. Kerwin	2016
California Building Code	M. Matthews	2022
California Plumbing Code	M. Matthews	2022
California Mechanical Code	M. Matthews	2022
Architectural Barriers Act Accessibility Guidelines (ABA), Section 504 of the Rehabilitation Act of 1973, where applicable, Chapter 11 of CBC, 2010 ADA Standards for Accessible Design.	Kevin Brenton	2010 ADA & ABA & CBC Chapter 11
California Energy Code (aka T24 Energy standards)	R. Atapattu	2022
California Fire Code	R Kerwin	2022
NFPA 1, Fire Code	R. Kerwin	2024
NPFA 101, Life Safety Code	R. Kerwin	2024
NFPA 70, National Electric Code	D. Stickney	2023
NFPA 70E, Electrical Safety in the Workplace	K. Jobe	2024
All Other NFPA Standards Concerning Fire Protection and Emergency Management table note 2. Does not include NFPA 70B	R. Kerwin	Most recent published edition, up to 2023
Subset of Title 8 (Cal/OSHA Regulations), as per ESH Manual Chapters	ESH Division Director or Designee	Current
SLAC ESH Manual, with referenced standards ^{3,4}	Various Program Owners	Current

Table 2 Notes:

1. As contractually adopted through SLAC 2021 Site Compliance Plan for Order 420.1C, Change 3. SLAC also operates directly under the legal requirements of 10CFR 851, as modified by the RWG contract.
2. NFPA Fire Protection and Emergency Management standards not listed above are applied as of the January 1st of the year of the Edition, with the exception of NFPA 5000 (NFPA Building Code), which is not adopted by SLAC.
3. Applicable standards cited in the SLAC ESH Manual are included in the review process.
4. Note that referenced standards cited in CBC Chapter 35 are used at SLAC in addition to the ones cited in the SLAC ESH Manual (and this document). Where conflicts arise, the SLAC reference takes precedence.
5. NEC is Primary, and the California Electrical Code is secondary and shall apply to those areas not covered by the NEC.

4. Administration

Administrative requirements. The following governing administrative requirements for BIO follow the format for Chapter 1, “Administration,” of the California Building Code. The CBC Chapter 1 Section numbers have been retained for ease of comparison, with the chapter number prefixed only before the major section headings. Sub-section titles have been changed only as necessary to reflect specific SLAC usage. CBC Chapter 1 sections that are inapplicable to BIO are retained but labeled as “Reserved.” Five sections requiring in-depth explanation of SLAC BIO procedures and requirements are referred to Chapter 5.

SECTION 4.101 GENERAL

4.101.1 Title. Based on operational responsibilities assigned to SLAC by the DOE SLAC Site Office Head through DOE Order 420.1C, Change 3, SLAC has adopted the 2022 Edition of the California Building, Plumbing, Mechanical, Electrical, Fire and Energy Codes as well as the 2023 Edition of National Electric Code and the 2021 Edition of the Fire Life Safety Code (NFPA 101). Chapter 1 of the California Building, Plumbing, Mechanical, Electrical and Fire Codes have **not** been adopted. No parts of Title 24 other than those listed above have been currently adopted at SLAC.

4.101.2 Scope. The provisions of this manual shall apply to the construction, alteration, movement, enlargement, replacement of 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.

4.101.2.1 Appendices. Provisions in the appendices of the building codes shall apply.

4.101.3 Intent. The purpose of this manual 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 firefighters and emergency responders during emergency operations.

4.101.4 Referenced Codes. The other codes listed in, Sections 4.101.4.1 through 4.101.4.7 and referenced elsewhere in this manual shall be considered part of the requirements of this manual to the prescribed extent of each such reference.

4.101.4.1 Electrical. The provisions of the National Electric Code (NFPA 70) and the California Electrical Code (CEC) shall apply to the installation of electrical systems, including alterations, repairs, replacement, equipment, appliances, fixtures, fittings and appurtenances thereto. **NEC is the primary Code - the CEC applies to code sections not in NEC.**

4.101.4.2 Gas. The provisions of the California Plumbing Code shall apply to the installation of gas piping from the point of delivery, gas appliances and related accessories as covered in this manual. 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.

4.101.4.3 Mechanical. The provisions of the California Mechanical Code shall apply to the installation, alterations, 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.

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

4.101.4.5 Accessibility. Plans shall show all accessible elements as required in the governing accessibility codes. SLAC is a federally funded campus in which the Architectural Barriers Act (ABAAS) would be the primary code of record. Please contact the Building Inspection Office for further guidance.

4.101.4.5 Fire Prevention. The provisions of the California Fire Code and NFPA 1 shall apply to matters affecting or relating to structures, processes and premises from the hazard of fire and explosion arising from the storage, handling or use of structures, materials or devices; from conditions hazardous to life, property or public welfare in the occupancy of structures or premises; and from the construction, extension, alteration or removal of fire suppression and alarm systems or fire hazards in the structure or on the premises from occupancy or operation. NFPA Standard 241 also covers construction oversight and is jointly applicable with Fire Code requirements.

4.101.4.6 Sustainability Must be included in designs per SLAC Division 1 Section 018113 Sustainability Design Requirements.

4.101.4.7 Energy As required by DOE-O-430.2B, all major projects (>\$5 Million) at SLAC shall meet or exceed a 30% energy reduction compared to ASHRAE 90.1, 2004. The reference for this standard is Sec. 109 Federal Building Inspection Standards, Sec 305(a) of the Energy Conservation and Production Act, 2005.

4.101.4.9 Solar California energy code requires solar ready areas for new construction. Plans shall include information on solar locations and assemblies supporting solar. At a very minimum the area of solar panels shall be shown on the plans. Any piping from the arrays to the solar equipment shall include empty raceways as part of the roof area being solar ready. Note: Sustainability requires a 7.5% renewable energy system ie: Solar.

4.101.4.10 Electric Vehicle Charging, Plans shall include electrical vehicle charging as part of new projects and be evaluated in all other projects regardless of size. At a minimum conduit and pull boxes from building to appropriate vehicle spaces will be looked at as a starting point. Contact Renewable Energy Department for further questions.

SECTION 4.102 APPLICABILITY

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

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

4.102.3 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 manual.

4.102.4 Referenced codes and standards. The codes and standards referenced in this manual shall be considered part of the requirements of this manual to the prescribed extent of each such reference. Where differences occur between provisions of this manual and referenced codes and standards, the provisions of this manual shall apply.

4.102.5 Partial invalidity. In the event that any part or provision of this manual 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.

4.102.6 Existing structures. The authorized occupancy of any structure existing on the date of adoption of this manual shall be permitted to continue without change, except as is specifically covered in this manual, the NFPA 101 Life Safety Code, All California Building Codes, the California Fire Code, or as is deemed necessary by the Building Code Official for the general safety and welfare of the occupants and the public.

SECTION 4.103 Building Inspection Office (BIO)

4.103.1 Creation of Enforcement Agency. BIO is an organization within SLAC operating primarily through the Code Compliance & AHJ Services (CCAS) group of the SLAC ESH Division. Its enforcement operational responsibilities are derived from the SLAC Building Code Official (BCO), Fire Marshal (FP-AHJ) and Electrical Safety Officer (ESO-AHJ), Electrical Safety Officer NFA70 E (ESO-AHJ) who receive those authorities from the head of DOE SLAC Site Office (SSO) through the SLAC Director under the provisions of DOE Order

420.1C. Additional responsibilities for enforcing other SLAC external ESH mandates are received through the SLAC Chief Safety Officer, who is also the head of the ESH Division. An alternate term for Building Code Official is Building Official (BO).

4.103.2 Reserved

4.103.3 Deputies. In accordance with the prescribed procedures of SLAC and with the concurrence of the DOE, BIO shall have the authority to appoint deputies, the related technical officers, inspectors, plan examiners and other employees. Such employees shall have powers as delegated either by the SLAC Chief Safety Officer, SLAC AHJs or by the CCAS head.

SECTION 4.104 DUTIES OF BUILDING INSPECTION OFFICE (BIO)

4.104.1 General. BIO is authorized and directed by the SLAC Chief Safety Officer to enforce the provisions of this manual. BIO shall have the authority to render interpretations of this manual and to adopt policies and procedures in order to clarify the application of its provisions. Such interpretations, policies and procedures shall be in compliance with the intent and purpose of this manual. Such policies and procedures shall not have the effect of waiving requirements specifically provided for in this manual.

4.104.2 Submittals and construction authorization. BIO shall receive project submittals, review construction documents and provide construction authorization for the erection, alteration, addition, demolition and moving of buildings and structures. Inspect the premises for which such construction authorization has been issued and enforce compliance with the provisions of this manual.

4.104.3 Reserved

4.104.4 Inspections. The BIO inspector or approved designee (see Section 5.3.3) shall make all of the required inspections, or BIO 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. BIO is authorized to engage such expert opinion as deemed necessary to report upon unusual technical issues that arise, subject to the approval of the appointing authority.

4.104.5 Reserved

4.104.6 Reserved

4.104.7 Department records. BIO shall keep official records of project submittals received, construction authorization and certificates issued, reports of inspections, and notices and orders issued.

4.104.8 Liability. From Stanford Employee Manual Section, the employees charged with the enforcement of the requirements of this manual are Stanford employees and are covered under Stanford employee indemnification policy while acting for SLAC in the performance of their duties.

<https://adminguide.stanford.edu/chapters/human-resources/employment-general-information/indemnification>

4.104.9 Approved materials and equipment. Materials, equipment and devices accepted by BIO shall be constructed and installed in accordance with such acceptance.

4.104.9.1 Used materials and equipment. Used equipment and devices shall not be reused unless accepted by BIO.

4.104.10 Modifications. Whenever there are practical difficulties involved in carrying out the provisions of this manual, BIO shall have the authority to grant routine modifications for individual cases provided that BIO shall first find that special individual reason makes the strict letter of this manual impractical and the modification is in compliance with the intent and purpose of provisions of this manual and that such modification does not lessen health, accessibility, life and fire safety, or structural requirements. The details of action granting modifications shall be recorded and entered in BIO files.

4.104.11 Alternative Means and Methods (AMM) are for materials, design and methods of construction and equipment. The provisions of this manual are not intended to prevent the installation of any material or to prohibit

any design or method of construction not specifically prescribed by this manual, provided that any such alternative has been accepted. An alternative material, design or method of construction shall be referred to the head of DOE SSO with a recommendation for approval where BIO finds that the proposed design is satisfactory and complies with the intent of the provisions of this manual, and that the material, method or work offered is, for the purpose intended, at least the equivalent of that prescribed in this manual in quality, strength, effectiveness, fire resistance, durability, and safety.

4.104.11.1 Equivalency. A request for an alternative means and methods to a DOE or NFPA standards requirement. An equivalency requires DOE Site Office head or Site Office designee approval.

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

4.104.11.2 Tests. Whenever there is insufficient evidence of compliance with the provisions of this manual, or evidence that a material or method does not conform to the requirements of this manual, or in order to substantiate claims for alternative materials or methods, BIO shall have the authority to require tests as evidence of compliance to be made at no expense to SLAC, ES&H or BIO. Test methods shall be as specified in this manual or by other recognized test standards. In the absence of recognized and accepted test methods, the building code official shall approve the testing procedures. Tests shall be performed by an approved agency. Reports of such tests shall be retained by BIO.

SECTION 4.105 CONSTRUCTION AUTHORIZATIONS

Refer to Section 5.1

SECTION 4.106 RESERVED

SECTION 4.107 SUBMITTAL REQUIREMENTS

Refer to Section 5.2

SECTION 4.108 TEMPORARY STRUCTURES AND USES

4.108.1 General. The Building Code Official is authorized to issue the construction authorization for temporary structures and temporary uses such as temporary tents and TCOs. Such construction authorization shall be limited as to time of service but shall not be certified for more than 180 days. BCO is authorized to grant extensions for demonstrated cause.

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

4.108.3 Temporary power. BIO is authorized to give permission to temporarily supply power, and to 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 power in NFPA 70 National Electrical Code.

4.108.4 Termination of approval. BIO is authorized to terminate such construction authorization for a temporary structure or use and to order the temporary structure or use to be discontinued.

SECTION 4.109 RESERVED

SECTION 4.110 INSPECTIONS

Refer to Section 5.3

SECTION 4.111 CERTIFICATES OF OCCUPANCY OR COMPLETION

Refer to Section 5.4

SECTION 4.112 SERVICE UTILITIES

4.112.1 Connection of service utilities. No person shall make connections from a utility, source of energy, fuel or Power or a waste system or sewer system, to any building or system that is regulated by this manual, until associated design work has been accepted by BIO. The connection work shall be conducted by or directly overseen by Facilities and Operations.

4.112.2 Temporary connection. BIO shall have the authority to authorize the temporary connection of the building or system to the utility source of energy, fuel or power, or a water system or sewer system.

SECTION 4.113 DEACTIVATION AND DECOMMISSIONING

Refer to Section 5.5

SECTION 4.113 RESERVED

SECTION 4.114 RESERVED

SECTION 4.115 RESERVED

SECTION 4.116 UNSAFE STRUCTURES AND EQUIPMENT

4.116.1 Unsafe Conditions. Structures or existing equipment that are or hereafter become unsafe, insanitary or deficient because of inadequate means of egress facilities, inadequate light and ventilation, or which constitute a fire hazard, or are otherwise dangerous to human life or the public welfare, or that involve illegal or improper occupancy or inadequate maintenance, shall be deemed an unsafe condition. Unsafe structures shall be taken down and removed or made safe, as BIO deems necessary and as provided for in this section.

4.116.2 Record. BIO shall cause a report to be filed on an unsafe condition. The report shall state the occupancy of the structure and the nature of the unsafe condition.

4.116.3 Notice. If an unsafe condition is found, BIO shall provide the building manager, agent or person in control of the structure, a written notice that describes the condition deemed unsafe and specifies the required repairs or improvements to be made to abate the unsafe condition, or that requires the unsafe structure to be demolished.

4.116.4 BIO shall include the Excess Facility Program as part of the notice. Use of the program to remove or demolish a trailer or unsafe structure shall follow all steps in the excess Facility Program guidelines.

5. Review and Authorization Requirements

5.1. PROJECT AUTHORIZATION

All projects submitted to BIO follow the same review process, but the documents may be stamped (See Appendix C) differently. Projects that are submitted as feasibility studies, conceptual designs, preliminary designs, or any other progress submittals prior to procurement, or construction will receive a conditional authorization to proceed to the next phase. Projects submitted for procurement, fabrication, or construction will receive authorization to proceed. This chapter is written to address these submittals with a focus on construction as that is the end objective.

5.1.1 Required. Prior to initiation of any project, the requester shall consult the Work Planning and Control E-Tool (<https://www-internal.slac.stanford.edu/esh-db/WPC/TMG/TMGWeb/Web/Utility/ETool.aspx>) and the Building Inspection Office Review Process Triggers Form (<http://www-group.slac.stanford.edu/esh/eshmanual/references/eshFormThresholdReview.pdf>) for an overview of thresholds that require BIO Review for construction authorization. (The Threshold link is also given in the BIO Website.) BIO construction authorization thresholds are adapted from the CA Building Code Administrative Chapter 1 requirements for permit systems. A more detailed discussion of thresholds and exemptions may be found below in Sections 5.1.1 – 5.1.7.

Any requester who intends to construct, enlarge, alter, move, decommission, demolish, or change the occupancy of a building or structure, or to erect, install, enlarge, alter, remove, convert or replace any electrical, gas, mechanical or plumbing system, the installation of which is regulated by 10 CFR 851 (as modified by RWG Contract), shall first seek authorization from BIO.

The Review Process Triggers form provides the formal definitions of conventional construction threshold triggers. The following examples are offered as an additional aid for situations commonly encountered at SLAC.

Examples of common SLAC construction projects that REQUIRE BIO review and authorization (not limited to):

- Construction of new buildings and facilities.
- Installation, modifications, alterations, additions, to any existing buildings, facilities, equipment, devices, or systems within the scope of the California Building Code, California Fire Code, National Electrical Code, California Plumbing Code, California Mechanical Code, California Energy Code, Accessibility ABA, ADA, CBC 11B, UFAS, NFPA, ASCE, ASTM, ASHRAE, ACI, SMACNA, ANSI, IAPMO, NRCA, AWS, or other referenced standard.
- The attachment/support and interface of scientific equipment and devices to building structures and building systems within the scope of the above codes e.g.: laser tables, Portable Clean Rooms, Racks, Pumps, etc.
- Initial installation or modification of piping or tubing used to deliver highly toxic or reactive (e.g., unstable, pyrophoric, water reactive, etc.) fluids (gaseous or liquid) from a source container to the process/research equipment point of connection.
- Initial installation or modification of piping or tubing used to deliver compressed air, inert gases or other gases transferred through site utility systems to a process/research equipment point of connection.
- Deactivation or decommissioning of out-of-service equipment and facilities.
- Installation, modification, repair or relocation of trailers and mobile offices.
- Modification of conventional equipment installed to support buildings such as substations, boilers, industrial hoods, tanks, and cooling towers.
- Installation or major renovation of roofing systems (does not include minor patch work for maintenance).
- Replacement or new sidewalks and roadways (does not include patching or minor repair projects of less than 10 square feet).
- Installation or modifications to underground utilities.
- Installation of other civil engineering construction projects.
- Installation of temporary tents/structures

- Parking lot striping or restriping, roadway, or crosswalk striping
 - Installation of temporary power on construction sites
 - Installation of temporary trailer, containers, office/storage containers
 - Subcontractor-provided (non-SLAC Facilities-owned) generators, light towers, or similar equipment used in a specific location for a duration exceeding one workday
 - Application of special coatings such as epoxy floor coatings.
 - Installation of Solar Panels, Wind Generators, Electrical Storage Systems, etc.
 - Electrical Vehicle Charging stations and underground electrical supplies.
 - Office furniture over 5'-9", Pergolas, Hush Rooms, Meeting rooms or similar products shall show compliance with Accessibility Requirements and need a building authorization to install.
 - Science And Experimental Equipment - Not Exempt: Data racks, cable trays, FFU's, exhaust fans, anchorage of equipment, new piping for water, LCW, compressed air, or similar systems. Electrical panels, breakers, hard wired connections, power strips. Room egress, accessibility around experiments, laser safety, laser tables / modifications / enclosures that affect the center of gravity, weight of combined table and enclosure, anchorage.
- Questions, please check with BIO for clarification.

5.1.2 Work Exempt from Construction Authorization. The following construction-related work is defined as being below BIO threshold triggers for review. Responsibility for compliance with SLAC ESH external mandates and internal policies remains with Project owner line management and with all SLAC personnel and contractors involved in planning and controlling the work. The authority of SLAC BCO, AHJs, ESH Safety Officers and ESH program managers to review and enforce correction of potential violations of external mandate compliance is not affected by the absence of BIO purview over this work.

Construction authorization SHALL NOT be required for the following:

Building: Painting, papering, office cabinets, counter tops and similar finish work. Non-fixed moveable fixtures, cases, racks, office furniture, counters and partitions not over 5 feet 9 inches high. All office furniture, cubicles, etc. shall meet accessibility requirements regardless of size. **Exception:** Any change that affects, alters or impedes accessibility, exiting or life safety systems shall require BIO Review.

Electrical Systems: Repairs and maintenance: Minor repair work, including the replacement of lamps or the connection of approved portable electrical equipment to approved permanently installed receptacles. Construction Authorization shall not be required for the installation of any temporary system required for the testing or servicing of electrical equipment or apparatus. **Exception:** Generators owned by SLAC Facilities used for maintenance activities do not require BIO Review. **All other generators require BIO Design Review and Construction Authorization.**

Mechanical Systems: Related only to minor repair or maintenance such as leak repair, valve replacement, Replacement of any part of a listed system that does not alter its listing approval. Self-contained refrigeration system containing 10 pounds (5 kg) or less of refrigerant and actuated by motors of 1 horsepower (746 W) or less. **Exception:** Portable heating appliance, portable ventilation equipment, and portable cooling units owned by SLAC Facilities used for maintenance activities do not require BIO Review. All other portable mechanical systems (except desk fan or heater) require BIO Design Review and Construction Authorization.

Plumbing Systems: The stopping of leaks in drains, water, soil, waste or vent pipe. 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.

Science and Experimental Equipment-exempt: Modification to science or experimental equipment, devices, or systems. Including those connections from shutoff valves / barbed points of connection to experiment for water, LCW, compressed air, electric plug cord to socket, data cables from experiment to data rack component or computer, hoses to blast gates, small to medium table enclosures, experimental equipment.

Like for Like Replacement: *Like for like* changes are minor in nature. "Minor" is defined as work that involves total project material cost of less than \$500. Contact BIO for guidance on "like for like" projects.

5.1.2.1 Code Compliance of Electrical Experimental Equipment.

The responsibility for an NEC-compliant experimental equipment installations is divided between BIO and the experimental equipment owner/installer. ESH Manual Chapter 8 Electrical Safety states:

[NEC] training is *required* for electrical engineers, designers, electricians, and others who are *involved in the design or installation of electrical, systems and equipment, and whose work products must comply with the National Electrical Code [NEC]*.

Course 260 NEC and 260R NEC Refresher course catalog pages state:

This course is *mandatory* for electrical system designers, electrical engineers, electricians, electrical workers, and others *whose work products must comply with the National Electrical Code [NEC]*

SLAC conduct of Engineering Policy excerpts (regarding compliance with required codes and the ESH Project Review Procedure) state:

1 Policy Statement (excerpt)

Engineering and Engineering-related work performed at SLAC National Accelerator Laboratory shall *conform engineering codes, regulations, design safety and technical standards*, and sound industry practices. Line Managers own the responsibility to identify, establish, and ensure compliance with the appropriate requirements.

7.9 Design Review (excerpts)

SLAC requires a project review for environmental, safety and health aspects as described in the [ESH] Project Review Procedure.

The Design Authority in consultation with the Directorate safety officers, shall ensure compliance with [ESH] Project Review Procedure.

Code compliance responsibilities for installation of experimental cables, conduit, cable trays, and equipment are divided as follows:

5.1.2.1.1 BIO Plan Review and Inspection Responsibilities:

- Racks
 - Location
 - Seismic Anchoring
 - NEC required Grounding.
 - Working space for the rack and adjacent electrical equipment
 - Interference with adjacent equipment
 - Access to electrical boxes or fire sprinkler heads
 - Cal/OSHA – OSHA Headroom
 - Confirmation of NRTL certification / EEIP Inspection of the rack and internals
 - Egress Path
 - Connection to Building systems.
 - Premises wiring up to the connection point.
 - Cooling water up to the isolation valves
 - Energization of premises wiring to the rack per SLAC Construction Safety Requirements Manual
- Cable Tray, conduit, and beamline loads
 - Location
 - Seismic anchoring
 - NEC required grounding.
 - Interference with adjacent equipment
 - Access to Electrical Boxes or fire sprinkler heads
 - OSHA Headroom

- Egress path
- Authorization to install (BIO approval of construction drawings)
- Inspection to confirm conformance to BIO authorized drawings.

Note that BIO reviews, authorizes and inspects installation of experimental conduit and cable trays. BIO does not review, approve, or inspect the circuits installed in experimental conduit and cable tray.

5.1.2.1.2 Experimental equipment line manager responsibilities:

- Procurement of listed equipment or EEIP inspection of unlisted equipment
- Review and authorize installation of cables from racks to loads
- Use of NEC compliant materials and installation methods
 - NEC-Required Grounding
 - Supplemental grounding
 - Conductor types
 - Conductor sizing
 - Cable tray fill
 - Conduit fill
 - Installation specifications
 - NEC-required separation of circuits and conductors
- Energization readiness of new work or modified experimental circuits and equipment.
- Connection of cooling water from isolation valves to racks and equipment.

5.1.3.1 Emergency Repairs. Where equipment replacements and repairs must be performed in an emergency situation, BIO shall be notified by the next working day, and a PRS submittal shall be provided at the earliest reasonable opportunity.

5.1.3.2 Exploration work where exploration is needed to determine extent of repair work, it shall be done only after consulting with BIO. In some cases, a BIO application will be needed. Work exempt under this category would include pot holing, small excavations less 12 x 12 and less than 3' deep, scraping paint to expose conditions underneath, removal of carpeting, removal of siding up to 2 panels or 3 feet high, etc. Consult BIO with questions.

5.1.3 Repairs. Application or notice to BIO is not required for ordinary repairs to equipment, replacement of lamps or the connection of approved portable electrical equipment to approved permanently installed receptacles.

However, this exemption 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. Any work which adds, redistributes, alters, induces, increases or combines any loads or forces to a building, structure, appurtenance, equipment, floor, roof, ceiling, wall, slope or embankment shall require BIO review.

5.1.4 Validity of Construction Authorization. The issuance of the Construction Authorization shall not be construed to violate or cancel any provisions of this manual, or of any required codes, policy, or standards. The issuance of the Construction Authorization based on construction documents and other data shall not prevent BIO from requiring the correction of errors or omissions in the construction documents and other data. BIO is also authorized to prohibit occupancy or use of a structure when in violation of the provisions of this manual or of any other code, SLAC Policy or Standard.

5.1.5 Expiration. Every Construction Authorization issued shall be subject to potential expiration of the design package approval if the authorization is more than 180 days old at the time of Construction Authorization. At the discretion of BIO, such designs may be subject to a formal BIO re-review to ensure that code requirements remain up to date. PMs who place a project "on the shelf" after receiving construction authorization should closely coordinate with BIO prior to reactivating such projects to avoid delays in Statement of Work and project documents approval.

Construction Authorized projects shall work continuously and obtain BIO inspection every 180 days or less. If a project exceeds the 180-day inspection rule, then the project may be required to go back through BIO review.

Large Projects that take multiple years to build. Construction authorization shall not expire so long as the project continues to completion. If a large project Stops progressing, then the 180-day rule may apply based on reason for stoppage.

5.1.6 Suspension or Revocation. BIO is authorized to suspend or revoke Construction Authorization issued under the provisions of this manual wherever the Construction Authorization is issued in error or on the basis of incorrect, inaccurate or incomplete information, or in violation of any ordinance or regulation or any of the provisions of codes cited in this manual.

5.1.7 Changes or Modifications to Approved Plans or Documents. Any additions, deletions, modifications, changes, omissions, or alterations from approved construction documents shall be submitted for review to BIO PRS. Once approved, the project may make revision or changes that have been approved. Any work done without this approval is considered at risk, and the project may need to make changes to become complying at no risk to BIO or its SME's. See 5.2.8.5 Revisions to Approved Plans for more information.

5.2 SUBMITTAL REQUIREMENTS

BIO website has many plancheck submittal requirements handouts

5.2.1 Charge Number. The requester shall provide the Building Inspection Office with a direct bill charge number prior to the commencement of a BIO plan review. Upon request by the PM, the Building Code Official will provide a cost estimate for ESH SME effort prior to starting any work. This estimate will include input from SME's performing the review. As a general guideline, cost estimates equal or greater than 100 labor-hours will be in the form of a spreadsheet. This cost estimate DOES NOT cover the cost of NON-ESH SME reviewers. The project is responsible to obtain those estimates.

Single vs multiple building submittals. When submitting PRS projects the number of PRS project submittals shall be based on the descriptions below.

5.2.1.1 Stand Alone Buildings. These type of buildings contain only 1 building number. IE 41, 53, 660, etc. One submittal for each building.

5.2.1.2 Multiple Buildings in a Single Structure. These types of buildings contain two or more building numbers in a single building ie 750 & 751. One Submittal for each set of building numbers.

5.2.1.3 One Continuous Building. This building include Bldg. 1 & 2 - Sector 0 to 30. It **does not** include BSY to B999 as they have separate building numbers even thou, they are connected. This submittal could be one submittal or broken down into multiple submittals.

This requirement is separate from the Procurement process and projects must work with Procurement on any financial documents.

5.2.2 PRS Project Submittal Process.

5.2.2.1 Entering a Project into PRS. Documents are required to be submitted to the Building Inspection Office if the project meets the threshold criteria described in Appendix A, Reference Link 1, "BIO Review Process Triggers." The PM is responsible for submittal of all design documents, statement of special inspection requirements, and other pertinent information into the ESH BIO PRS. Where special conditions exist, BIO is authorized to require additional and/or supplemental construction documents to be prepared. For guidance on submitting requests for code and standards alternatives such as equivalencies or AMMs, please contact BIO.

To enter a project into PRS, the PM will provide basic information and upload relevant documents in PRS. A new

project will be created in “draft” status. The statement of work entry must provide a general description of the project in sufficient detail to include all of the major elements and systems of the experiment/project. This statement of work should also include any significant hazards associated with the experiment/project (examples are radiation, laser, pressure, cryogenic, and hazardous materials). Provide supporting documentation as applicable, including drawings and specifications, equipment layout, cut sheets, etc. If available, include projected starting and ending dates for each phase of the project/experiment.

5.2.2.2 Proceeding to Submitted Status. Once the submittal draft is complete, PRS notifies the Area / Building Manager and Requestor’s Department Head for necessary (electronic) design package internal review and approval. When these approvals are completed, this confirms that the package represents a complete submittal and shifts status from DRAFT to SUBMITTED. If the submittal is incomplete the coordinator contacts the PM/project Point of Contact (POC) and requests missing documents or approvals. Incomplete submittals will be put into a HOLD status until necessary documents are received. Uploading all necessary or requested documents is the responsibility of the project PM or PM designee.

5.2.2.3 Completing the BIO Review Process. The package, once verified complete, is processed by the Coordinator. BIO compliance reviewers and other technical SME reviewers are assigned by the Coordinator in consultation with the PM, and the submittal advances to IN REVIEW status. The change to IN REVIEW status generates a unique project number for the review that includes both a two-digit year designator and a three-digit sequential project designator (for example, 20-172 for the 172nd project recorded in 2020). PRS sends an email from BIO-admin@slac.stanford.edu to all selected reviewers, requesting comment by a specific date. In larger projects the Coordinator may also send reviewers a supplemental email with further instructions. This request will include the project number, location of project, location of plans, and a brief project description.

Reviewers enter comments and concerns, if any. For their assigned aspect. If none they accept the project. Each reviewer is tasked to provide a reasonable assurance of compliance for the aspect under review. It is the responsibility of the PM or identified designee to respond directly to individual comments entered in the PRS system as they are received. SMEs are expected to complete a prompt back check. Once comments are resolved, the Reviewer accepts the PM response in PRS. PMs and reviewers are encouraged to communicate directly to resolve comments and concerns when responses are unclear. Coordinator can assist with setting up these communications as requested.

The Coordinator will follow up with ESH reviewers to ensure they complete their review in a timely fashion. The PM is responsible for following up with the non-ESH reviewers to ensure they complete their review in a timely fashion.

A SLAC Windows account is required to use PRS. When external reviewers or PM designees are not SLAC employees, it is the responsibility of the PM to obtain an account for them.

5.2.2.4 Obtaining Authorization. Once reviewers have accepted all PM comments, the Coordinator authorizes the project via e-mail notification to the PM and other stakeholders stating that the project is authorized. If applicable, the authorization email will contain the following attachments: inspection request form, construction authorization and inspection record (also referred to a permit log), anchor checklist and any other pertinent information relating to the project review. If any SME comments become conditions of approval that may require action before/during the completion of the project, these comments will be listed in the email. All pertinent documents are stamped (manually or electronically) and signed by the BIO Coordinator, BIO Inspector or Building Code Official. **For information on stamps currently used by BIO, consult Appendix C.**

If hard copies are submitted, one set of the final construction documents is kept by BIO. The other set is returned to the PM to be kept at the construction site for redlining (included in the Work Integration Plan). This set shall be made accessible for review by BIO or a duly authorized representative. The authorization email will notify the PM when the authorized final documents are available for pick up. If the documents are approved electronically, it is the responsibility of the PM or CM to ensure a hard copy is kept at the construction site as outlined above.

5.2.2.5 Approval of Construction Documents the Building Inspection Office issues an authorization (permit), the construction shall be approved, in writing or by stamp, as “Reviewed for Code Compliance.” One set of construction documents so reviewed shall be retained by the Building Inspection Office. The other set shall be returned to the applicant, shall be kept at the site or work and shall be open to inspection by the Building Code Official or authorized representative.

5.2.2.6 Phased Approval. The Building Inspection Office is authorized to issue an authorization (permit) for the construction of foundations or any 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 the code. The applicant of such authorization (permit) for the foundation or other parts of a building or structure shall proceed at the applicants own risk with the building operation and without assurance that an authorization (permit) for the entire structure will be granted.

5.2.3 Special PRS Submittal Process Topics

5.2.3.1 In Review Status. Means the project is in review and waiting for comments.

5.2.3.2 Conditionally Authorized status. BIO has the ability to issue Construction Authorization for Portions of Construction ie, 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 relevant codes.

The PM requesting such Construction Authorization for the foundation or other parts of a building or structure shall proceed at the PM's own risk with the building operation and without assurance that authorization for the entire structure will be granted.

5.2.3.3 Authorized Status. A project is authorized when all comments have been closed and accepted.
Project is ready for issuance.

5.2.3.4 Hold Status. The maximum time allowed for a project submittal which has been placed on HOLD is guaranteed no change in code of record status is 180 days (6 months) from the date the project was originally entered into PRS. Once the 180-day limit is reached, a design package being returned from hold to active status may require—at the discretion of the Building Code Official—updating or resubmittal to address the effect of any code requirement changes or other changed conditions.

Hold status may also be used to place projects that are in review and have open comments on hold because the project has asked to close until next phase. BIO cannot close in progress BIO reviews. The hold status allows for this option. However when the project submits a new project or restart of review on old projects all comments must be answered and a narrative of the changes and locations must be produced to reopen a review but project asks for no further review until next submittal.

5.2.3.5 Void Status. Projects that do not complete the review status after 180 Days may be closed and marked as void or at the request of the submitter may be void. Once a project is void a new submittal and review process is required.

5.2.3.6 Rejected Status. Projects that do not provide the correct information ie. plans, specifications, cut sheets, etc. may be rejected until such time they supply the correct information.

5.2.3.7 Expired Status. Projected that do not complete the review process or never start work within 180 Days or Stop work for more than 180 days may be put into expired status. A new project will need to be started. Caution if this happens you may need to go back through plancheck as the code books may have changed. Consult BIO with questions.

5.2.3.8 Withdrawn Status. Project may place a project in withdrawn status if the project will not move forward and no further review should take place. All funding will stop when the project is placed in Withdrawn.

5.2.3.9 Expected Review Times. BIO will make every effort to ensure that ESH SME reviewers have entered their comments into PRS in the allotted time as dictated by the size of the project. The time allocated for initial plan review comments entered into PRS is: five to seven (5-7) working days from IN REVIEW designation for small to medium projects and ten to fifteen (10-15) working days from IN REVIEW designation for large projects. Back checks will be done in a prompt manner. The PM will be notified of any delays.

Section 5.2.3.10 & 11 has been added at the PM request to address those reviewers who did not review in their allotted time frame.

5.2.4 Construction design document requirements. As of 6/29/23 all plans shall follow the Conduct of Engineering document which requires use of Teamcenter/ SEDA documents for base plan and updated plans showing work. Document # DOC-000002883 contains the specifics. This must be done BEFORE submittal to PRS.

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 10 CFR 851's RWG-modified requirements as determined by BIO. All drawings are to be on a SLAC standard title block. Drawings that contain more than 5 separate plan sheets shall have a table of contents-placed on the Title Sheet listing the drawings included in the submittal for the specific project. Plans must include plot or vicinity plan, architectural, structural, mechanical, plumbing, electrical, and fire alarm/ fire protection systems as applicable. Plans shall clearly state applicable codes, building number, area of work and shall be dated. See BIO Website for plan submittal handouts for more detailed information.

Plan required information

- Site/plot plan drawn to scale. Dimensions of all lot lines and setback distances to all structures.
- Scope of Work (SOW) or Description of Work
- Civil drawing for new buildings.
- Include on the cover page of the plans, suite/room and building number, designer, or person responsible for design (B&P code 5536.1, 5536.2), type of construction, complete scope of work, deferred submittals, and special inspections, structural observations.
- Provide use or occupancy of the project and the adjacent rooms or areas. List of all current applicable codes.
- Architectural plans (floor, elevations, sections, and details. (Roof plan if applicable) Reflected ceiling plan.
- Structural plans with foundation, soils report, framing details and calculations (if applicable)
- Plumbing plans (single line or isometric) with calculations
- Mechanical plans
- Title 24 Energy Compliance Documentation, envelope, mechanical, and electrical.
- Electrical Power Plan with a minimum of the following, controlled DCR document (If applicable), complete and accurate one-line diagram, site plan with locations of panel/equipment, load calculations for all panels with altered loads, location of all panels, main switchboards, and transformers included on the project, panel schedules for all panels included with the project, floor plans with equipment and panel locations, lighting plan and Photometric plan for outdoor lighting.

Electrical Drawings shall be done by an Electrical Engineer or equivalent. Plans shall include single line drawings, panel drawings, details, calculations, etc.

5.2.4.1 Initial documentation formatting requirements. All Plans and submittals are done using electronic format. All documents, plans shall be done in an editable PDF format. This includes plans, specifications, letters, cut sheets, SOW and any other documents needed for the review of the project. Do not lock changes or the PRS Coordinator cannot stamp the documents, plans, SOW, etc.

5.2.4.2 Final documentation formatting requirements. Once the project review process is complete and the project is ready to be authorized, a flattened stamped pdf copy of all documents and plans shall be provided to the PM by BIO.

If a PM wishes to have hard copies the PM shall have the plans, Specification and any other documents printed and delivered to BIO with a request to please stamp and approve the hard copies. Project bears the costs associated with this request including time for BIO to hand stamp the hard copies.

The following special requirements for information are required to be shown on the applicable documents:

5.2.4.3 Fire Protection System Shop Drawings. Shop drawings for the fire protection system(s) shall be submitted to indicate conformance with the provisions of codes cited in this manual and the construction documents. Shop drawings shall contain all information as required by the referenced installation standards in Chapter 9 of the CBC and applicable sections of adopted NFPA Codes. BIO prefers fire protection components such as fire suppression or fire alarm system components to be shown in color for clarity against background details.

5.2.4.4 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 in compliance with the provisions of codes cited in this manual. For tenant improvement projects, the construction documents shall designate the number of occupants to

be accommodated on every floor, and in all rooms and spaces per CBC Chapter 10.

5.2.4.5 Exterior Envelope. Construction documents for all buildings shall describe the exterior envelope in sufficient detail to determine compliance with the provisions of codes cited in this manual. The construction documents shall provide details of the exterior 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 envelope. The supporting documentation shall fully describe the exterior wall system. Which was tested, where applicable, as well as the test applicable national standard used.

5.2.4.6 Site plan. The construction documents submitted for authorization shall be accompanied by a site plan showing to scale the size and location of new construction and existing structures on the site, the proposed finished grades and, as applicable, flood hazard areas, floodways, and design flood elevations. 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. BIO is authorized to waive or modify the requirement for a site plan when the project is for alteration or repair or when otherwise warranted. Plan shall show all accessible features, routes, parking, signage and paths.

5.2.4.7 Industrial Equipment Access Stairs. Industrial equipment access stairs shall be explicitly identified, preferably through drawing notes. Once identified, such stairs are reviewed for egress design compliance per Cal OSHA and NFPA 101. Stairs not so identified will be reviewed per CBC Chapter 10 egress requirements.

5.2.4.8 Structural Calculations. Structural calculations must be submitted to BIO for review and authorization prior to installation of the associated equipment or structure. Calculations must contain a sufficient level of detail to allow an SSA structural SME to determine compliance with the Building Code, ASCE-7, and any other applicable structural codes and standards.

5.2.4.9 American with Disability Act (ADA), Architectural Barriers Act (ABA), is used for any project that receives "federal" funding.

California Building Code (CBC) Chapter 11 applies to those projects that receive "Private" funding.

Plans shall be provided that show Accessibility from accessible parking to the building to the area under construction, Details, existing compliance provided, Proposed upgrades, Calculations, Cut Sheets. In addition to plans detailing accessibility there is a worksheet showing construction costs over the last 5 years that needs to be completed.

ABD and ADA Projects are to spend a minimum of 20% above the project cost.

CBC Chapter 11, Projects are to spend a minimum of 20% above the project cost up to the current California Threshold Valuation. The 2023 California CBC valuation limit is \$195,358 and is adjusted yearly. IF project exceeds this threshold then it shall show how full compliance will be provided.

5.2.4.10 Electric Vehicle Charging (EVC). Plans shall be provided showing existing and proposed EVC charger Locations, single line electrical plans, Panel Schedules, details as needed.

5.2.4.11 Photovoltaic (Solar) Electric. New Projects and Projects adding Photovoltaic shall show location, proposed panel, plans, details, cut sheets, electrical one line from main panels to photovoltaic system.

5.2.5 Issue for Procurement (IFP) or Issued for Bid (IFB)

5.2.5.1 Issue for Procurement (IFP) or Issue for Bid (IFB). Projects submitted for procurement authorization shall be identified as such in the PRS submittal title. As required by joint BIO/Procurement policy, or as voluntarily requested by PM, BIO shall review Procurement Statements of Work for construction projects to evaluate the document for design direction or scope instructions affecting code compliance. Upon completion of the review, BIO authorization will be granted for procurement and stamped as such. An inspection card will not be issued for these types of reviews.

Procurement may grant NTP for contractor for field design/verification activities based on BIO procurement authorization. Construction documents shall be submitted to BIO in one or more separate child submittals and approved prior to start of any construction work. Any changes to previously authorized design documents that occur during the project procurement process require additional BIO compliance review and a separate authorization for construction. The Procurement department will not grant a construction NTP without BIO-approved Issue for Construction documents.

5.2.6 BIO Interface with SLAC Procurement Office

5.2.6.1 The Scope of Work (aka Statement of Work) is a Procurement contract document containing Information about a scope for construction services to be procured.

Scope of Work – Review Not Needed – Email Confirmation when requested

1. SOWs for securing services to provide consultant, architect, engineer, surveys, etc.
2. SOW that contain ONLY contractual information.
3. Changes to this approval needs BIO review and approval.

Scope of Work – Minor Review - Email Review and Email Confirmation

1. SOW's that contain the description of work only but does not include any plans, specifications, reports etc.
2. SOW that has revisions after PRS original issuance.
3. Editorial Changes requested by DOE, SLAC, reviewers.
4. Work scope that exceeds 2 or more BIO trigger thresholds.
5. Changes to this approval needs BIO review and approval.

Scope of Work - All Others – PRS Review Required -

1. SOW as a document in a PRS package.
2. SOW that list requirements for design elements or specific requirements for a product.
3. SOW section requirements that modify code compliance related design scope.
4. Revisions or changes to SOW after issuance of PRS approval.
5. All SOW/Specifications for equipment to be provided as Government-Furnished Property for installation by a 3rd party subcontractor
6. SOW for DGPS Reviews.
7. SOW for which the dates if referenced in a BIO stamped design documents are over 18 months old.

Send SOWs by email to the bio-inspection@Slac.Stanford.edu Except PRS SOW submittals

Submitters shall make sure that they have received approval from other divisions of their SOW to prevent delay of procurement approval. IE: Electrical (EPD), Mechanical, Water, Equipment, etc.

5.2.6.2 Notification to Proceed. A Notice to Proceed (NTP) authorization is issued by Procurement. There are various types, such as the NTP for a design-build contractor to conduct design-related activities versus an NTP for actual construction work to begin. In general, for work designed under the purview of BIO, Procurement will typically not issue an NTP for actual construction work until they have received design documents with BIO “authorized for construction” stamps.

5.2.7 Design Professional in Responsible Charge

5.2.7.1 Design Professional in Responsible Charge. Where it is required that documents be prepared by a registered design professional or by a SLAC Design Professional, the SLAC building code official shall be authorized to require the PM designate on the building permit application be a registered design professional or SLAC design professional who shall act as the registered design professional or SLAC design professional in responsible charge.

If the circumstances require, the PM shall designate a substitute registered design professional or SLAC design professional in responsible charge who shall perform the duties required of the original registered design professional or engineer or record in

responsible charge. The building code official shall be notified in writing by the owner or the owner's authorized agent if the registered design professional or SLAC design professional in responsible charge is changed or is unable to continue to perform the duties.

The registered design professional or SLAC design professional of record 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.

5.2.8 Submittals Following Initial Construction Authorization

5.2.8.1 Deferred submittals. Deferred submittals contain design content and must be submitted in a timely manner for BIO review and authorization. PMs must identify all proposed deferred submittals in the parent project on the drawing package cover sheet or first general notes sheet. BIO will review and concur with the list of deferred submittals. PMs must include deferred submittal requirements in the project specifications.

Documents for deferred submittals must first be accepted by the PM or registered design professional in responsible charge, who shall forward them to BIO with a notation confirming that the deferred submittal documents have been reviewed and found to be in general conformance to the previously authorized design. The items covered in a deferred submittal shall not be incorporated into construction until the submittal has been reviewed and authorized by BIO.

Other divisions F&O, AD, SSRL can review and comment but ARE NOT BIO approvers or reviewers unless part of a PRS review.

5.2.8.2 Project Submittal Register. When project submittal registers are used, PM shall submit a copy to BIO for consistency review of PRS-required submittals. Upon PM invitation, individual BIO SMEs can

5.2.8.3 RFI and ASI Submittals. Request for Information (RFI) and Architect Supplemental Information (ASI) are documents that occur throughout a project as changes and issues arise. RFI & ASI documents requiring BIO formal design approval shall be put into the PRS system as a child project.

5.2.8.4 PCO Submittals. Procurement may require a project to submit to BIO any PCO that contain changes to the plans, specifications or products to ensure code compliance. Once BIO approves the PCO, it is returned to PM and Procurement.

5.2.8.5 Revisions to Approved Plans. When plans are changed and become revised, they need to go through the BIO review process. Revised plans need to contain only those items that are in the proposed revision – no extra notes, items, etc. The following shall be done to each page that is revised.

The revision box in the upper right corner shall identify the delta number and a revision note. CLOUD the proposed revisions. Only clouds for this revision should be shown. Add a delta triangle with a number inside it in the next sequential number pattern. Leave old revision notes, delta numbers, for past reference. The revision is not approved unless it has a BIO approved for construction stamp with the Revised Notation. Also see the revision to approved documents handout “Revising Approved Documents” located on the BIO website under the “building” button.

5.2.9 Previous Work Approvals the BIO Project Review and Authorization process shall not require changes in the construction documents, construction or designated occupancy of a structure for which a BIO Construction Authorization has been already issued or otherwise authorized. However, a Construction Authorization that has been issued may require subsequent review, if the building or work authorized has not commenced within 180 days from the date of such authorization, or if the work authorized is suspended or abandoned at any time after the work commenced for a period of 180 days, as per section 5.1.6.

5.2.10 Deviations from Approved Construction Documents During Construction. Work shall be completed in accordance with the authorized construction documents. Deviations from the approved drawings, specifications, and submittals shall be reviewed and accepted by BIO prior to incorporation into construction. The method of submittal and approval depends on the scope of the change. Building Inspector, PM, Field Construction Manager (CM), and subcontractor will review the issue and determine if it is a minor or major change. A minor change does not have a significant effect on the plans, specifications, engineering requirements, code compliance and constructability. However, a major change would impact one or more of these items. Minor change examples include, using cadweld vs. crimp connections, locating a transformer at a different location within

the same room, and using a larger ground cable. Major change examples include, moving a wall; adding a dozen or more light fixtures to an area; specifying a different size of transformer or type of switchgear; or changing the egress plan.

For minor changes, the Building Inspector, PM, CM, and subcontractor will review the issue and agree on a code-compliant solution. The subcontractor will redline the field set of drawings to document the minor change. The SLAC PM, or his representative, inspects the field set of drawings regularly to confirm that the agreed-upon redlines are completed. If the issue is

major, and requires 1-3 SMEs to review the changes, then revised and/or additional construction documents shall be formally submitted to the BIO Coordinator. The Coordinator will send an email to the appropriate subject matter experts (SMEs) asking them to review the noted changes. Once the review comments, if any, are satisfactorily addressed by the SLAC PM, the Coordinator will issue an authorization notice granting permission for the project to proceed with the changes. All relevant documents will be uploaded into the appropriate parent project in PRS. However, for any issue significant enough to require BIO formal review by more than 3 SMEs, a new child project shall be entered by the PM into PRS. The final As-Built drawings and RFI, ASI needs to be submitted to BIO as a PDF copy for BIO permit record keeping.

5.2.11 Modification to Approved Scope. The PM shall notify BIO when the scope of a project has been modified significantly. A discussion between the PM and BIO will determine a path forward which may result in a requirement that a new project be entered into PRS as a child to the parent project for formal review.

5.3 INSPECTIONS

5.3.1 General. Work for which Construction Authorization is required shall be subject to inspection by BIO inspectors or other designated inspection personnel (see Section 5.3.3). Construction shall remain accessible and exposed for inspection purposes until released by approval of the designated BIO Inspector. Approval of an inspection shall not be construed to be an approval of a violation of the provisions of SLAC external ESH mandates, including BIO-adopted codes and standards. Inspections purporting to give authorization to violate or cancel such requirements shall not be valid.

5.3.2 Preliminary inspection. Before issuing a Construction Authorization, BIO is authorized to examine or cause to be examined buildings, structures and sites for which an application has been filed.

5.3.3 Alternate Inspector Authorization. The Building Inspection Office may authorize other inspectors (CMs, F&O technicians, other SLAC subject matter experts, third party licensed professionals or other third-party special inspectors) for specific inspection activities if the individuals provide evidence as to their pertinent experience in construction methods, trade knowledge, code knowledge and the application thereof. Inspection Certification by ICC or other national recognized code authority is recommended.

5.3.4 Required Inspections. Upon notification required inspectors from BIO, FMO, EP, WM, RP, IH, Security, shall make the inspections listed in Sections 5.3.4.1 through 5.3.4.14. These are in addition to project engineers' inspections.

5.3.4.1 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.

5.3.4.2 Underground Utilities Inspection of underground utilities, i.e.: electrical, plumbing, fire sprinkler, HVAC, etc. shall occur prior to covering up with dirt, slurry, etc. Slurry covering electrical conduits will be red in color. Pressure testing of completed underground systems shall be observed and approved by a pressure system qualified inspector

5.3.4.3 Concrete slab and under-floor inspection. Concrete slab and under-floor inspections shall be made after all 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 sub-floor.

5.3.4.4 Frame inspection. Framing inspections shall be made after the roof deck or sheathing, all framing, fire blocking and bracing are in place and pipes, chimneys and vents to be concealed are complete.

5.3.4.5 Electrical, plumbing and mechanical inspections. Construction site temporary power shall be inspected prior to first energization. Inspections shall be made when the rough and final electrical, plumbing, heating wires, pipes and ducts are complete. BIO will issue a numbered decal for electrical systems approval.

Electrical Energization & Review is handled by F&O Electrical Department.

5.3.4.6 Compressed gasses and air. Inspection shall be made when all piping, valves, etc. are roughed in and when complete. Pressure testing of completed systems shall have a pressure test plan and be observed and approved by a pressure system qualified inspector who will complete the pressure test record per chapter 14.

5.3.4.7 Fire protection systems. Inspections shall be made as fire protection systems are roughed in but not yet concealed. A final inspection shall be made when systems are complete.

5.3.4.8 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.

5.3.4.9 Fire-resistant penetrations. Protection of joints and penetrations in fire-resistance-rated assemblies shall not be concealed from view until inspected and approved.

5.3.4.10 Energy Efficiency. Inspection of insulation in walls, and on process and heat carrying piping, ducts, etc.

5.3.4.11 Oxygen Deficiency Monitors (ODM). Inspection of the ODM system shall be made once the system is complete and has been formally commissioned as per the FAC-ODM Installation and Commissioning Procedures.

5.3.4.12 Other inspections. In addition to the inspections specified above, BIO authorized inspectors in EP, RP, WM, IH, & Security to make inspections of any work associated with Construction to ascertain compliance with the provisions of the codes cited in this manual and other measures that are enforced by SLAC.

5.3.4.13 Special inspections. For special inspections see Chapter 17 of the CBC. This would include Concrete Testing, Soil Density Testing, Anchor install, Anchor torque, welding, etc.

5.3.4.14 Commissioning (Cx). BIO participates in Cx activities as needed. Copies of Cx documents / final report shall be forwarded to BIO for addition to PRS as a reference document.

5.3.4.15 Final inspection. The final inspection shall be made after all work required by the construction authorization is completed. Final inspection includes, but not limited to representatives of Fire Marshal Office, Electrical Safety Office, Building Inspection Office, and Facilities & Operations.

5.3.4.16 Other Agency Reports. BIO is authorized to accept reports of approved inspection agencies, geotechnical or soils engineers, acoustic engineers, San Mateo County Environmental Health, Bay Area Air Quality Management District, etc., provided such agencies or persons satisfy the requirements as to qualifications and reliability of the inspecting personnel.

5.3.5 Inspection Process. Prior to requesting an inspection, the Subcontractor, Authorization Holder or CM shall use their internal QA/QC process to ensure that the work being inspected is ready for inspection and matches the approved plans.

The BIO /FMO inspection department is not a substitute for the Subcontractor's QA or QC Inspection process. The BIO inspector reviews primarily for code compliance.

5.3.6 Inspection Requests. Required inspections and hold points are documented on the Construction Authorization Record Card. Inspection requests must be submitted through the email request system at one of 6 different email request addresses. See the Building Inspection Request Handout on the BIO Website for detailed instructions. This email shall include the following:

BIO PRS number

Project Building Number, Room Number(s) or specific location on project site

Description of Inspection Requested– Be specific if more than one notice group is included in email

Desired Date (be Specific)

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Desired Time (be Specific)
Where will we meet for inspection
If Pressure Test, Include approved test plan and duration of preparation and test time.
Contact Name, Phone number and email address
Copy the appropriate CM

Hours for Inspection

Normal Hours M-F 7:30 am to 3:30 pm – 24 Hour Notice
Extended Hours 6:30 to 7:30 am and 3:30 to 5:00 pm – 48 Hour Notice
After Hours 5:00 pm to 6:30 am - Weekdays – 72 Hour Notice
Holidays and Weekends – 84 Hour Notice

Requests must be submitted as listed above to ensure you receive your inspection on the date and time desired. Requests received 18 to 24 hours before the desired date and time may occur (schedule permitting) on the desired day BUT the time cannot be guaranteed until confirmed by email. Inspection requests less than 18 hours prior to the event may not occur until the following business day due to previously scheduled inspection staff commitments.

(In the event short notice inspection requests are required due to unforeseeable circumstances, the BIO / FMO inspectors will do their best to accommodate the request.) Requests must be by e-mail to bio-inspection. No verbal or phone call inspection requests will be accepted.

5.3.6.1 Request Received. Once BIO, FMO, EP, IH, WH, RP or Security office receives an inspection request, the request is then forwarded to the appropriate inspector who will confirm your inspection. CM shall coordinate and schedule those all inspections not listed above. Examples are Special Inspection, Facilities, Engineer or Architect, PM, etc.

5.3.6.2 Request Confirmed. Once the BIO inspector receives the request they shall acknowledge the request with a return email. Any changes to the request will be discussed between the inspector and inspection requester. Confirmed inspections are posted on the BIO-Inspections calendar. In this way any inspection requests left in the main email folder will indicate request(s) not assigned to an inspector and follow up is needed.

5.3.6.3 Requested Time Needs Changing. If the requested time is not available the Inspector shall suggest a minimum of 2 other times the project can meet. Requestor shall respond with the alternate date and the inspector will confirm date and time. Inspector to be aware of PAMM days as these cannot move and may need to be rescheduled.

5.3.6.4 Inspection of Work. Work shall not be done beyond the point indicated in each successive inspection without first obtaining the approval of the BIO inspector.

5.3.6.5 Approved Work. The BIO inspector, upon notification, shall make the requested inspection(s) and shall either indicate the portion of the construction that is approved as completed,

5.3.6.6 Not Approved Work. Work that is not per the code or plans shall be considered Not Approved. In such cases, the BIO Inspector shall notify the Contractor or Authorization holder and CM that the inspection failed to comply with the code or the approved drawings and specifications.

5.3.6.7 Incomplete Work. Work not completed at the time of inspection shall be considered incomplete and automatically require re-inspection.

5.3.6.8 Re-inspection. Any portions of work that do not comply with code or the approved plans shall be corrected and left uncovered and unconcealed until reinspected by the BIO / FMO inspector and approved as complete.

5.3.6.9 Repeat Inspections. Repeat inspections for the same work will require longer notification times, to be determined by the inspector. Alternatively, a meeting between the CM, PM, Procurement and Inspector will be held to review the Subcontractors internal QA/QC process to determine the root cause of repeated inspections and follow up actions shall be required by the Subcontractor to correct QA/QC process deficiencies.

5.3.6.10 No Show. No show inspections are requested inspections but there is no one on site to enable inspections. Inspector will try to locate individual if not then inspection will be canceled and a reinspection is needed.

5.3.6.11 Canceled Inspections & No Shows. If canceled the same day less than 4 hours project will be charged the inspection Time requested. Inspections canceled 4 to 8 hours before inspection may incur charges for the time requested.

5.3.6.12 Flow Chart for Inspections. See BIO Website for current flow charts.

5.3.6.13 Construction Inspectors. The BIO, FMO, EP, RP, WM, IH or Security inspectors or their approved designees (see 5.3.3) shall perform the inspection(s) and record the results including signature and date performed.

5.3.6.14 Inspection Documentation. Inspections shall be recorded on the 1) Field copy of the Construction Authorization Record Card and 2) Entered into the PRS Inspection log for the permit identified for this job. Inspection Reports shall be filed by the CM or PM and made available to BIO upon request. Examples may include special inspection reports and final letters, engineer, or architect field inspection reports and final letters, compliance documents, as-builts, etc. Completion of the inspection reports is important as they will become the basis for the BIO preparation of a Certificate of Occupancy (if one is issued).

5.4 CERTIFICATES OF OCCUPANCY OR CERTIFICATE OF COMPLETION

5.4.1 Certificate of Occupancy (C of O). No building or structure that is new or has been vacated for remodeling 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 BIO has issued a certificate of occupancy (see Appendix A, Reference Link #4). Issuance of a certificate of occupancy or completion shall not be construed as an approval of a violation of the provisions of codes cited in this manual or of other BIO requirements.

When requested by the PM, the Building Inspection Office will review the files and previously recorded inspections to assure that all safety items required in the 10 CFR 851 (as modified by RWG Contract) have been met and approved. After BIO inspects the building or structure and finds no violations of the provisions of this manual or other regulations that are reviewed by BIO, then BIO in conjunction with the FMO will issue a certificate of occupancy that contains the following:

1. The construction authorization number.
2. The building number of the structure.
3. The occupancy group and type of construction.
4. The designed occupant loads.
5. A description of that portion of the structure for which the certificate is issued.
- 6.
7. A statement that the described portion of the structure has been inspected for compliance with the requirements of this manual for the occupancy and division of occupancy and the use for which the proposed occupancy is classified.
8. The name and signatures of the current Building Code Official, Fire Marshal, and Electrical Safety Officer.
9. The effective date of the permit.
10. Statement of existence of fire sprinklers.
11. Any special stipulations and conditions of the building permit.

5.4.2 Temporary Certificate of Occupancy (TCO). BIO is authorized to issue a temporary certificate of occupancy (Appendix A, Reference Link #3) before the completion of the entire work covered by the permit, provided that such portion or portions shall be occupied safely. BIO shall set a time period during which the temporary certificate of occupancy is valid.

5.4.3 Certificate of Completion (C of C). When requested by a PM, a certificate of completion is issued by BIO to document acceptance of the construction work contained in a specific BIO project submittal package. For situations in which work will be completed and released in phases, the PM should coordinate in advance with BIO for special arrangements.

5.4.4 Temporary Equipment Acceptance (TEA) When Equipment is brought into a building in phases a TEA shall be granted when the equipment is connected to services and is ready for commissioning or use prior to the remain equipment being

completed. A certificate shall be issued which lists the equipment, time frame of temporary equipment acceptance, any restrictions for each piece in a phased approval process. This section to be used in conjunction with 4.112 of this manual.

5.4.5 Revocation. BIO is authorized to, in writing, suspend or revoke a certificate of occupancy or completion issued under the provisions of this manual wherever the certificate is issued in error, or on the basis of incorrect information supplied, or where it is determined that the building or structure or portion thereof is in violation of any regulation or any of the provisions of the codes cited in this manual.

5.5 DEACTIVATION AND DECOMMISSIONING AKA SLAC EXCESS FACILITIES PROGRAM

5.5.1 Scope of Section. The business process of building deactivation and decommissioning is owned by the SLAC Facilities and Operations (F&O) Division, Building and Space Management (BSM) Department. See Excess Facility Program document on the CDMS F&O Administrative Program documents at <https://docs.slac.stanford.edu/sites/pub/Pages/Facilities.aspx> for details of this process.

5.5.2 BIO Authorization. BIO authorization is not required to deactivate or decommission a facility, unless those activities involve discrete construction activities that meet BIO threshold triggers. This process if addressed through a separate documented process overseen by F&O Building and Space Management. The F&O BSM authorization process ensures that the deactivated asset provides protection to workers, public health and safety, and the environment.

Separate BIO authorization is required for the demolition or removal of a structure that has been deactivated and decommissioned, with the exception of leased construction trailers that are not supplied with site mechanical utilities. The signed Deactivation and Decommissioning (D&D) checklist should be provided as a reference document for the demolition or removal submittal package.

5.5.3 Submittals. All submittals shall be uploaded into the PRS, under Start New Project tab, as outlined above. Typical submittals for deactivation and decommissioning include:

Scope of Work

Location map showing facility to be worked on.

Locations of existing utilities to the facility.

Utility Isolation Plan, which shows how and where utilities will be terminated on the outside of the building. This may require going back to a manhole, pull box, or valve box.

5.5.4 Deactivation Activities. This section lists typical related activities that are expected to be performed before deactivation authorization is granted. These features are covered under the F&O Excess Facility Program and are listed here for reference only. These include:

Sprinkler system remains active.

Fire alarm system monitoring of sprinkler (if present) remains active.

Building secured against unauthorized entry.

Fire extinguishers removed.

Fire department notified of building status. Signage of this status posted on entry doors to the building for emergency responder information.

Building inspected for possible fire hazards.

All conditions verified by Fire Marshal Office for completion.

All types of hazardous materials and hazardous wastes, Universal wastes and Class II wastes must be identified, removed, and disposed per ESH requirements

ESH Industrial Hygiene conducts a survey of the building to identify any existing chemical, biological or other health related (example lead or asbestos) items that must be addressed prior to deactivation

All electrical and mechanical equipment and services must be placed in a safe state in accordance with the requirements of ESH Chapter 51

As-built drawings that clearly depict the deactivation status of all facility systems and equipment must be prepared

RP conducts radiological surveys in accordance with FO #33, "Search and Survey Procedure", until 100% of contents are removed and surveyed.

RP to complete necessary property control forms for offsite transfer of materials (salvage, excess, loan, etc.)

Radioactive Material to be removed and managed per ESH requirements
RP to retrieve any area dosimeters

5.5.5 Decommissioning Activities. This section lists typical ESH related activities that are expected to be performed before decommissioning authorization is granted by F&O BSM:

Obtain BAAQMD (Bay Area Air Quality Management District) demolition permit. A copy of the approved J number permit should be uploaded into the PRS system

Develop management plan for asbestos containing materials, lead, and any PCBs.

Develop removal plan of the fire life safety systems and seek approval from the Fire Marshal.

Develop other decommissioning design documents as appropriate and submit to BIO via PRS for review and authorization.

5.5.6 Issuance of Certificate of Building Deactivation. After BIO authorization is given to deactivate a facility and all necessary action are taken, BIO will issue a Certificate of Building Deactivation. This certificate includes:

A BIO Authorization Number.

The building number of the facility.

A description of the status of the facility.

The name of the Building Manager, Building Landlord, Space Planning, Facility Operations and Maintenance Manager.

The name and signature of the current Building Code Official, Fire Marshal, Electrical Safety Officer, Security Manager, Radiation Protection Manager, and Waste Management Manager.

5.5.7 Revocation. If at any time SLAC decides to reoccupy a deactivated or decommissioned building, a new Certificate of Occupancy will be required – see section 5.4 for details.

5.5.8 CONTROL OF HAZARDOUS ENERGY IN OUT OF SERVICE EQUIPMENT

5.5.8.1 Guideline for Control of Hazardous Energy in Out of Service Equipment. Separate BIO Authorization is required as

it pertains to the conditions of Out of Service Equipment left in a Disconnected State or a Mitigation of Hazardous Energy State. For more information view the document in the BIO Website under electrical. Out-of-service equipment energy isolation BIO highlighted 6.26.23 This section applies to all hazardous emergency systems including electrical, pressure systems, compressed air, process water systems, gas cylinder systems, cryogenic systems, etc.

5.6 BIO Website

5.6.1 The BIO Website can be found at <https://www-group.slac.stanford.edu/esh/groups/bio/>. Many documents can now be found on the BIO Website. Click the specific button to see documents related to that specialty. Buttons are in the internal website and need SLAC Badge Access. The files listed on the left side of the website are public accessible documents.

Appendix A –Definitions and Acronyms

The following words and terms are used in this manual as defined below:

[#]	10 CFR 851	An act of the US Congress that defines the worker safety and health requirements for contractors at Department of Energy sites. For SLAC, the 10 CFR 851 requirements have been modified under the RWG (Revolutionary Working Group) contract.
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[A]	Acceptance	<p>SME acceptance of a review aspect in PRS signifies that the reviewer has reasonable assurance that the aspect design element(s) comply with required codes and standards.</p> <p>A Reviewer who has no comment indicates acceptance of the submittal for the assigned review aspect. Otherwise, a reviewer indicates their overall acceptance of their review aspect by accepting project responses for each of their review comments. At the project level the stamping of submittal documents by the BCO/BO signifies that all reviewers have accepted the submittal. This overall process denotes authorization of the submittal. (see entry for “Authorization”)</p>
	AHJ	<p>Authority Having Jurisdiction. For Building Code and National Fire Protection Association (NFPA) codes and standards, the person or entity empowered to interpret the code and judge conditions as compliant or non-compliant with requirements. The AHJ for approving code alternatives is the DOE Site Office head. The DOE Site Office head assigns operational responsibilities for code administration and routine interpretation to three SLAC positions—SLAC Building Code Official (BCO), SLAC Fire Protection AHJ (FP-AHJ, or Fire Marshal), and SLAC Electrical AHJ (E-AHJ or Electrical Safety Officer) through the SLAC Director. Personnel designated by the SLAC Director with these titles are assigned operational responsibilities only. Requests for alternatives and/or exemptions to managed codes or orders must be referred to DOE for disposition. The DOE Site Office Head or other designated DOE representative retains final approval authority for these requests.</p>
	AMM	<p>Alternate Methods and Materials request (or ruling) for Building Code family documents. This is a type of code alternative similar to an equivalency. (Also see entry for “Equivalency.”)</p>
	Approval	<p>Building Code term for the process of BCO/BO acceptance of a construction submittal. The complete term for BIO’s “authorization” (see Entry for Authorization”) The term is sometimes used informally at SLAC as a synonym for authorization.</p>
	Aspect	<p>Term for the SME external mandate technical discipline or shared area or resource interest being represented by an individual reviewer. (see entry for “reviewer”) Applicable aspects are documented in the plan review system for each submittal.</p>
	Authorization	<p>Process by which BIO confirms that a submitted package has been accepted by compliance reviewers (see “Acceptance”) and is therefore authorized to proceed to the next step in the review process. Authorization is normally documented by a disposition in PRS and by stamps on the reviewed documents. Most authorizations are related to design and construction submittals; examples of some common construction authorization points include for bid, for procurement, preliminary (30% or 60%) design, 90% design, 100% design, issue for construction. Commonly approved construction documents that require authorization include basis of design documents, specification sets, design drawings and calculations. See Appendix C for examples of authorization stamps currently used by BIO.</p>
[B]	BCO	<p>Building Code Official. This is the DOE-O-420.1 term for the assigned responsibility role most closely resembling the position known by municipal and state entities as the Building Official. Note that a SLAC BCO, unlike a municipal BO, is not granted the authority to approve building code AMMs. The terms are used interchangeably at SLAC. (See BO entry.)</p>
	BOC	<p>Beneficial Occupancy</p> <p>Term used to indicate that a building, structure or portion thereof is ready to be authorized for use by the SLAC project owner, which is typically a line organization.</p>

Authorization for beneficial use is typically recognized by the granting of a Certificate of Occupancy or a Certificate of Completion issued by BIO. Conditional or partial use authorization may be granted by a temporary certificate of occupancy.

	BIO	Building Inspection Office. An entity within SLAC ESH CCAS Group.
	BO	Building Official. Term used in the California Building Code. This term is recognized in DOE Standard 1066 as interchangeable with the DOE-O-420.1 term “Building Code Official” or BCO. (See BCO entry.)
[C]	CA-SAP	California Safety Assessment Program (CA-SAP) SLAC Participates in the California Safety Assessment program to inspect and tag buildings based on their condition.
	CBC	California Building Code. Also, may be used generically to refer to the codes of the Title 24 Code set as adopted by SLAC, without their state administrative requirements.
	CCAS	Abbreviation for SLAC ESH Code Compliance and AHJ Services Group. BIO exists within CCAS, and the CCAS supervisor is considered the BIO head.
	Child Project	A PRS project submittal classified as subsidiary to a parent (primary) project submittal.
	CM	Construction Manager AKA Field Construction Manager
	CMC	California Mechanical Code
	COR	Codes of Record Editions of required codes and standards in effect at SLAC at the time the design contract or Design Guide Specification Package is let are the codes of record for the project. More recent editions of specific codes can be substituted upon mutual agreement of AHJ, the Contracting Officer, the PM and the Contractor.
	CA	Construction Authorization After review of application and plans, BIO authorizes a project to be constructed.
	COC	Certificate of Completion. A SLAC-specific document used to track completion of BIO project submittals for phased construction and other special circumstances.
	COO or CO	Certificate of Occupancy. At SLAC, this BIO-issued document certifies that a new building or area is suitable for occupancy or that a fully renovated building or area is suitable for re-occupancy. Also used as an umbrella document in conjunction with COCs to track phased construction and other special circumstances for which occupancy is not a consideration.
	CP	Construction Project. A project to construct, enlarge, alter, move, demolish, or change the occupancy of a building or structure, or to erect, install, enlarge, alter, remove, convert or replace any electrical, gas, mechanical or plumbing system. Construction projects typically are performed by SLAC sub-contractors; however, SLAC in house workers can also perform construction work in accordance with the provisions of the Davis Bacon Act.
	Coordinator	In this document, shorthand for Building Inspection Office Plans Review Coordinator, a BIO core staff position. This term is not to be confused with ESH Coordinator.
	CPC	California Plumbing Code
[D]	DOE-O-420.1	DOE Order for Safety of Facilities at DOE sites. Current SLAC-adopted edition is C,

Change 3. The order is used in conjunction with DOE-S-1066, the DOE standard that implements the detailed fire protection and building code requirements of O-420.1. The current adopted edition is 2019. This is the bases of SLAC Compliance Plan dated 1/12/2021.

Deactivation (equipment)

To place out-of-service equipment in a safe stable condition by eliminating hazardous energy in accordance with ESH Manual Chapter 51, Control of Hazardous Energy. Condition must be protective of workers, the public, and the environment, and economical to maintain for an extended period until the final removal of the equipment.

Deactivation (facilities)

The process of placing a facility in a stable condition to minimize exiting risks and the associated life-cycle cost of the Surveillance and Maintenance program that is protective of workers, the public, and the environment.

Decommissioning

The process of closing and securing an excess facility for disposal or demolition with adequate regard for the health and safety of workers and the public, and protection of the environment following deactivation. Includes surveillance, maintenance, precautionary hazardous material/liquid removal, decontamination, and/or dismantlement.

Design Professional in Responsible Charge

Previously termed architect of record or engineer of record. Member of design team tasked with taking ultimate responsibility for coordination, integration, accuracy and completeness of the technical aspects of a project design.

Dismantlement

The disassembly or demolition and removal of any structure, system, or component during decommissioning and satisfactory interim or long-term disposal of the residue from all or portions of a facility

[E] **Equivalency**

A request for an alternative to a DOE or NFPA standards requirement. An equivalency requires DOE Site Office head or Site Office designee approval. Also see AMM for the comparable building code document.

EP Environmental Protection Department

ESH or ESH Environmental Safety and Health Division

ESH Coordinator

SLAC staff position for an ESH specialist who acts as liaison to provide ESH services to a SLAC Division or Directorate.

External Mandates

Codes, standards and other regulatory requirements involved at SLAC through the DOE

Prime Contract with Stanford. ESH Requirements are primarily flowed down through *ESH Manual* chapters.

Exemption

A request for outright relief from a DOE code or order requirement. Exemption requests must be approved at the DOE under-secretarial level. SLAC does not ordinarily pursue exemption requests, but a small number of approved fire protection exemptions to DOE sprinkler requirements do exist from the time of the lab's original establishment.

[F] **FCM** Facility Construction Manager AKA Construction Manager

	FMO	Fire Marshal Office
[I]	ICC	International Code Council
	IH	Industrial Hygiene Department
[N]	NEC	National Electric Code
	NFPA	National Fire Protection Association
	NTP	Notice to Proceed. This is a written notice from SLAC Procurement that releases a contractor to begin construction activities on a specified date, thus beginning execution of a construction contract.
[O]	Owner	As used in this manual, the lowest level line manager directly responsible for funding and setting criteria for a construction project, or their designated Responsible Person.
[P]	Parent Project	An initial or primary submittal that has one or more subsidiary Child submittal(s). The parent project may be an actual primary project, or it may be a “dummy” project used only to provide an umbrella for a collection of closely related submittals.
	PM	PM. As used in PRS, the person who submits and manages a PRS project. For large construction projects, this is typically a full time F&O PM, but the term also covers engineers, responsible persons, and others who submit and manage projects in PRS.
	Project	As used for PRS, a project consists of the contents of a single PRS submittal and is used interchangeably with the self-evident term “submittal.” While this may directly correspond to the PMs definition of project for small construction, it is usually only a sub-project for the PM. BIO uses the term “Parent Project” to refer to the overarching identification number that references all related PRS project submittals to a single construction project. (See Parent Project.)
	PRS	Plan Review System. Name of in-house SAP-based electronic system to track BIO project submittal review and approval.
1.	[R]	Repair To remove or replace components or change an item of equivalent capacity and function.
	Requester	As used in PRS, synonymous with “Owner.” As used in this manual, an owner or requester is the lowest level line manager directly responsible for funding and setting criteria for a construction project, or their designated Responsible Person.
	RP	Radiation Protection Department
	Responsible Person	Representative designated by line management to oversee line needs for a construction project. This person is most often a scientist or line engineer who is overseeing a project that requires PRS review to interface science equipment with conventional infrastructure. Also see “Owner” and “Requester.” PMs from a specific sub category of Responsible Persons who oversee conventional construction projects.
	Reviewer	An external mandate SME or shared area or resource representatives under the project review process described in ESH Manual Chapter 1. Such persons are assigned a review aspect (See entry

for “Aspect”) under the4 BIO plan review system. External Mandate SME reviewers are assigned by BIO. Shared area or resource reviewer are assigned by the PM or Responsible Person with BIO concurrence.

[S]	Security	SLAC Security Department
	SLAC Site Office	As used in this manual, this term refers specifically to the Department of Energy Bay Area Site Office (BASO) physical location at SLAC. This office oversees SLAC operations on behalf of the federal government.
	SME	A subject matter expert. Who is responsible for providing reasonable assurance for of compliance of project submittals with required codes and standards and DOE prime contract external mandates ESH SME reviewers are listed in the BIO Plan Review Matrix.
	SSO	SLAC Site Office. This is the local DOE office overseeing SLAC contractual activities.
	SOW	Statement of Work A Procurement contract document used to obtain construction services. The term is also used as the title of the PRS submittal description of work text box.
	SSA	Structural / Seismic Authority (SSA) A Person in the Facilities & Operation (F&O) Division that is an authority on structural and seismic issues. The SSA shall be a Structural Engineer Licensed by the State of California. The SSA shall provide the BCO with guidance, regulations, design review and/or recommendations pertaining to structural and/or seismic engineering issues.
	SC	Substantial Completion Term used outside of BIO to indicate that contracted construction work has been completed to the point where a contractor is entitled to full or nearly full payment. For an individual BIO submittal package, this would be demonstrated by a PM requesting and receiving a certificate of completion.
[T]	TCO	Temporary Certificate of Occupancy. A TCO is issued to allow a specified interim occupancy state. TCOs are most often issued to allow a contractor to move furniture or equipment into a facility prior to full building completion, or to allow phased occupancy of a building that is being accepted in stages.
	TI	Tenant Improvement Project. Construction project remodeling an existing building space to accommodate the specific needs of a user. These may include (but are not limited to) the installation of interior walls, structural modifications, plumbing, wiring, mechanical, fire alarm, fire protection systems, flooring, and lighting.
[U]	UTI	University Technical Representative this is equal to a Facilities Construction Manager (FCM)or Construction Manual
[W]	WM	Waste Management Department

Appendix B – BIO Stamps

BIO uses electronic stamps to signify authorization of approved design documents and for other purposes. The following entries show each stamp currently in use and explains it purpose. The stamps are listed roughly in order of frequency of use, from most frequent to least:

Reviewed for Code Compliance with Authorization (“Approved for Construction” or issued for Construction “IFC”)

This stamp marks design documents that provide an authorization for construction to occur based on the designs. Each sheet of a drawing is stamped. Specifications, calculations and reports are typically only stamped on their covers

<p>SLAC - ES&H BUILDING INSPECTION OFFICE THESE PLANS AND DETAILS HAVE BEEN REVIEWED FOR CODE COMPLIANCE. THE AUTHORIZATION OF THESE PLANS SHALL NOT BE CONSTRUED TO BE A PERMIT OR AN APPROVAL OF ANY VIOLATION OF ANY CODE, SLAC POLICY OR STANDARD.</p> <p>By: _____ Date: <u>7/3/2018</u></p> <p>THESE PLANS SHALL BE KEPT ON THE JOB FOR ALL REQUESTED INSPECTIONS.</p>
--

Job copy to remain on jobsite at all times

The construction documents shall be stamped with “JOB COPY TO REMAIN ON SITE AT ALL TIMES” will be placed on final IFC set copies sent to the PM / Contractor

**JOB COPY
TO REMAIN ON
SITE AT ALL TIMES**

Authorized to Proceed to Procurement or Issued for Procurement (IFP) or Issued for Bid (IFB)

This stamp denotes a project submittal that has been approved, but not for construction. An example would be a package for a long-lead materials item with construction design implications or the procurement of a design-bid package, with a detailed design to be provided later by the contractor.



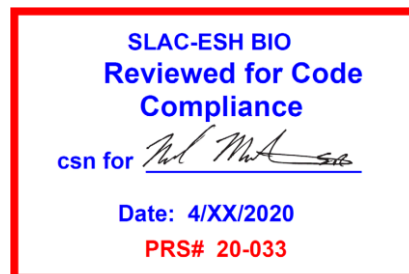
Approved for Fabrication

A special-purpose stamp used for reviews of equipment fabrication drawings when those drawings have conventional construction code compliance implications.



Reviewed for Code Compliance (Reviewed for Code Compliance without Authorization)

This stamp is used for special situations in which a code compliance review is requested but will not lead to authorized construction. Examples would include a consultative review sought by a PM, a review following emergency repairs, or a review following discovery of an unauthorized installation.



For Reference Only

This stamp is used to mark documents that are provided to support a design but are not part of the design information themselves. An example would be archival building construction drawings showing original building conditions.



Deferred Submittal

The purpose of this stamp is self-explanatory. See section 5.2.5 of this report.



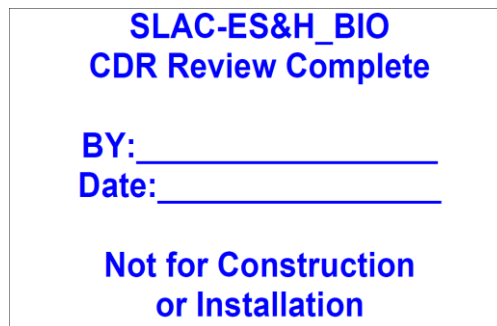
Revised

Denotes a revised design document.



CDR Review Complete

A special stamp used for Conceptual Design Report Reviews (and associated Conceptual Design Drawings)



As Built

Used for special situations where an “as-built” record drawing has been submitted to BIO for

review. For instance, this might occur upon discovery of an unauthorized installation.





Digital Document

A special stamp used on original documents created by BIO. An example might be a report of inspections done on a project or other reports created by BIO.



In most contracted project designs, there are a number of submittals that are stamped by the PM or their designee for their internal approval process. Some documents going through this internal review process also require a BIO review; many do not. These stamps are unrelated to BIO approvals. When BIO approval is required, a project management approval stamp does not stand in for that requirement. Examples of such project management stamps are shown below, for information only.

THESE ARE NOT BIO Approval stamps.

 	
Design and Construction Services	
<input type="checkbox"/>	APPROVED
<input type="checkbox"/>	APPROVED AS NOTED
<input checked="" type="checkbox"/>	REVISE AND RESUBMIT
<input type="checkbox"/>	REJECTED
<input type="checkbox"/>	FOR INFORMATION ONLY
Date: <input type="text"/>	
Submittal No. <input type="text"/>	

Appendix C – BIO Staff R2A2

Building Inspection Office (BIO) R2A2

Roles	Responsibilities	Accountability	Authorities
Building Inspection Office (BIO)	<p>The ESH Building Inspection Office (BIO) performs building code compliance review of design projects for construction of new facilities and modifications to existing facilities. Applicable building codes and standards include:</p> <ul style="list-style-type: none"> • Title 24 California Building, Plumbing, Mechanical, Fire, and Energy Codes • NFPA 70 National Electric Code • NFPA 101 Fire Life Safety Code • Architectural Barriers Act (ABA)¹ <p>BIO code compliance reviews are performed in accordance with ESH Manual Chapter 1 Project Review Procedure.</p> <p>BIO code compliance responsibilities flow down from DOE Order 420.1C, Chg. 3 (LtdChg) Facility Safety. The SLAC Site Compliance Plan (SCP) for Order 420.1C describes how the laboratory complies with the Order. SCP Attachment 1, Section 1.c. provides requirements for building code compliance.</p> <p>Order 420.1C invokes Fire Protection Standard DOE-STD-1066, which provides requirements for design review of fire protection systems, assignment of AHJ responsibilities from the DOE SLAC Site Office (SSO) to SLAC, and management of equivalencies and exemptions to required building codes and standards. The SCP states that BIO building code compliance responsibilities apply from conceptual design through project completion.</p> <p>SLAC's authority having jurisdiction (AHJ) responsibilities are assigned by DOE SSO to the SLAC Director. These responsibilities are further assigned by the SLAC Director to BIO personnel:</p> <ul style="list-style-type: none"> • SLAC Building Code Official (BCO or BO) • SLAC AHJ – Fire Protection • SLAC AHJ – Electrical Installations <p>The assigned AHJ operational responsibilities include <i>code interpretation</i> and <i>code enforcement</i>.²</p>	<p>CCAS^{3,4} Department Head is accountable to the ESH Director</p> <p>The roles of Building Official, AHJ Fire, and AHJ Electrical are accountable to DOE SSO via the SLAC CSO and SLAC Deputy Director of Operations.</p> <p>The roles of Plans Examiner-Building Inspector and the BIO Project Coordinator are accountable to the Building Official.</p> <p>All CCAS members report administratively to the CCAS DH.</p>	<p>The Building Official, Plans Examiners, Building Inspectors, and AHJs have the authority to:</p> <ul style="list-style-type: none"> • interpret building codes and standards. • deem project documents compliant or not compliant. • provide advice or guidance on proposals to achieve compliance. • inspect work in progress. • deem field conditions compliant or not compliant. • request rework of noncompliant installations. <p>The Building Official has the authority to:</p> <ul style="list-style-type: none"> • enforce building code compliance. • stamp compliant project documents and authorize projects to proceed to the next step (procurement, bid, fabrication, or construction, as applicable) • prepare and approve certificates of completion or certificates of occupancy when needed.

¹ ABA, Section 504 of the Rehabilitation Act of 1973, and—for use with Chapter 11 of CBC—technical requirements of ADA Standards for Accessible Design.

² Requests for *equivalencies to or exemptions from* required codes and standards *are not* within the assigned responsibilities of SLAC AHJs. These requests must be forwarded to DOE SSO for disposition.

³ CCAS is the Code Compliance and AHJ Services group is in the ESH Division.

⁴ Refer to the CCAS org chart on the last page.

Roles	Responsibilities	Accountability	Authorities
Building Inspection Office (BIO)	<p>BIO Code Compliance and ESH Requirements Review (BIO/ESH Review)</p> <p>The BIO Plan Review System (PRS) is the on-line tool used to manage BIO/ESH review⁵. <i>Project Managers (PMs) or responsible persons</i>^{6,7} upload design packages to PRS for review.</p> <p>When a project is uploaded to PRS and approved for review by the PM, BIO assigns <i>subject matter expert (SME) reviewers</i> for <i>required building codes and standards, and ESH requirements</i>, and releases the project for review.</p> <p>Reviews aspects (responsible organization):</p> <ul style="list-style-type: none"> • Title 24 California Building, Plumbing, Mechanical, Fire, and Energy Codes, the National Electrical Code, and NFPA 101 Fire Life Safety Code (BIO) • Structural/Seismic (BIO) • Sustainability (BIO and F&O) • ADA (BIO) • SLAC Structural Authority (F&O) • Pressure Systems Safety (AD and ESH) • Industrial Safety (OSHA and Cal/OSHA) (ESH) • Construction Safety (ESH) • Industrial Hygiene (ESH) • Air Quality (ESH) • Hazardous Materials (ESH) • Waste Management (ESH) • Environmental Protection (ESH) • Radiation Protection (ESH) • NEPA (ESH) • Plants/Wildlife (ESH) • Wastewater and Storm Water (ESH) • Spill Prevention Controls and Countermeasures (ESH) • Environmental Restoration (ESH) 	(see page 1)	<p>Authorities Having Jurisdiction (AHJ) have the authority to:</p> <ul style="list-style-type: none"> • enforce building code compliance. • review and determine if requests for equivalencies and exemptions have merit and should be forwarded to DOE SSO for disposition. • request rework or redesign if a request for an equivalency or exemption is not forwarded to DOE SSO for disposition.
		<p>Note: It is important that BIO personnel do not directly participate in design development. They must remain independent from the design team except to provide advice or guidance on proposals to achieve compliance. The Building Official and AHJs appointment memos contain this expectation:</p> <p><i>AHJs and BCO are responsible for enforcing the requirements of a code or standard, and approving equipment, materials, installation, or procedures. It is expected that the assigned AHJs and BCO (BO) be <u>completely independent from decisions being reviewed and shall not have any relationship to design or organizations creating designs ...</u></i></p>	

⁵ *BIO code compliance and ESH requirements review* is abbreviated as *BIO/ESH review* in this document.

⁶ *Responsible person* is defined in **ESH Manual Chapter 1 General Policy and Responsibilities**: *The principal investigator, project manager, or other individual with overall responsibility for an experimental or conventional project.*

⁷ *PM or responsible person* in abbreviated as *PM* in this document.

Roles	Responsibilities	Accountability	Authorities
Building Inspection Office (BIO)	<p>Building <i>codes of record</i> for each design package are established by BIO at commencement of project design. An up-to-date <i>code of record</i> table is available to project stakeholders on the BIO website or upon request.</p> <p>Experimental Project Review</p> <p>BIO review of installations of science and experimental (non-conventional) projects is limited to attachment of the equipment to building structures and building systems. Seismic anchorage of science and experimental equipment, fire protection and egress requirements, and electrical equipment working space, accessibility, and grounding are included in the BIO review.</p> <p>Conventional Project Design Review</p> <p>The ESH Project Review Procedure requires <u>all equipment and operational aspects of projects</u> to be reviewed by <u>key organizational stakeholders</u>. These reviews are managed by PMs.</p> <ol style="list-style-type: none"> 1) <i>BIO does not perform design review and does not manage design reviews performed by others.</i> Project design reviews are the responsibility of the PM. 2) <i>BIO/ESH review is required at each stage of a project</i> (e.g. 30/60/90/100% design). Project Design reviews must be complete <i>with all key stakeholder comments incorporated into project documents</i> before the PM submits the project to PRS for BIO/ESH review. Unresolved and open comments which have been deferred by the PM to the next stage of design development must be included in the design package submitted to PRS for BIO/ESH review. 	(see page 1)	(see pages 1 and 2)

Roles	Responsibilities	Accountability	Authorities
Building Inspection Office (BIO)	<p>Building Inspection Office Project Review and Authorization Manual</p> <p>BIO operations are governed by the BIO Project Review and Authorization Manual (RAM).</p> <ul style="list-style-type: none"> • Scope of BIO authority: ... <i>review, oversight, and authorization for construction, modifications, renovations, deactivation, decommissioning, use, occupancy, alteration and retrofits of all buildings, structures, and areas ...</i> <p>BIO Responsibilities:</p> <ul style="list-style-type: none"> • Provide reasonable assurance of compliance with required building codes and standards. • Comply with the ESH Project Review Procedure. • Review and authorize for construction project design documents. • Perform inspections based on authorized for construction documents. • Perform assigned AHJ operational responsibilities. • Provide interpretation and clarification of code requirements. • Enforce requirements of required building codes and standards. • Maintain a plan review matrix that identifies SMEs for all building code and ESH review aspects. Work with SLAC safety program managers, AHJs, and ESH reviewers to ensure comprehensive review of design projects⁸: <ul style="list-style-type: none"> ○ Fire Protection ○ Electrical Safety ○ Pressure Safety ○ Structural/Seismic Safety ○ Radiation Safety ○ Environmental Protection • Review <i>Statement of Work</i> documents upon request to verify compliance with required building codes and standards and ESH requirements. • Perform in-progress and final inspections. • Prepare certificates of completion or certificates of occupancy in coordination with SLAC Fire Marshal, Electrical Safety Officer, PM, building managers, and building occupants. • Keep records of all BIO/ESH reviews and construction inspections. 	(see page 1)	(see pages 1 and 2)

⁸ This is a partial list of review aspects – see the plan review matrix for the complete list.