

Caltech

EMERGENCY ACTION PLAN



2019 Edition

Buildings included in this plan: Alles, Beckman Behavioral Biology, BI (areas assigned to BBE), Braun, Broad, Church, and Kerckhoff

This plan is maintained by: Joan Sullivan, BBE Business Operations Manager

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QUICK REFERENCE INFO

CAMPUS EMERGENCY NUMBERS	
Security Emergency (Police, Fire, Medical Emergency, Hazardous Material Incident)	x5000 (Campus Phone) 626.395.3000 (Non-Campus or Cell Phone)
Security Non-Emergency	x4701
Physical Plant Service Center	x4717
Environment, Health, and Safety	x6727 x5000 after hours for 24/7 on-call EHS
Staff Emergency Information Hotline (Recorded emergency bulletins/Status updates)	(888) 427-7465
Parent Emergency Information Hotline (Recorded emergency bulletins/status updates on students)	(888) 427-7512

BBE EMERGENCY NUMBERS

Position	Name and Extension
Division Chair	Steve Mayo x6408
Division Administrator	Mike Miranda x4954
Business Operations Manager	Joan Sullivan x6444
Facilities Manager	Jesse Flores x3641
Executive Officer for Computation and Neural Systems	Thanos Siapas x8809
Executive Officer for Neuroscience	Markus Meister x1782
Executive Officer for Molecular Biology	Dianne Newman x3543
Executive Officer for Biological Engineering	Michael Elowitz x8871

BBE CONTROL CENTER LOCATION: KERCKHOFF 114 or 103

If Kerckhoff is not accessible, the immediate Division Control Center location will be the lawn just west of Kerckhoff until another office location is made available.

OLAR control center location: Kerckhoff B111

EMERGENCY OPERATIONS CONTACT INFORMATION

EOC Information is privileged and not to be released beyond the DCC copy of this plan.

Emergency Operations Center is located in the Facilities Building (#83)

Confidential Tele: 626 395 4776 Alternate: 626 395 5407 Confidential Fax: 626 577 7543

Radio: For EOC communications, use channel 7

INTRODUCTION

The complexity of a campus like Caltech requires the full support of its Departments/Divisions and staff to successfully implement an Emergency Preparedness Program. Division Emergency Action Plans (EAP) are an integral part of the overall program.

Divisions are expected to develop their own EAP and Continuity Plan for practical reasons. They best understand the nature of their work, potential work place hazards, the layout of their facility, and special needs specific to their divisions (i.e. people with disabilities, research, animals, etc.).

The EAP is a way for your department/division to plan for potential emergencies; small accidents, citywide disasters, power outages, hazardous material spills, fires, bomb threats, a civil disturbance, or an earthquake. Advanced planning and a department EAP will help to reduce the risk and loss of life. It is important that everyone working in the area is familiar with the EAP.

The Campus Emergency Management Plan can be accessed at:

<http://www.emergencypreparedness.caltech.edu/CEMP>

EMERGENCY PLANNING IMPLEMENTATION CHECKLIST

- Appoint a Building Coordinator and alternates for each building occupied by the department/division
- Appoint Safety Officers for each group within the Division
- Designate Evacuation Assembly Areas for each building
- Encourage individuals with permanent or temporary disabilities that might require special assistance during an evacuation to identify a “buddy” to assist them in an emergency.
- Monitor and report any non-structural earthquake and safety hazards to EH&S (x6727 or safety@caltech.edu)
- Procure and maintain adequate emergency supplies for work area employees
- Post the *Caltech Emergency Response Guide* in work areas
- Develop emergency notification, reporting, and call-back procedures for personnel
- Annually review and update the Emergency Action Plan
- Familiarize all Division/Department personnel with EAP content
- Develop Division/Department Continuity Plans
- Review the Campus Emergency Management Plan

<http://www.emergencypreparedness.caltech.edu/CEMP>

DEFINITIONS

Building Assessment Team (BAT): Each Division/Department is encouraged to enlist volunteers interested in conducting initial visual exterior assessments of buildings within their Division. These individuals are often grad students but staff and faculty are also great additions. Ideally BAT members live within walking distance to campus with the intention that they can come to campus after hours to perform preliminary assessments.

Building Coordinator: designated by the department/division as the primary emergency contact for the building; responsible for implementation of the emergency action plan; assists with the safe evacuation of the work area (with assistance of Safety Officers); assesses injuries and damage to the work area personnel/property and reports status to the Emergency Operations Center (EOC).

Caltech Ready: Caltech Ready is a web based continuity planning tool that contains the continuity plans for numerous academic groups and support units across the Institute.

Campus Emergency Management Plan (CEMP): The Caltech Campus Emergency Management Plan is an operational guide for members of the Emergency Operations Center (EOC) and other responders in the event of an emergency or other event that threatens the health and safety of the campus community or disrupts normal operations or research.

Division/Department Control Center (DCC): The DCC is a pre-designated location where key Division/Department personnel convene to coordinate Division/Department response and recovery efforts.

Emergency Action Plan (EAP): prepared by each campus department/division, the EAP is specific to each work area and outlines various emergency responsibilities of staff, evacuation routes and evacuation assembly areas, emergency supplies, and emergency notification plans.

Emergency Hotline: an emergency information hotline for the campus community. Following a major emergency situation, updates on the status of the campus and instructions will be recorded on the hotline.

Staff Information: (888) 427-7465

Student Information: (888) 427-7512

Emergency Operations Center (EOC): the EOC is where crisis management committee members gather to coordinate the response to an emergency impacting the campus community, deploy emergency response teams, and communicate with outside support services. The primary EOC location is in the Physical Plant Conference Room.

Evacuation Assembly Areas (EAA): areas designated by each department where occupants of evacuated buildings assemble to await further instruction and “all clear” notifications.

Safety Officers: designated employees that assist the building coordinator in building evacuations. Safety Officers direct other employees out of the work area, make observations of injuries/damage and assist individuals with special needs. Safety Officers are equipped with an orange vest.

Information and Assistance Hub (HUB): The Information and Assistance Hub, referred to as the “HUB” is an indoor or outdoor location that provides basic information pertaining to the emergency and resources available to members of the Caltech community. Resources provided will reflect the unique nature of the situation but might include: information on available counselling services, location of medical assistance, status of assessed buildings, ride share boards, as well as international student and scholar assistance. The location and activation of the HUB is done at the discretion of the Emergency Operations Center.

EMERGENCY PROCEDURES

FIRE

Small Fire

In the case of a small fire trained personnel may use a fire extinguisher to extinguish the fire. Evacuation routes should be maintained to allow for immediate exit of all building occupants. Once in a safe location, Security should be notified, **call x5000**. Following evacuation, occupants are not to re-enter the building until instructed to do so by emergency response personnel.

Major Fire

Remain Calm

Alert people in the area and activate the nearest alarm pull box

Close doors to confine the fire

Evacuate to a safe area; use stairs, **do not use elevators**

Fire Extinguisher Use

Pull the pin

Aim the nozzle at the base of the fire

Squeeze the handle to release the extinguishing media

Sweep extinguisher from side to side to smother the fire

Evacuation

- Know the two nearest exits from your work area
- Evacuate the building when:
 - The alarms are sounding
 - Instructed to do so by emergency response personnel
 - There is imminent danger to life
- Close all doors behind you to stop the spread of the fire
- Leave quickly by the nearest safe exit, **walk don't run**

Outside the Building

- Proceed to the Evacuation Assembly Point
- Provide pertinent information to Safety Officers and/or the Building Coordinator
- Building Coordinators should inform emergency personnel, e.g. Pasadena Fire Department, of pertinent information
- Remain with the evacuation group. Do not re-enter the building until instructed to do so by emergency response personnel.

EARTHQUAKE

Preparation

- Avoid storing heavy objects on high shelves
- Secure bookcases, cabinets, and equipment to the floor or wall
- Anchor desk-top equipment, including computers, with nylon straps or Velcro
- Install restraints on laboratory chemical shelves
- Store gas cylinders in properly designed racks

During an Earthquake

If you're inside

- Drop, cover, and hold; take cover under a table or desk and hold on
- If there is no furniture to take cover under, drop to the floor and lean into an interior wall, covering your head with your arms
- Stay away from windows, overhead fixtures, tall objects and electrical equipment
- In a classroom or auditorium, stay where you are and protect yourself by getting under cover or covering your head with your arms
- In a chemical laboratory, be prepared for falling chemical containers. You may need to move from the laboratory into the hallway

If you're outside

- Move to an open area away from buildings, trees, utility wires, and overhead structures
- If driving, pull over to the nearest open area and stop. Stay inside the vehicle until shaking stops

After an earthquake

- After the shaking stops, follow evacuation procedures.
 - Be prepared for aftershocks. Move cautiously. Avoid injury from broken glass and debris. Do not use elevators
 - Check for injured people. Administer first aid if necessary. Do not move seriously injured individuals unless absolutely necessary (fire, imminent building collapse)
 - Report all injuries to emergency response personnel

In situations where leaving campus is difficult or impossible, communication will come from the DCC, Building Coordinators and can be found at the HUB and by calling the Staff Emergency Information Hotline.

SHELTER IN PLACE

The Shelter in Place procedure is used during an emergency when it's safer for individuals to remain indoors than exit into a potentially harmful environment. A hazardous chemical release or an act of violence are two examples of emergency situations that may necessitate a Shelter in Place alert.

To help you remember what to do, the 4 S Procedure has been developed.

SEEK shelter, **SECURE** your environment, **SILENCE** any sounds that may make your location known to an intruder, **STAY** where you are until you have been advised it's safe to leave.

Seek & Share

- Assess your environment:
 - Certain situations may require immediate shelter but where possible: seek rooms that can be locked from the inside. Avoid large open areas, windows or areas that can't be secured
- If you are outside and alerted to seek shelter indoors, enter the closest possible building
- Consider sheltering with others but avoid sheltering in large groups

Secure

- Lock the building's exterior doors (manually or via card access)
- Secure your space. If there are no locks, consider barricading the door.
- Close and lock any windows. Pull blinds closed.
- In some cases the ventilation system may be shut off.

Silence

- Minimize noise
- Keep cell phones turned on but silence them
- Turn down ringers on desk phones
- Be aware of your surroundings and use your senses; listening for unusual sounds, look for hazards or smells
- Reduce or turn off lights to make yourself less visible in the building.

Stay

- Remain in a secure location and wait for instructions from emergency personnel or an official source such as the Caltech Emergency Notification system before exiting the building. It is important to note that clearing campus and buildings for exit may take law enforcement hours, so it is important to have emergency food and water available in your immediate area.

Communications during a Shelter in Place Event

- Notification to shelter in place can come from various sources; however, Caltech Alerts will be used as a primary communication tool.
- Always alert or share necessary safety information with other people in your building or location
- If you have pertinent information about the emergency or need assistance call x5000 or send an email to 5000@caltech.edu. Please consider that by making a phone call you may be audible to a perpetrator.

POWER OUTAGE

A power outage on campus has the potential to cause a significant disruption. Although all buildings on campus have emergency lighting to allow for safe egress, not all campus buildings have generators to provide extended power to equipment and systems.

Telephones are expected to remain operational as long as the telephone switch remains powered by the emergency generator at Dabney.

Building access will automatically lock, meaning that doors controlled by card access will not open and physical keys will need to be used.

Immediate needs:

- Close all fume hood sashes
- Ensure critical equipment has been shut down and protected from a sudden power surge when power is restored
- Keep all fridges and freezers closed to conserve cold air mass
- Confirm that freezer backup systems such as LN₂ and CO₂ are functioning
- Identify critical functions and determine what can be performed without power
- Identify which staff must remain on campus and which staff can be sent home or can work from home
- Advise the Building Coordinator and DCC of the status and needs in your area

Mid- to long-term needs:

All buildings have back-up power to provide emergency lighting for safe egress. Further, all BBE buildings are equipped with some emergency generator-provided back-up power and the generators will automatically come on in the first several minutes after a power failure. For all BBE buildings (except Church), emergency power can be used for critical equipment and systems. It is important that critical equipment be pre-identified and prioritized. There will not be enough emergency power to sustain ongoing experiments or maintain all refrigerators and freezers. There is limited fuel on campus and the Institute's ability to procure additional fuel may be restricted during a regional emergency event.

See Building Specific Guidelines for Back-up Power (Appendix 1).

See Prolonged Power Outage Plan section of the Caltech Campus Emergency Management Plan (Appendix 2).

EVACUATION AND ASSEMBLY AREAS

The following are evacuation assembly area (EAA) locations:

Building	Evacuation Assembly Area	Alternative Assembly Area
Kerckhoff (27)	West of Kerckhoff; grass area near Wilson	Patio area between Braun/Church/Noyes
Church (29)	West of Church; grass area near Wilson	Patio area between Braun/Church/Noyes
Alles (28)	West of Alles; grass area near Wilson	Patio area between Braun/Church/Noyes
Braun (75)	West of Braun; grass area near Wilson	Patio area between Braun/Church/Noyes
BBB (76)	Court of Man Lawn; between BBB and Baxter (Commencement location)	Patio area between Braun/Church/Noyes
BI (74)	BI Lawn; west of BI near Wilson	Patio area between Braun/Church/Noyes
Broad (96)	BI Lawn	Patio area between Braun/Church/Noyes

The location of the campus evacuation point for large-scale campus emergency evacuations: **Braun Athletic Center – Baseball Field**

The Information and Assistance Hub, referred to as the “HUB” is an indoor or outdoor location that provides basic information pertaining to the emergency and resources available to members of the Caltech community. Resources provided will reflect the unique nature of the situation but might include: information on available counselling services, location of medical assistance, status of assessed buildings, ride share boards, as well as international student and scholar assistance. The location and activation of the HUB is done at the discretion of the Emergency Operations Center and will likely be located in one of the larger gathering areas on campus or near residences or the cafeteria.

CHAIN OF COMMAND AND AUTHORITY

During and immediately following a disaster, the Emergency Plan should identify key staff, including a line of succession, who will have decision-making authorization for BBE. BBE has two intertwined Chains of Command and Authority: staff and faculty. In all scenarios, staff will work hand-in-hand with the Chair and other faculty, however, the staff are empowered to act on behalf of BBE in absence of faculty input.

Staff		Faculty	
Name		Name	
1	<i>Mike Miranda*</i>	1	<i>Steve Mayo*</i>
2	<i>Joan Sullivan*</i>	2	<i>Markus Meister*</i>
3	<i>Jesse Flores*</i>	3	<i>Dianne Newman*</i>
		4	<i>Michael Elowitz</i>
		5	<i>Elliot Meyerowitz</i>
		6	<i>Thanos Siapas*</i>

*radio holder

DIVISION CONTROL CENTER PERSONNEL

The following individuals are expected to report to the Division Control Center to manage BBE's Response and Recovery during an emergency

	Name	Extension	Office location
1	<i>Steve Mayo</i>	x4951	112 Kerckhoff
2	<i>Mike Miranda</i>	x4954	103 Kerckhoff
3	<i>Joan Sullivan</i>	x6444	105A Kerckhoff
4	<i>Jesse Flores</i>	x3641	355 Church
5	<i>Executive Officers as needed</i>		

BUILDING COORDINATORS AND SAFETY OFFICERS

KERCKHOFF- Building Coordinators/ Runners

Name	Telephone	Email
Sue Zindle (BC)	x4943	szindle@caltech.edu
Linda Scott (BC backup)	x4389	scottl@caltech.edu

KERCKHOFF- Safety Officers

Name	Telephone	Email
Igor Antoshechkin	x5913	igor.antosheckkin@caltech.edu
Brian Williams	x4923	bawilli@caltech.edu
Shelley Diamond	x4947	diamond@its.caltech.edu
Barbara Perry	x8484	beegie@its.caltech.edu
Vickie Trinh	x8723	vtrinh@caltech.edu
Bruce Hay	x3399	haybruce@caltech.edu
Purnima Deshpande	x4932	purnimad@caltech.edu
Jace Gehring	x8085	jgehring@caltech.edu

ALLES - Building Coordinators/ Runners

Name	Telephone	Email
Kenya Zeigler	x4953	kzeigler@caltech.edu
Lauren Breeyear	x4952	lbreey10@caltech.edu

ALLES - Safety Officers

Name	Telephone	Email
Denise Rodriguez	x2747	cora_carriedo@vwr.com
Katie Clark	x3446	ktclark@caltech.edu
Elisha Mackey	x6862	elisham@caltech.edu
Celine Chiu	x6845	cchiu@caltech.edu
Ping Dong	x8575	pingdong@caltech.edu

CHURCH - Building Coordinators/ Runners

Name	Telephone	Email
Manny De La Torre	x4922	manueld@caltech.edu
Lauren Breeyear	x4952	lbreey10@caltech.edu

CHURCH - Safety Officers

Name	Telephone	Email
Yvette Garcia-Flores	x8978	yvette@caltech.edu
Arnavaz Garda	x8438	agarda@caltech.edu
Uyen Pham	x8123	unpham@caltech.edu
Grigorios Oikonomou	x3797	grigoris@caltech.edu
Michael Muller	x8615	mueller@caltech.edu

BRAUN - Building Coordinators/ Runners

Name	Telephone	Email
Sowmya Chandrasekar	x8712	ouyangy@caltech.edu
Park, S. (Shannon)	x4856	spark80@caltech.edu

BRAUN - Safety Officers

Name	Telephone	Email
Udartseva, Elena	x1726	ludart@caltech.edu
Campbell, Judith	x6053	jcampbel@caltech.edu
Shannon Park	x4856	spark80@caltech.edu
Kanomi Sasaki-Capela		kscapela@caltech.edu
Ju Yeon Hyun	x	jyeonhn@caltech.edu
David Mathog	x8453	mathog@caltech.edu
Alok Joglekar	x6817	alokvj@caltech.edu

BBB - Building Coordinators/ Runners

Name	Telephone	Email
Jessica Silva	x4998	jssilva@caltech.edu
Ainul Huda	x1450	anulhda@caltech.edu

BBB - Safety Officers

Name	Telephone	Email
Robert Vega	x3190	rvega@caltech.edu
Sarah Fitzgerald	x3190	sfitz@caltech.edu
Kristina Dylla	x1304	kdylla@caltech.edu
Brittany Ho	x3373	hbrit13@caltech.edu
Ysabel Giraldo	x4520	ygiraldo@caltech.edu
Mary Kennedy	x3923	kennedym@caltech.edu
Kyu Hyun Lee	x4939	klee@caltech.edu
Francisco Luongo	x1702	fluongo@caltech.edu
Kelsie Pejsa	x2967	kelsie@caltech.edu

BBB - Safety Officers, cont'd

Name	Telephone	Email
Susan Ou	x3724	mono@caltech.edu
Anjalika Chongtham	x6828	anjalika@caltech.edu
Ali Khoshnan	x1705	khoshnan@caltech.edu

BROAD - Building Coordinators/ Runners

Name	Telephone	Email
Janie Malone	x8824	janie@caltech.edu
Andreas Feuerabendt	x8830	andreasf@caltech.edu

BROAD - Safety Officers

Name	Telephone	Email
James Linton	x5969	jlinton@caltech.edu
Monica Breckow	x8084	mbreckow@caltech.edu
Colby Calvert	x6388	colby@caltech.edu
Christopher Frick	x2822	cfrick@caltech.edu
Mary Martin	x5884	mmartin@caltech.edu
Ralph Lee	x5834	ralphlee@caltech.edu
Robert Oania	x6457	roania@caltech.edu
Violana Nesterova	x5748	violana@caltech.edu
Vivek Kulkarni	X8315	vkulkar5@caltech.edu
Leslie Dunipace	x5951	dunipace@caltech.edu
Beth Huey-Tubman	x3062	tubmank@caltech.edu
Shuxia Meng	x8054	smeng@caltech.edu
Alastair McDowell	x8829	mcdowall@caltech.edu
Jessa Alexander	x6523	jalexand@caltech.edu
Daw-An Wu	x3292	daw-an@caltech.edu

Beckman Institute – BBE Coordinators/ Runners

Name	Telephone	Email
Albert Gomez	x2006	algomez@caltech.edu

Beckman Institute - Safety Officers

Name	Telephone	Email
Meyer Barembaum	x3361	mbaremba@caltech.edu
Eiko Shimojo	x2362	eiko@caltech.edu
Daw-An Wu	x3292	daw-an@caltech.edu
Aubrie de la Cruz	x	aubrie@caltech.edu
Maria Papadopoulou	x5959	papadopo@caltech.edu

BUILDING ASSESSMENT TEAM (BAT) MEMBERS

Name	BAT for:	Telephone	Email
Kelsie Pejisa	BBB	x2967	kelsie@caltech.edu

MEDICAL RESPONDERS

Name	Telephone	Email
Kenya Zeigler	x4953	kzeigler@caltech.edu
Manny De La Torre	x4922	manueld@caltech.edu
Lauren Breeyear	x4952	lbreey10@caltech.edu
Sue Zindle	x4943	szindle@caltech.edu

RUNNERS

Name	Telephone	Email
BC backups are runners		

Volunteers: please contact Joan Sullivan at sully@caltech.edu for more information.

DIVISION/DEPARTMENT EMERGENCY NOTIFICATION AND COMMUNICATION PLAN

In conjunction with Caltech Emergency Operations, BBE is developing a series of phone trees and text lists for information distribution. These lists will include faculty and occupants of specific buildings/areas. Personal contact information already provided via access.caltech.edu will be used to populate these lists.

During an emergency, Building Coordinators will obtain information from the DCC and distribute to building occupants and others in their areas.

Include a plan to communicate emergency notifications and instructions to your staff during regular and non-working hours. Suggestions:

The Campus hotline (888) 427-7465, is also source of information updates.

EMERGENCY SUPPLIES AND EQUIPMENT

Building Coordinators are equipped with first aid supplies and radios.

First Aid Kits are located in most labs, offices and with the Building Coordinators. In the event that the Building Coordinator is not available, their kits can be found in their office locations (see locations above).

Orange Trauma bags and Handheld Radios are located with the Building Coordinators. In the event that the Building Coordinator is not available, their kits can be found in their office locations (see "locations" above).

Individual personnel are encouraged to keep their own first aid supplies, water and non-perishable food accessible in their work areas. These can be very important during an emergency, especially during prolonged Shelter in Place situations.

BBE SPECIFIC INSTRUCTIONS and ESSENTIAL FUNCTIONS:

In addition to individual lab needs (as outlined in Appendix 2), BBE has some areas with specific instructions:

- ❖ OLAR will be responsible for emergency procedures related to the animal facilities. OLAR has its own Emergency Action Plan.
- ❖ Critical equipment in the Caltech Brain Imaging Center (CBIC) located in the Broad basement. CBIC has its own Emergency Action Plan (attached here at Appendix
- ❖ Critical equipment in 00 Kerckhoff:
 - J.L. Shepherd Mark I Cesium – 137 Gamma Irradiator
 - Astrophysics Research Torrex 150 Cabinet X-Ray Unit
 - Pantak HF160 Shielded Room X-Ray Unit

In the event of an emergency, **there will not be any radiation hazard from any equipment in Rm. 00 Kerckhoff** due to the design of the equipment and facility. All personnel should exit the room immediately and not attempt to save any experiments. No one outside the room should attempt to enter until key staff have evaluated the situation. Flooding is of special concern due to a potential electrical hazard.

The preferred notification sequence for any emergency in this room should be as follows:

- Security at x5000 will be notified
- Security will contact the Radiation Safety Officer (RSO) or Alternate RSO and the Division Administrator as well as local emergency responders as deemed necessary

- The Radiation Safety Officer will evaluate the situation and inform the Division Administrator of the steps necessary to mitigate the hazard(s)
- The Division Administrator will contact Facilities Management for corrective measures
- The Division Administrator will coordinate the contact of vendors or manufacturers for necessary repairs
- The RSO will then authorize the facility for use

Key Staff:

Haick Issaian, Radiation Safety Officer (RSO)	626-786-6117
Casimir Scislowicz, Alternate RSO	626-786-5460
Mike Miranda, Division Administrator.....	909-865-6780

❖ Critical equipment in 74 Beckman Institute:

- 1T Magnet
- 11.7T Magnet

The small 1T magnet is self-contained with no cryogenic gases and no more hazardous than typical electronics.

The 11.7T magnet does not have passive quench systems, so that if the magnetic field collapses suddenly and the liquid helium boils off rapidly, the majority of the gas will escape into the space above the scanner, but there is a possibility that the room will also be hazardous until all the helium gas dissipates. If we have a power failure or water failure, the magnet will not be affected.

The most dangerous scenario (in human terms, not the equipment) would be an earthquake. The magnet weighs about 1 ton and could theoretically roll around in the rooms in a big quake. It has earthquake clamps and braces to reduce the chances of a breakaway magnet, but might still quench if a big quake hit. Then helium gas could build up quickly in the rooms, requiring an immediate evacuation of the room.

Emergency personnel should assume that the magnet is energized and at full strength when they enter the center. *Fire crews and police carry a lot of steel hardware and would be in great danger if they entered the magnet rooms with, e.g., air tanks or firearms.*

APPENDIX 1 – Building Specific Guidelines for Back-up Power

Kerckhoff and Alles Guidelines:

All outlets in Kerckhoff and Alles are connected to emergency power.

During a power-outage expected to extend beyond a few hours, all non-critical equipment should be unplugged to reserve generator fuel. Items to unplug include non-essential lab equipment as well as small office equipment (i.e. computers, coffee makers, lamps, etc.).

Church Guidelines:

Emergency power in Church is limited to Vivaria needs.

During a power-outage expected to extend beyond a few hours, any absolutely essential equipment should be inventoried and reported to the Building Coordinator who will coordinate with the DCC to relocate the equipment to a backed-up building or area if possible.

Braun Guidelines:

Braun is equipped with emergency power. Outlets providing emergency power can be identified by red markings. See images below for examples of emergency power outlets.



Braun 120 a.jpg



Braun 120 b.jpg



Braun 120.jpg



Braun 208 b.jpg



Braun 208.jpg

During a power-outage expected to extend beyond a few hours, any absolutely essential equipment not already connected to an emergency power outlet should be relocated to an outlet with emergency power with the oversight of the Building Coordinator or DCC representative.

Broad Guidelines:

Broad is equipped with emergency power. Outlets connected to emergency power are identified by red markings. See images below for examples of emergency power outlets in Broad.



Broad 120.jpg



Broad 208.jpg



Broad 208a.jpg

During a power-outage expected to extend beyond a few hours, any absolutely essential equipment not already on an outlet with emergency power should be relocated to an outlet with emergency power with the oversight of the Building Coordinator or DCC representative.

BBB Guidelines:

BBB is equipped with emergency power. Outlets connected to emergency power are identified in the images below.



BBB 120.jpg



BBB 120a.jpg



BBB 120b.jpg



BBB 208.jpg



BBB 208a.jpg



BBB 208b.jpg

During a power-outage expected to extend beyond a few hours, any absolutely essential equipment not already on an outlet connected to emergency power should be relocated to an outlet connected to emergency power with the oversight of the Building Coordinator or DCC representative.

BI Guidelines:

BI is equipped with emergency power. Outlets connected to emergency power can be identified by a label marked “EP” for Emergency Power; a few are shown in the images below.



BI 120.jpg



BI 120a.jpg



BI 208.jpg



BI 208a.jpg

During a power-outage expected to extend beyond a few hours, any absolutely essential equipment not already connected to an outlet on emergency power should be relocated to an outlet connected to emergency power with the oversight of the Building Coordinator or DCC representative.

APPENDIX 2– Campus-wide Prolonged Power Outage Plan

1. OVERVIEW

A power outage on campus has the potential to cause a significant disruption. Although all buildings on campus have emergency lighting to allow for safe egress, not all campus buildings have generators to provide extended power to equipment and systems.

Telephones are expected to remain operational as long as the telephone switch remains powered by the emergency generator at Dabney.

Building access will lock down, meaning that doors controlled by card access will not open and physical keys will need to be used.

For the purposes of this plan, a prolonged power outage is defined as exceeding 72 hours and may impact all or a portion of campus. This plan should be activated as soon as it is determined that the power outage may exceed 72 hours.

2. INITIAL ACTIONS FOR THE EOC

- Determine the expected duration of the outage
- Activate the Power Plan
- Confirm critical generators are operational (see Power Plan for a list of critical generators)

3. ROLES AND RESPONSIBILITIES

a) Impacted Divisions / Departments

- Activate Division/Department Continuity Plan
- Close all fume hood sashes if applicable
- Ensure critical equipment has been shut down and protected from a sudden power surge when power is restored
- Keep all fridges and freezers closed to conserve cold air mass
- Confirm that freezer backup systems such as LN₂ and CO₂ are functioning
- Identify critical functions and determine what can be performed without power
- Identify which staff must remain on campus and which staff can be sent home or can work from home
- Advise the EOC of Division/Department status

b) Campus Security

- Identify and prioritize any elevator entrapments
- Escort individuals from areas where egress lighting may have failed, if needed
- Assist with building access; card access / proxy cards will not work and doors will be locked
- Arrange for evacuation of persons needing assistance

c) Emergency Operations Center

Incident Commander

- Determine severity and duration of power outage
- Based on severity, the Incident Commander in conjunction with the Executive Policy Group should determine if adjustment to the academic schedule is needed and how undergraduate students in residence can be accommodated

Public Information Officer

- Communicate to the campus about the expected duration of the outage and any actions individuals should take or avoid

Operations

- Determine severity and duration of power outage and consider weather impacts
- Support Campus Security
- Activate the Power Plan
- Identify generators that could be powered off as part of the fuel conservation plan
- Consider having the Electric Shop open the switches in the substations so that power can be brought back to campus in a controlled manner
- Identify buildings with sump pumps and utility vaults without generators
- Once power has resumed, run ventilation in the Chemistry buildings (without generators) at 100% for 1 hour to purge any odors that might have accumulated

Planning

- Establish contact with Divisions and Departments and obtain status reports
- Activate resource tracking process for fuel
- Develop a fuel plan for approval by the Incident Commander
- If relocating students off campus develop a relocation plan for approval by the Incident Commander

Logistics & Finance

- Procure additional diesel fuel for emergency generators at the request of Planning
- Provide guidance to supervisors on topics such as working from home procedures and compensation for those told to not come to work

d) Executive Policy Group

- During a disruption to normal power supply, the Executive Policy Group should consider a number of policy issues, in particular, determine if:
- Classes should be cancelled or other changes to the academic or operational schedule of the Institute are required
- Essential non-reporting personnel released or advised to remain at home
- Undergraduate students in residence and graduate students can remain in Institute housing
- JPL has been impacted

APPENDIX 3- CHECKLISTS AND FORMS

DCC CHECKLIST:

The DCC is a location where key Division/Department personnel convene to coordinate Division/Department response and recovery efforts.

- Activate a DCC; DCC personnel report to Kerckhoff immediately
 - Communicate with Staff and Faculty
 - Advise the Emergency Operations Center of the DCC's activation, location and any critical information. This might include:
 - Life safety concerns or hazardous conditions
 - Building or infrastructure damage
 - Status of critical research, if known

An example status report form is available in the Form Section of this EAP.

- Determine research and academic priorities within the Division/Department
- Allocate space and resources as required and available
- Continue to communicate with the Emergency Operations Center

BUILDING COORDINATOR CHECKLIST:

Building Coordinators are assigned to every building and act as a liaison between the building occupants and emergency first responders such as Campus Security or the Pasadena Fire Department. During evacuations and emergency situations, Building Coordinators collect pertinent information from Safety Officers about injured individuals, trapped or missing persons, fire, hazardous material spills or other hazards remaining inside the building or about hazardous conditions. The Building Coordinator directs individuals to the assembly area and discourages individuals from re-entering the building until it has been given the "all clear" by Campus Security or the Pasadena Fire Department.

Building Coordinators are identifiable by their orange vests.

When the fire alarm sounds:

- Don your green vest, retrieve checklist and Orange emergency bag
- Alert all individuals in your assigned area to evacuate
- Direct building occupants and visitors to the Assembly Area
- Stand in a safe but prominent location, e.g. by the enunciator panel or in the assembly area, where Safety Officers and emergency personnel will see you
- Collect information about injured individuals, trapped or missing persons, fire, hazardous material spills or other hazards from safety officers and provide to Campus Security or first responders
- Provide information to evacuated occupants in the assembly area as appropriate
- Keep individuals away from the scene of the emergency

Never put your own safety at risk.

Pre emergency responsibilities

- Review emergency procedures and know the location of your assembly area
- Keep a current list of Safety Officers in your building
- Keep the Orange Emergency Bag in an accessible location
- Be familiar with the location of the following emergency equipment:
 - o Fire alarm pull stations
 - o Fire extinguishers
 - o Emergency exits
 - o Evacuation routes
 - o First aid supplies
 - o Emergency supplies
 - o Emergency shower and eye wash stations
- Report hazardous conditions such as obstructed emergency egress, inoperable emergency signage or damaged emergency equipment to Safety x6727 or Facilities x4717
- Identify individuals with mobility challenges and help them develop alternate evacuation plans
- Attend Building Coordinator/Safety Officer training
- Consider attending hands-on fire extinguisher training

SAFETY OFFICER CHECKLIST:

Safety Officers are assigned to each floor within a building to provide assistance to building occupants and visitors during evacuations and other emergency situations. Safety Officers direct the evacuation of their assigned floor to the nearest emergency exit; prevent individuals from using the elevators, provide pertinent information about individuals remaining inside the building or about hazardous conditions to the Building Coordinator, direct individuals to the assembly area and discourage individuals from re-entering the building until it has been cleared by Campus Security or the Pasadena Fire Department

Floor Wardens are identifiable by their orange vests.

When the fire alarm sounds:

- Don your orange vest and retrieve checklist
- Alert all individuals in your assigned area to evacuate
- If it is safe to do so, quickly check floor, washrooms, closed work areas to ensure all individuals have evacuated
- Close (do not lock) all doors as you exit the area
- Once outside, provide the Building Coordinator with information about the condition of your floor. This should include information about injured individuals, trapped or missing persons, fire, hazardous material spills or other hazards
- Provide information to evacuated occupants in the assembly area as directed by the Building Coordinator
- Keep individuals away from the scene of the emergency

Never put your own safety at risk.

Pre-emergency responsibilities

- Review emergency procedures and know the location of your assembly area
- Be familiar with the location of the following emergency equipment:
 - o Fire alarm pull stations
 - o Fire extinguishers
 - o Emergency exits
 - o Evacuation routes
 - o First aid supplies
 - o Emergency supplies
 - o Emergency shower and eye wash stations
- Identify individuals with mobility challenges
- Attend Safety Officer training
- Consider attending hands-on fire extinguisher training

BUILDING ASSESSMENT TEAM (BAT) REPORT FORM

Building Name: _____

Location Info (Address, Intersection, Part of Bldg. or Room #): _____

BAT Inspector (Name): _____ Date: _____ Time: _____ AM/PM

Div./Dept.: _____ Phone: _____ Fax: _____

SECTION 1: Completed by Building Assessment Team (BAT) return form to local DCC/ASAP

I. PRELIMINARY BUILDING ASSESSMENT REPORT

	YES	NO
1. Collapse, partial collapse or building off foundation	<input type="checkbox"/>	<input type="checkbox"/>
2. Building, or a story, noticeably leaning	<input type="checkbox"/>	<input type="checkbox"/>
3. Obvious severe damage/distress	<input type="checkbox"/>	<input type="checkbox"/>
4. Chimney, parapet, or other falling hazard	<input type="checkbox"/>	<input type="checkbox"/>
5. Severe ground or slope movement present	<input type="checkbox"/>	<input type="checkbox"/>
6. Severe window glass breakage or 'X' building cracks between windows (>60% in a story)	<input type="checkbox"/>	<input type="checkbox"/>
7. Any visible indication of a fire/smoke (Call 5000 to report a fire)	<input type="checkbox"/>	<input type="checkbox"/>
8. Any visible indication of a hazardous materials release (Call 5000 to report Hazardous Materials)	<input type="checkbox"/>	<input type="checkbox"/>

II. SIGNAGE (Check **Closed** on sign and post on every building entrance if the answer = "Yes" to any of the previous conditions)

How is the building posted? Closed Caution

NOTE: Official Building Status (Open/Closed/Limited Entry) will be determined & authorized by the Institute EOC.

SECTION 2: Only complete this section if information is readily available. Do not re-enter a building assessed as Closed

I. OPERATIONAL CONDITIONS/UTILITIES

	YES/ON/OK	NO/OFF/NOT OK	UNKNOWN	SHUT OFF?	OTHER (Explain Below*)
1. Power/Generator	<input type="checkbox"/>				
2. Water	<input type="checkbox"/>				
3. Gas <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Communications (Phone/Network)	<input type="checkbox"/>				
5. Ventilation	<input type="checkbox"/>				

II. OPERATIONAL CONDITIONS/HAZARDS

	NO	YES	UNKNOWN
6. Fire/Smoke	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Gas Leak/Smell of Gas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Hazardous Materials Spill	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Flooding	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Interior Debris	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

* Add notes or sketches here to provide more information

SECTION 3: Completed by DCC (send copy to EOC ASAP)

Priority: HIGH MEDIUM LOW

Report Rec'd By: _____ Date: _____ Time: _____

SECTION 4: Completed by EOC

Priority: HIGH MEDIUM LOW

Report Rec'd By: _____ Date: _____ Time: _____

The primary EOC is located in the Facilities building (#83). Directly across from Chandler

DCC STATUS REPORT FORM

Deliver To:

In Person: Facilities (Building 83)

Fax: 626-577-7543

Phone: 626-395-4776

Reporting Department _____ Date/Time _____

Reported by: _____ Contact number _____

Assistance Requested? Yes No

1. Type of Problem/Damage: Please indicate Specific Locations

2. Communications Available:

a. Telephone:

Number: (____) ____ - _____

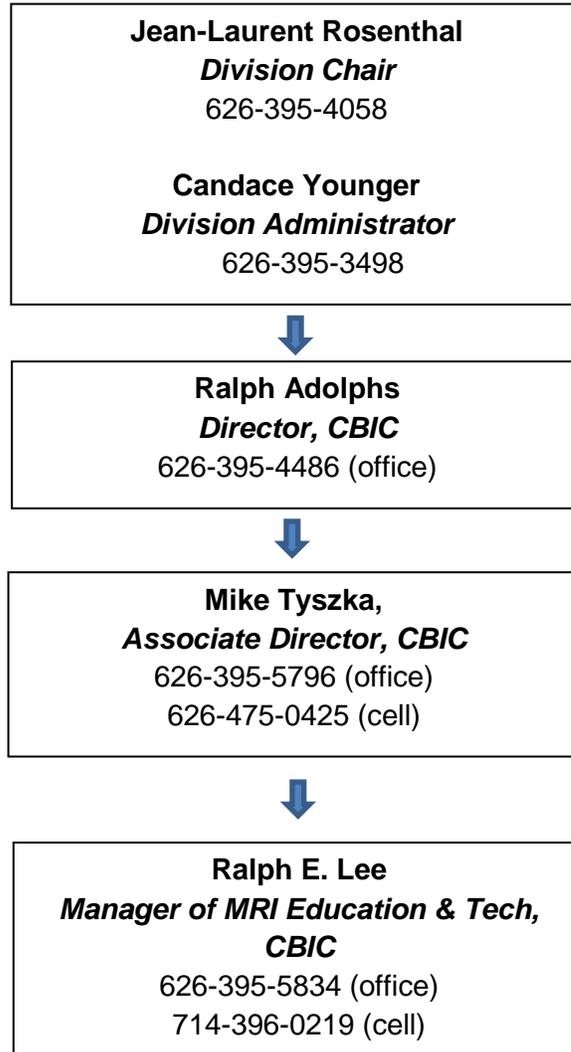
b. Two-way Radio: Frequency:

c. FAX:

Number: (____) ____ - _____

3. Special Problems/Needs: _____

CHAIN OF COMMAND



CBIC KEY STAFF

Name	Assignment
Ralph Lee	First Aid, CPR
Mary Martin	First Aid
Mike Tyszka	First Aid, CPR

CBIC ESSENTIAL FUNCTIONS

Magnets	Prisma (B102E3)	TIM12 (B106N)	7T (B106J)	4.7T (B106E1)
Magnet Field Shutdown (Quench Button)	Ralph Lee Mike Tyszka	Jessa Alexander Mike Tyszka	Martin Kunth Mike Tyszka	Vasileios Christopoulos Mike Tyszka
Equipment Room	B102E4	B102E4	B106J2	B106E2
Emergency Power Shutoff	Ralph Lee Mike Tyszka	Jessa Alexander Mike Tyszka	Martin Kunth Mike Tyszka	Vasileios Christopoulos Mike Tyszka
Water Shutoff	Ralph Lee Mike Tyszka	Jessa Alexander Mike Tyszka	Martin Kunth Mike Tyszka	Vasileios Christopoulos Mike Tyszka
Cryogen tanks	B106E4	B106 Hallway		B106E
Check Status	Ralph Lee Mike Tyszka	Ralph Lee Mike Tyszka		Vasileios Christopoulos
Wet Labs	Hazardous Chemicals (B106J1)	Hazardous Chemicals (B106F)	Freezer (B106F)	
Check for damage/spills	George Lu Mike Tyszka	George Lu Mike Tyszka	George Lu Mike Tyszka	
Data and Records	MRI Data (B102E4)	Admin Data (B102B)	Human Subject Records (B102E)	
Move records/data if needed	Ralph Lee Remya Nair	Mary Martin Ralph Lee	Ralph Lee Mike Tyszka	
Check data storage	Ralph Lee Remya Nair			
Mouse Holding	B106L1			
Check Status	OLAR George Lu			

SPECIAL HAZARDS WITHIN THE CBIC

Magnetic Field Hazards : Emergency Responders should not enter any of the magnet rooms (B102E3, B106M, B106J3 or B106E1) unless they have removed all ferromagnetic materials, including tools, cell phones, radios, oxygen tanks, ladders, keys and other small items that could become projectiles in the magnet rooms.

Asphyxiation Hazards: Responders should not enter any of the magnet rooms (B102E3, B106M, B106J3 or B106E1) if oxygen sensor alarms are sounding. This would mean that normal air has been displaced by nitrogen and/or helium gas resulting from a magnet quench or cryogen leak.

Extreme Cold Hazards: Inert liquid cryogenics (nitrogen and/or helium) may be present in the magnet rooms (B102E3, B106M, B106J3 or B106E1) following damage to the magnet dewar, for example following an earthquake.

Electrocution Hazards: Responders should take note that there is high voltage equipment in the MRI equipment rooms (B102E4, B106J2 or B106E2) that may present an electric shock hazard. These rooms also have water-cooling systems that may leak or be damaged in the event of an earthquake.

Chemical Hazards: Hazardous chemicals, including concentrated mineral acids and liquid solvents, are stored in the wet lab areas (B106J1 and B106F).

ACCESS CONTROL

CBIC access is controlled through wall-mounted card key readers.

The main access categories are:

1. General access to human MRI Zone 2 (B102)
2. Restricted access to human MRI Zones 3 and 4 (B102E), including (a)
3. Restricted access to small animal area (B106), including (a)
4. Restricted access to non-human primate area (B106E) including (a) and (c).

Master keys are available for entry to each room and are held by Mary Martin, Mike Tyszka and Ralph Lee

CBIC PERSONNEL ROSTER

Name	Extension	Alternative #
Ralph Adolphs	x4486	
Mike Tyszka	x5796	626-475-0425
Ralph Lee	x5834 or x5858	714-396-0219
Mary Martin	X5884	626-318-1142
Remya Nair	x6506	
Martin Kunth	x5847	626-460-9825
George Lu	x8560	
Vasileios Christopoulos	x5854	612-275-1341
Jessa Alexander	x6523 or x5791	626-395-6523