Critical Environment Management
Introduction
Greater China Property & Asset Management
Agenda

• Definition of Critical Environment
• Identification of Tenant Critical Environment
• Identification of Base Building Critical Facility
• Maintenance Procedure of Base Building Critical Facility
• CEM Documentation
• Isolation and Access Control Management to Critical Area
• Base Building Critical Facility Monitoring
• Q&A
Definition of Critical Environment

Tenant’s Critical Environment (Tenant CE) is defined as:

• Services which support a tenant’s operation where the failure has the potential to cause significant and direct financial losses to the tenant and;

• There is an obligation under the lease to supply the services by the lessor or;

• There are no lease obligations but there is the potential for loss of reputation to our client and JLL,

• e.g. potential significant client relationship damage if it can be shown that we have not been diligent in the management of these services.

*Source: Jones Lang LaSalle’s Critical Environment Management (CEM) Manual
Definition of Critical Environment

Base Building Critical Facility (CF) is defined as:

- Base building facility that is critical to the business operation of the tenant CE.
- The failure of the base building facility will lead to interruption of the tenant CE.
Identification of Tenant CE

• The identification **shall NOT** be performed through any kind of questionnaire (oral nor written) for the tenants or owners.

• This is to avoid tenants and owners’ misconception that the facilities being questioned are CE as they may not be aware of the definition of CE and JLL’s responsibilities, thus causing unnecessary impact on building operations.
Identification of Tenant CE

By Business Nature

The below business nature usually have CE within their units:

• Business with data centers such as banks, (securities) trading floors, data / communications / network service providers, etc.

• Customer service center (call center), etc. for which no interruption is permitted during operation hours

• Clean room, research laboratory, and those with special requirements for the interior environment

• Hospitals, ophthalmology clinic, dental clinic, cosmetology clinic, etc. related to safety or life support system for patients
Identification of Tenant CE

By Facility

A facility in tenant units which meets any of the below listed conditions shall be identified as CE:

1. Connected to the building’s backup generator set
2. Connected to the tenant’s backup generator set
3. Connected to 24-hrs air-con or condenser water supply
4. Related to the services that cannot be interrupted as specified in the leasing contract
Identification of Tenant CE
By Facility

5. Connected to the UPS (*Remarks below*)
   - Facilities connected to the UPS or backup battery series shall be identified in combination with the tenant’s business nature and the type of facilities.
   - Usually, CE will be connected to the UPS or battery series, but not all facilities connected to the UPS or battery series are considered CE.
   - If the facility is connected to the base building battery bank, it is theoretically equivalent to being connected to building generator set, and shall be identified as CE.

6. Connected to backup (lead-acid or other type) battery series (*Remarks: Please refer to the above*)
Identification of Base Building CF

• Base Building CF can be identified after the identification of tenant CE. It includes but is not limited to:
  - Power / water / cooling / heating supplies for the tenant CE;
  - Circuit breakers or valves on the aforesaid supply lines;
  - Relevant control devices;
  - Base building facilities supporting tenant CE;
  - Power / water / gas / cooling / heating supplies to base building facilities supporting tenant CE;
  - Circuit breakers or valves on the aforesaid supply lines and relevant control devices.
Identification of Base Building CF

If the access control system, fire service system, CCTV system and other control device to the tenant CE is connected to the base building main system:

- The relevant base building access control system, fire service system, CCTV system and building management system (BMS) shall be identified as base building CF.

- The same applies to the circuit breakers or valves on the power / water supply lines to the aforesaid system.
Identification of Base Building CF

• If the base building facilities supporting tenant CE have standby units, the facilities **shall NOT** be identified as base building CF

• In the occurrence of standby unit failure for the base building facility supporting tenant CE, the facility shall be temporarily regarded as the base building CF before the standby unit is back to service.

• If the tenant is responsible for the maintenance service of a CF such as generator set or 24hrs cooling tower, this facility shall not be listed as the base building CF.
Sample - Identification of Base Building CF (Water Supply System)
Identification of Base Building CF

• Base building CF shall be identified at least **ONCE every year**.

• **For every change in tenants of the building**, a building CF identification shall be carried out to the changed tenant unit.

• Any addition, reduction or changes in base building CF should be updated on the Base Building CF Identification Form.

• The completed / updated form should be submitted to the local EOS Coordinator for record.
# Building CF Identification Form

Fill in the below form by assessing each tenant unit in the building.

**Instructions:**
- Tenant's facilities with one or more "Yes" under columns C / D / E are considered Tenant Critical Facilities.
- For any tenant with one or more "Yes" under columns C / D / E, columns F and G must both be filled out.

## Building Name:

<BUILDING NAME>

<table>
<thead>
<tr>
<th>Tenant Unit</th>
<th>Tenant's Business Nature</th>
<th>Connected to Tenant's Backup Generator Set</th>
<th>Connected to Building's Backup Generator Set</th>
<th>Connected to 24-hr A/C or Condenser Water Supply</th>
<th>Tenant's Critical Facilities</th>
<th>Corresponding Base Building Critical Facilities</th>
<th>Remarks</th>
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Completed by: <NAME> 
Approved by: <NAME> 
Building in Charge: <NAME> 
Date: <DATE>
Scheduled Maintenance Procedure to Base Building CF

Important Notes

• Any cases of CE facilities failure shall be communicated immediately to the affected tenants.

• Standby systems shall be checked for actual functionality before the maintenance of the main system commences.

• Facilities shall only be returned to service after maintenance once it has been examined, tested and verified as being acceptable to return to service.

• The tenant shall be informed immediately of any delay or overrun in maintenance works that imposes impact on normal business operations.

• The tenant shall be informed immediately of any critical system power interruption or outage.
# Scheduled Maintenance Procedure to Base Building CF - Work Permit

## Appendix 1: Base Building CF Work Permit

### Base Building Critical Facility Work Permit

<table>
<thead>
<tr>
<th>Building Name</th>
<th>Permit Number</th>
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<tbody>
<tr>
<td>Address</td>
<td>Work area</td>
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<tr>
<td>Facilities Manager</td>
<td>Contact number</td>
</tr>
<tr>
<td>Date approved</td>
<td>Requested work window</td>
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<tr>
<td>Requested start date</td>
<td>Impairment notice required?</td>
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<tr>
<td>Completion date</td>
<td>Hot works required?</td>
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</tbody>
</table>

### Scope of Work

### Affected Tenants

<table>
<thead>
<tr>
<th>Affected tenant unit</th>
<th>Approved by tenant rep</th>
<th>Affected tenant unit</th>
<th>Approved by tenant rep</th>
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### Potential impact to client & contingency plans

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**Jones Lang LaSalle | Academy**
Unscheduled Maintenance Procedure to Base Building CF

Important Notes

- Incidents or failure of base building CF should be reported in accordance with the tenant and Jones Lang LaSalle’s escalation procedures.

- Careful consideration should be given to ensure the repairs do not cause further damage to equipment due to works performed hastily.

- Any incident, whether real or false, should be followed up with an incident report.

- If no written approval can be obtained from the tenant before maintenance, an oral approval must be obtained from the tenant representative and registered in the building logbook for future reference. Relevant documentation shall be developed after the maintenance in accordance to scheduled maintenance procedure.
CEM Documentation

• All CEM related documents must be kept on site for **at least 24 months** for future reference. Documents include but are not limited to:
  - Business letter to and from tenants
  - Meeting minutes
  - Work method statement
  - Risk assessment report
  - Work permit, critical area access register
  - Relevant service & maintenance record
Isolation and Access Control Management to Critical Area

1) If the CF is located at an independent plant room (i.e. plant room only contains the base building CF supporting the tenant CE):

- It must be accessed by a specific and unique key; plant room master keys are not sufficient.
- The unique key shall be kept in an appropriate place, such as in the central control room monitored by nominated persons, with strict control procedure and registration system in place.
# Base Building CF Access Register

## Appendix 2: Base Building CF Access Register

### Base Building Critical Facility Access Register

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Permit No</th>
<th>Company</th>
<th>Name</th>
<th>Location</th>
<th>Summary of Works</th>
<th>Signature</th>
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Note: The Base Building CF Access Register applies only to isolated base building critical areas.

Name: ........................................

Signature: ..................................

Date: .......................................
Isolation and Access Control Management to Critical Area

2) If the CF and other general equipment are in the same plant room:

- The critical environment must be accessed by a specific and unique key (not a mechanical services master) and must be isolated from the general equipment by (as a minimum) a chain-wire fence with critical environment master key or access card controlled gate.

- The key or card is not to be part of a standard contractor key set. The key / card are only to be held by the technicians permitted to work in the critical environment area.
Isolation and Access Control Management to Critical Area

If the critical environment cannot be isolated by fence:

- The critical environment equipments such as circuit breaker to CF must be locked by using a uniquely keyed padlock control switch.

If none of the above measures can be implemented, the base building CF shall be distinctly labeled.
Base Building CF Labeling

• Shall have an unified design and text description

• Indicate that the facility belongs to CE and to carry out any operation or maintenance without formal permission is strictly prohibited.

• The following text is suggested on the label:

“BASE BUILDING CRITICAL FACILITY: WRITTEN APPROVAL FROM MANAGEMENT OFFICE SHOULD BE OBTAINED BEFORE OPERATION.”
Isolation and Access Control Management to Critical Area

Important Notes

• Maintenance staff (contractor or JLL staff) must be fully inducted

• For scheduled maintenance, the person must have a fully approved Work Permit

• For scheduled maintenance, the Base Building CE Access Register must be filled out and submitted

• For unscheduled maintenance, verbal approval must be obtained from the tenant representative as a minimum
Base Building CF Monitoring

• Plant and equipment parameters within tenant CE and equipment must be continuously monitored via building BMS or other monitoring facilities.

• Alarms indicating a system failure must be reported to a person/s that can commence investigation and repairs.
Base Building CF Monitoring

• The management office must:
  - Ensure that all alarm points are workable and operational;
  - Maintain a list of the critical alarms, method of monitoring, notification process and nominated persons to respond to critical environment alarms.
  - The names and contact details of the nominated persons shall be clearly indicated on the list, which shall be reviewed every 6 months to ensure the effectiveness of the contact information.
Thank you!