

The Life Safety Master Plan: A Proven Step-by-Step Process for Developing and Maintaining Your Facilities LSMP

What is a life Safety Master Plan? In the simplest terms it is a graphic representation of the life safety and code compliance components of your facility. It should be clear, concise and easily understandable for anyone without an engineering background – this will be a tool not only for the facility manager and his staff, but for the education and training in safety procedures of all hospital professional and support personnel. It will also be the primary communication device to describe your facility and its current life safety condition to surveying/inspecting authorities. It needs to be more comprehensive than simply a blow-up of the exiting plans you have posted throughout your facility but nowhere near as complex as the architectural construction documents you probably have filed in your plan room and/or stored electronically in your data system. Unlike your filed construction documents, a LSMP must be representative of your current facility and its safety conditions – it needs to be a dynamic document, updated whenever major changes occur and at least annually.

Why do you need a LSMP? A safety plan is usually one of the first things a Joint commission, CMS, Building Department, Public Health Department or other surveyor will ask for before beginning an inspection. The more informative your plans, the less questions and issues you will have on your survey. Additionally, a complete, clear LSMP conveys your comprehensive understanding of life safety compliance and your professional approach to maintaining a safe environment of care. The LSMP is your background document for locating and tracking each item on your statement of condition, CMS deficiencies list and/or plans for correction and improvement. The LSMP will also be a powerful tool as a graphic strategic map in helping develop your facility's emergency preparedness plans. Lastly, a current LSMP will help you effectively communicate our facility condition, both strengths and potential weaknesses to the 'C' level suite and other departments.

If you have the technical and personnel resources you can develop your Life safety Master Plan internally or you can use outside assistance. Your facility architect will typically be more than happy to help develop your LSMP; in addition there are a number of professional consulting organizations that specialize in this area, often in conjunction with life safety survey, Statement of Condition and facility assessment type services. Some of these organizations will also store and maintain your data and help you keep your plans in current condition. Regardless of the resources you use, you as the Facility Manager need to define the content of your LSMP and the form and format it will take. While you will always want 'hard copies' of your current LSMP at hand, there are tremendous advantages in developing and maintaining your LSMP in electronic, CADD type form. One of the major benefits of an electronic LSMP is that you can 'layer' your information, organizing different types of data, (rated walls, exit paths, suite boundaries, emergency response assembly/treatment points, etc.) in electronic 'overlays' allowing you to hide or visualize information as may be required.

The process of developing a LSMP, like many other projects once goals have been set, begins with research – gathering data. Research is then followed by organization and graphic representation of the data. Field verification, confirming that the information is current and accurate, and electronic documentation completes the basic plan

The preliminary data required for a base LSMP includes: floor plans; building construction information; fire protection systems and devices; use/occupancy of the spaces; location of vertical and horizontal penetrations; identification of exits; location and identification of fire/smoke protection systems and devices, reports of past surveys and/or inspections, and codes, guidelines and regulations having jurisdiction as well as identification of all authorities having jurisdictional powers.

From this data you can develop the basic LSMP with clear graphic representation of at least the following components:

- Develop and use as a base ‘layer’ floor plans for each building story, including any mechanical or elevator penthouses, interstitial spaces, crawl spaces, attics, or similar compartments. These can be simplified drawings with walls indicated in either single or double line, but they should be in scale with all doorways and other wall openings indicated. Door swing direction should be shown along all exit routes.
- Include a listing of the codes, (and publication years), under which the facility falls, i.e. NFPA 2000, IBC 2003, etc...
- Note building construction type for each area by NFPA and local code designation, i.e. NFPA Type I – 2,2,2.
- Note Occupancy Classification for each area together with basic code requirements for each identified classification, (travel distances, exit widths, etc.), i.e. Existing Healthcare, fully sprinkled or Business Occupancy, non sprinkled.
- Include room name or use (and room number if possible).
- Identify areas covered or not covered by an automatic sprinkler system. In fully covered smoke compartments, indicate any excluded spaces and their fire resistance ratings.
- Fire and smoke barriers should be identified and their fire resistance ratings noted. For smoke compartments indicate the boundaries and the square footage area of each. Include occupancy separations, building separations and separations between disparate construction types.
- Identify vertical penetrations and shaft enclosures and their fire resistance ratings. Include; all stairs (stairs may be numbered for clarity), and indicate any stairs that are not an ‘exit’, i.e. convenience/communicating stairs; exit discharge enclosures; rated, accessible plenums; elevators; ventilation shafts; linen and/or refuse chute shafts, and any other communicating openings between building stories, (escalator openings, atria, etc.), and the location and fire resistance ratings of the enclosure walls and smoke containment devices.
- Identify exit access corridors, (and corridor wall ratings if required). Distinguish exit access corridors from internal suite or private/staff circulation.
- Indicate the boundaries and square footage areas of all suites as well as identification of suite use, i.e. business, surgical, intensive care, imaging, etc.
- Identify hazardous areas, their use/type and fire resistance ratings.
- Show and note locations of any special locking devices in exit paths.
- Note travel distances, both within suites to exit access corridors and overall from farthest point to the closest exit.
- The locations of any special fire protections elements such as fire shutters, rolling fire doors and similar special protective components or window protection should be identified and noted.
- Identify all exits, include both horizontal exits, (noted as such) and where known note each exit’s population load and/or capacity.

- Note any special life safety features such as areas covered by a smoke evacuation system.

Many of these components can be indicated by graphic convention, (colored, dashed or shaded lines and areas, various symbols, etc.), in which case a graphic legend should be included on each sheet.

Once the draft of the basic LSMP has been generated the facility should be re-walked to verify that all of the life safety components presumed are actually in place. This field review provides the opportunity to inspect the condition of each component, noting discrepancies or deficiencies and their locations. This 'marked-up' plan can form the basis for the facility Statement of Condition and/or maintenance work orders.

The verified plan can then be finalized in electronic format and printed, ready, together with your safety policies, for any agency survey or inspection.

Beyond the Basics:

Your LSMP can be leveraged for a number of additional uses. If you have or are considering a Computer Assisted/Implemented Facilities Management, (CAFM or CIFM) program, your LSMP's base plans can be tied directly to and become the graphic base for the FM program. The LSMP will also help your organization plan strategy for your emergency preparedness and response operations, providing not only a facility map, but also information as to which areas may be, (or should be) 'hardened' for disaster, and what areas can be used as assembly and/or mass treatment spaces. Because the LSMP is an indicator of the condition of the various components of your facility and its infrastructure, the plan can be an invaluable tool in helping plan for future growth, change or replacement. Your LSMP is also a powerful training tool for instructing staff throughout the organization in life safety, fire safety, evacuation and disaster procedures and policies.

If you maintain your basic LSMP in electronic, CADD format it is easy to add future 'layers' to help you better manage your operations and communicate your facility's status throughout your organization. The following are a few examples of additional information layers that can augment the functionality of your LSMP. Note that with many CADD programs spread sheets, data bases and/or schedules can be directly linked to these and previously generated 'layers'.

- Exit sign, fire hose cabinet, fire extinguisher and pull box locations
- Sprinkler valve and drain down locations
- Fire and smoke damper locations
- Medical gas valve and alarm locations
- Electrical panel locations
- Domestic and heating/cooling water valve locations
- Locations of HVAC system high maintenance components
- Mapping of air handler service areas
- Area mapping of building types or structural systems
- Area mapping of departments or cast centers

It should be obvious that a LSMP is a necessary, valuable and very powerful tool. But to maintain its value it should be verified and updated every time there is a major change to the facility or any of its life safety components and at the very least on an annual basis.

The updating process should include updating the base floor plans with any changes that have occurred as well as re-walking the facility to verify current condition.

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