EMERGENCY LIGHTS
POWERED BY UL

Thermoplastic Emergency Lights Buying Guide

What's Included in This Guide

Overview

The cost-effective thermoplastic emergency lighting fixtures-often simply called thermoplastic emergency lights-use lightweight plastic housings to provide reliable illumination during power outages in standard environments. These units are typically made of flame-retardant, injection-molded ABS or polycarbonate, and they include an internal battery backup that automatically powers bright LED lamp heads for at least 90 minutes when normal electricity fails. In offices, schools, and retail stores, thermoplastic emergency lights offer an economical solution for code-compliant egress lighting, ensuring occupants can safely find exits during an emergency. Browse All Emergency Lights.

> **Highlight:** Thermoplastic housings are not just cost-effective-they're corrosion-proof. Unlike metal fixtures, they don't rust or flake in humid environments, making them a reliable choice for restrooms, locker rooms, and utility closets without special coatings.

Most thermoplastic models feature dual adjustable LED "bug-eye" lamp heads, universal 120/277V AC input, and a simple mount that attaches to a junction box for wall or ceiling installation. They

come in both standard indoor versions and special wet-location rated emergency light units with gasketed housings for damp areas. Despite their light weight, these fixtures are engineered for safety: the plastic enclosure is often UL 94 5VA or V-0 flame rated (self-extinguishing) and durable enough for normal indoor use (impact- and scratch-resistant, corrosion-proof, and UV-stable). Inside each unit, a rechargeable battery (usually nickel-cadmium or sealed lead-acid) and solid-state charger stand ready to deliver emergency power at a moment's notice. When an outage occurs, the lights switch on instantly, providing at least 1 foot-candle of illumination along escape routes as required by life safety codes.

Thermoplastic emergency lights are popular among contractors and facility managers because they are lightweight, affordable, and easy to install. The compact design and snap-together housing allow quick retrofits in older buildings and efficient deployment in new construction. Standard features include a push-to-test button and status LED for quick maintenance checks, and many models offer upgrades like self-diagnostic circuitry (which performs automatic monthly self-testing) and even remote head capability to drive additional lamp heads from one unit. In short, a thermoplastic emergency light is a **lightweight, flame-retardant fixture** that provides essential illumination for 90+ minutes on battery power-ideal for most indoor commercial spaces where extreme durability isn't required.

> **Highlight:** One big advantage of thermoplastic emergency lights is their low cost and quick installation. A basic unit might cost only $20-$40, allowing you to equip an entire building with backup lights without breaking the budget. Their lightweight design means one person can mount a unit in minutes, making code compliance achievable even on tight timelines and finances.

Brightness, Charging, and Lifespan

Brightness and Coverage: Don't let the plastic body fool you-thermoplastic units use high-efficiency LEDs that meet the same brightness requirements as any other emergency light. Building codes mandate at least 1 foot-candle (≈10.8 lux) of illumination at floor level along egress paths. A typical two-head LED emergency light, mounted around 7.5 feet high, can illuminate a corridor spanning roughly 14 to 18 feet, achieving the required brightness on the floor. Each LED lamp head on standard models usually delivers on the order of 50-100 lumens of light; for example, one common thermoplastic unit has lamp heads around 80 lumens each. This is sufficient to clearly light doorways, stairs, and aisles in complete darkness. For larger areas or higher ceilings, manufacturers offer high-lumen models (some exceeding 300+ lumens per head) or additional lamp heads to ensure adequate coverage. In practice, a properly placed thermoplastic emergency light will create a cone of illumination that overlaps with other units, providing continuous light along exit routes.

> **Pro Tip:** Consider choosing self-diagnostic models if you manage multiple fixtures. They'll save you hours of manual testing by running their own monthly checks and flagging issues before inspections.

Battery and Charging: Thermoplastic emergency lights are typically hardwired to building AC power (120V or 277V). They contain an internal **battery charger** that keeps the backup battery fully topped off during normal operation. When an outage hits, a built-in transfer switch automatically draws power from the battery to light the LEDs without any flicker. Most models use either a sealed lead-acid battery or a nickel-cadmium (NiCad) battery; each is capable of sustaining the lamps for at least the code-required 90 minutes. After discharge, the battery recharges within 24 hours to prepare for the next emergency. Some modern thermoplastic units favor NiCad or lithium-based batteries because they are more compact and can recharge faster. For instance, NiCad-equipped lights can reach full charge in as little as 3-6 hours in ideal conditions, though UL 924 standards still require advertising a 24-hour recharge to ensure consistency. The charger circuitry also includes features like overcharge protection, brownout sensing, and low-voltage cutoff to prolong battery life and prevent deep discharge damage. As long as your fixture remains connected to AC, it will automatically switch to emergency mode during power loss and then recover, all without human intervention.

LED Lifespan and Maintenance: The move to LEDs has dramatically improved the longevity of emergency lighting. The LED lamp heads in thermoplastic units are rated for 50,000+ hours of life (over 10 years of continuous use), so they virtually never need replacement under normal intermittent operation. The **thermoplastic housing** itself is immune to rust and corrosion (unlike metal) and will last for decades in a climate-controlled environment. However, the **battery** is a consumable component - it typically needs replacing every 3 to 5 years to ensure the unit can still hit that 90-minute runtime. Fortunately, thermoplastic lights are designed for easy battery swap-out, often via a front cover that snaps off or a couple of screws that a technician can remove in minutes. Higher-end models include self-diagnostic systems that automatically perform a 30-second test every month and a full 90-minute discharge test annually, per NFPA 101 requirements. These self-testing units will usually flash a warning LED if they detect a bad battery or lamp fault, simplifying maintenance checks for the facility staff. Overall, you can expect a thermoplastic emergency light to serve reliably for 10+ years with minimal upkeep - just periodic testing and a battery change every few years.

> **Note:** Choosing a thermoplastic vs. metal housing does *not* mean sacrificing brightness or runtime. A plastic emergency light of good quality will provide the same code-required illumination and 90-minute backup duration as a steel unit. The main differences lie in durability and capacity for extras (like large batteries or extra heads), not in the fundamental lighting performance. Always look at the lamp wattage and battery size to compare models - a well-built thermoplastic unit can shine just as brightly in an emergency as its steel counterpart.

Safety and Compliance Requirements

Thermoplastic emergency lights must meet the **same safety codes** as any other emergency lighting. In the U.S., this means they should be UL 924 listed and compliant with NFPA 101 (Life Safety Code) and OSHA regulations for emergency egress lighting. A UL 924 listing ensures the unit has been tested for at least 90 minutes of battery run-time, proper recharge, and safe operation. NFPA 101 and the International Building Code require that emergency lights activate automatically upon loss of power and provide at least an average of 1 foot-candle of illumination along the path of egress (with a minimum of 0.1 foot-candle at any point) for no less than 90 minutes. Thermoplastic units are designed to satisfy these requirements in standard applications, such as offices, schools, hotels, retail stores, and most public buildings. As long as you install and maintain them correctly, a thermoplastic emergency light will perform the same life-saving function-illuminating exits and corridors during an outage-as higher-end units.

Know Your Local Code: While thermoplastic fixtures are permitted under national codes, certain jurisdictions impose stricter rules that effectively **prohibit plastic housings**. Notably, New York City and Chicago have long mandated more robust construction for emergency egress lighting. NYC's building code requires emergency light housings to be made of metal (steel or aluminum), with no plastic allowed, in order to withstand the city's durability and fire safety standards. Chicago's code similarly insists on metal-faced emergency lights for improved tamper resistance and durability. Additionally, these cities often require higher brightness levels - for example, New York City calls for *double* the standard illumination, about 2 foot-candles average at the floor, and a higher minimum, along exit paths. As a result, "NYC-approved" or "Chicago-approved" emergency lights usually feature heavy-duty steel construction, higher-wattage lamp heads (often 2Ã—9 watt or similar), and larger batteries to meet the 2-hour runtime at higher output. If you are installing emergency lights in one of these areas, be sure to select code-compliant steel units or die-cast aluminum models-using standard thermoplastic units could lead to failed inspections and unsafe conditions.

Outside of such local exceptions, **thermoplastic emergency lights** are fully capable of providing code-compliant egress illumination. They are UL-listed and used in thousands of buildings nationwide. Just remember that **code compliance** is not only about the fixture's rating but also proper placement, installation, and maintenance. Install the lights according to the manufacturer's guidelines (height, spacing, etc.) to ensure the required light levels are achieved. And keep up with the monthly and annual testing mandated by OSHA/NFPA to ensure each unit remains functional when needed. When used in appropriate environments, thermoplastic emergency lights will keep your facility safe and up to code just as well as any other type.

> **Reminder:** In New York City and Chicago, **plastic-bodied emergency lights are not permitted** by local code. NYC mandates steel or aluminum housings only, and Chicago requires a metal faceplate on emergency lights. If your project is in one of these jurisdictions, be sure to choose metal-housed units (NYC- or Chicago-approved models) to avoid violations. Thermoplastic units are best reserved for areas without such local restrictions.

Ideal Use Cases

Thermoplastic emergency lights excel in **normal indoor environments** where extreme conditions or abuse are unlikely. They are the go-to choice for everyday applications because of their low cost and sufficient durability under typical use. Here are some ideal use cases and considerations:

- **Offices, Schools, & Retail Stores:** Clean, dry indoor settings like hallways, conference rooms, classrooms, and shopping areas are perfect for thermoplastic units. These locations usually have controlled temperature and minimal risk of impact, so the lightweight plastic fixtures hold up well. Their white or black housings blend into ceilings and walls, maintaining a low profile until needed.
- **Apartment Buildings & Hotels:** In multi-unit residential buildings and hospitality settings, thermoplastic emergency lights can be installed in corridors, lobbies, stairwells, and common areas to provide code-required egress lighting. They meet all the life safety needs in these areas at a fraction of the cost of metal units. For upscale interiors, slim or recessed thermoplastic designs are available to minimize aesthetic impact.
- **Retrofits and Budget-Sensitive Projects:** Upgrading an older facility with limited budget? Thermoplastic lights let you replace aging incandescent or halogen units with modern LED fixtures inexpensively. Their ease of installation and affordability make it feasible to add extra units for better coverage or meet new code updates without significant expense. They are often used in bulk for large facilities that require dozens or hundreds of fixtures.
- **Damp Indoor Locations:** If you have areas like parking garage stairwells, covered porches, or large restrooms that are damp (high humidity but not directly exposed to rain), you can use **damp-rated thermoplastic** emergency lights. These are similar in appearance but come with moisture-resistant features such as gasketed seams and corrosion-resistant internal parts. For true outdoor/wet exposure or industrial wash-down areas, however, opt for purpose-built browse wet rated emergency lights with fully waterproof housing.
- **Areas with Low Risk of Vandalism:** Thermoplastic units are best in locations where they won't be subject to tampering or hard impacts. For example, an emergency light mounted 8 feet up in an office hallway is unlikely to be disturbed. In contrast, in a public stairwell or gymnasium where equipment or people might hit the fixture, a plastic housing could crack. In moderate-risk areas, a thermoplastic light can be protected with a wire guard cage if needed, but in high-risk environments a metal-housed unit may be a better choice.

In summary, use thermoplastic emergency lighting throughout **climate-controlled, indoor spaces** where heavy-duty protection isn't a priority. They will perform the job of emergency illumination effectively in these scenarios. Reserve the more rugged steel or vandal-proof units for the specific spots that truly demand them (like factory floors, warehouse loading docks, detention facilities, or city-code areas).

> **Pro Tip:** To balance safety and budget, consider a hybrid approach: install steel or die-cast units

> only in the harsh or high-traffic areas, and use thermoplastic emergency lights in the benign areas. For instance, a warehouse might use a few steel emergency lighting in the loading bay (where impacts are likely) but thermoplastic units in the front offices. This mix-and-match strategy ensures you get durability where needed without overspending in every single room.

Installation, Inspection, and Testing

Installation Tips: Installing a thermoplastic emergency light is straightforward and usually easier than installing heavier units. Each fixture comes with a mounting bracket or universal backplate that attaches to a standard electrical junction box. Because the housing is light (often just a couple of pounds even with the battery), you can often mount it on drywall or drop-ceiling surfaces without special reinforcement-though it's always best practice to anchor into a stud or use appropriate wall anchors if wall-mounted. The fixture can typically be mounted in any orientation (wall or ceiling) as long as the lamp heads can be adjusted to aim where needed. Wiring is simple: connect the unit's two input leads to your building's 120V or 277V supply (plus a ground connection). Many models have dual input leads (one for 120V, one for 277V) - you'll cap off the unused lead depending on your line voltage. Once wired, install the battery (if it ships disconnected for safety) by plugging in its quick-connect terminals, and snap or screw the front cover in place. Finally, **adjust the lamp heads** by swiveling/tilting them to cover the desired area (e.g., one head toward the exit door, one down the corridor).

Initial Testing: After installation, always perform a quick push-button test. All units have a test button that, when pressed, cuts AC power and forces the light into emergency mode. Press and hold it to ensure both lamp heads come on brightly and the unit stays lit on battery. The indicator LED (usually green for AC power OK, red for a problem) should switch off when you press the test button and come back on when released (green steady means the battery is charging properly). A new unit should easily stay on for a brief test; you don't need to do a full 90-minute test right away, as the battery might not be 100% charged on day one. However, within 24 hours of power-up, the battery will reach full capacity, and you can perform a longer test to verify runtime if desired.

Inspection and Maintenance: Thermoplastic emergency lights require minimal maintenance, but they do need the periodic checks mandated by code. OSHA and NFPA 101 require a functional test of every emergency light at least **monthly** (for 30 seconds) and an **annual** test (90 minutes full duration). In practice, many organizations incorporate this into their safety routine or fire alarm testing schedule. During monthly tests, verify that each unit's lamps light up and stay on using battery power for 30 seconds, and that the lamps are aimed correctly (lighting the path, not glaring at the ceiling or floor excessively). Also ensure the indicator LED shows the charging status (typically green when AC is present) and that there are no flickers or dimming. Annually, simulate a power outage for a full 90 minutes (you can often use the circuit breaker to kill power to the lighting circuit, or some units with self-diagnostics will do an automatic 90-minute test). Confirm the lights either last

the full duration or at least well beyond the 90-minute mark. **Pro Tip:** It's wise to keep a maintenance log documenting these tests, as fire inspectors may ask for proof of compliance.

Battery Replacement: Over time (3-5 years), the battery capacity will drop and you might notice a unit's emergency lights are dim or the unit fails a 90-minute test. Replacing the battery is usually the solution - and much cheaper than replacing the whole unit. Thermoplastic lights are designed for easy battery access: you'll open the front cover (often by pressing tabs or removing a couple of screws) and find a small battery pack inside connected by wires. Replacement batteries can be ordered through the manufacturer or an emergency lighting supplier. Swap the old battery with a new one of the same type and rating (e.g., 6V 4Ah sealed lead-acid, or 3.6V NiCad pack, depending on the unit). Always dispose of the old battery properly as it contains lead or cadmium. After installing the new battery, allow it to charge for 24 hours and then test the unit to ensure it again meets the 90-minute requirement.

> **Highlight:** **Regular testing is critical** - even though modern LED emergency lights are very reliable, their batteries will eventually degrade. Make sure to press that test button monthly. A unit that doesn't light up on battery is a life safety hazard and code violation. By catching a bad battery or faulty circuit early, you can fix or replace the light and keep your building safe. Remember, the toughest part of any emergency light (whether thermoplastic or steel) is the battery - keep it healthy, and your lights will shine when needed.

Thermoplastic vs Other Material Options

So, how do thermoplastic emergency lights stack up against other types like steel or aluminum? The choice of housing material can impact a fixture's durability, appearance, and suitability for different environments. Here's a quick comparison to help in your buying decision:

Thermoplastic Emergency Lights (Standard Plastic)

- **Budget-Friendly & Lightweight:** Thermoplastic units are the most affordable option. They typically range from ~$20 to $50 for a basic model, yet they are fully code-compliant. Their light weight makes installation easy and one person can often do the job solo.
- **General Indoor Use:** These are best for dry, indoor locations like offices, schools, apartments, and stores. The plastic (often ABS or polycarbonate) is flame-retardant and safe for indoor fire code use up to about 176Â°F (80Â°C), which covers any normal room temperatures. They are not designed for extreme heat, cold, or wet exposure (unless specifically damp/wet rated versions).
- **Good Appearance Options:** Thermoplastic lights usually come in neutral colors (white is most common, with black available for some models). Their design is often low-profile or even recessed, which can be more aesthetically pleasing in finished spaces. The plastic can be molded into smooth, curved shapes that blend into ceilings better than boxy metal units.

- **Durability Limitations:** The downside of plastic is that it's less sturdy. A hard impact (like a direct hit from a pallet or a crowbar) can crack or break the housing. They are also more prone to cosmetic wear - over many years, cheap plastics might yellow or become brittle, especially if exposed to UV light or high heat. In areas with potential vandalism or heavy equipment traffic, thermoplastic lights might not survive as long without damage.
- **Standard Battery Capacity:** Because of their compact size, most thermoplastic models have relatively small batteries (e.g., 3.6V NiCad or 6V 4Ah SLA) which are fine for powering the attached lamp heads for 90 minutes. Some offer "remote capable" versions with a slightly larger battery, but generally if you need to support multiple remote heads or extended runtimes, plastic units have limited capacity compared to steel ones.

Steel Emergency Lights

- **Rugged and Tamper-Resistant:** Steel emergency lights use 20-gauge (or thicker) steel cabinets that can withstand substantial abuse. They are ideal for industrial facilities, warehouses, parking garages, and public areas where equipment impacts or vandalism might occur. The metal housing won't crack and typically has a powder-coat finish to resist rust and corrosion.
- **Larger Batteries & Remotes:** Steel units often have more internal space, allowing for larger batteries (even up to 18-50W or more capacity). This means **remote head capability** is common - one steel unit can power multiple remote lamp heads throughout a space. For example, a steel emergency light might have a 12V 36W battery that can not only run its own lamps but also two or three additional remote lamps for 90+ minutes. This "one central battery" approach can simplify maintenance (fewer batteries to change) and extend coverage.
- **Higher Cost & Weight:** The trade-off for steel's durability is a higher price point - often $80 and up for a basic steel model, and well over $150 for high-capacity versions. They are also heavier, which can make installation a two-person job and may require more robust mounting (ideally anchored to studs or masonry). In some cases, steel units stick out more visually, although there are low-profile steel designs available.
- **Code Compliance in Strict Areas:** In locales like NYC and Chicago, steel (or at least metal) is the only option due to code mandates. Even outside those areas, many architects choose steel for institutions like schools, prisons, or hospitals where longevity is paramount. Steel units are generally UL 924 listed just like plastic ones, so performance is equivalent - they just offer a tougher build and sometimes extra features (like tamper-proof hardware, gasketed enclosures for dust, etc.).

Die-Cast Aluminum Emergency Lights

- **Sleeker Architectural Look:** Die-cast aluminum emergency lights provide a middle ground. Aluminum is metal, but it's lighter than steel and can be cast into more decorative shapes. These

units are popular in architectural and upscale interiors where you want something more attractive than plain plastic or steel. They often have a slim profile and a brushed or painted finish that blends with modern decor.

- **Good Durability & Weather Resistance:** Aluminum doesn't rust, so these fixtures handle humid or even semi-outdoor environments well (many are rated for damp locations). They are sturdier than thermoplastic (resisting moderate impact or tampering) but not as indestructible as thick steel. They satisfy NYC/Chicago requirements since they are metal housings. In fact, an aluminum fixture can be a great choice for applications like hotels or retail in NYC where style and code compliance both matter.
- **Mid-Range Cost:** Cost-wise, aluminum emergency lights usually fall in between plastic and steel. You might expect roughly $50-$100 for standard models. The value is that you get a metal unit that's lighter and often better looking than steel. However, they typically don't accommodate as large a battery as a bulky steel unit, so remote capacity might be limited (some aluminum exit sign combos or emergency lights do support one remote head, for example).

Other Specialty Housings (Polycarbonate, etc.)

- **Vandal-Proof Polycarbonate:** Some emergency lights are constructed with high-strength polycarbonate or a mix of metal backplate and polycarbonate cover. These are designed for high-abuse areas like gymnasiums, correctional facilities, or bus stations. Polycarbonate is a thermoplastic too, but a very rugged one (the same material used in bullet-resistant glass). Vandal-resistant models often have a thick, clear or wire-embedded polycarbonate lens covering the lamp heads and use tamper-proof screws. They can withstand deliberate impact far better than standard thermoplastic units.
- **Wet-Location Rated:** As mentioned, there are emergency lights specifically built for wet or outdoor use - usually these have fully gasketed cast aluminum or polycarbonate housings, and often carry an IP65+ rating against water and dust. They may also include thermostatic heaters or special batteries for cold temperatures. If you need an emergency light outdoors (exposed to rain) or in a freezer, look for these specialized units rather than a standard plastic one.

Ultimately, the "best" material for an emergency light depends on your environment and needs. Thermoplastic is the reigning choice for **most indoor applications** thanks to its low cost, ease of install, and adequate durability. Steel is the champion in **tough environments** or where required by code. Aluminum offers a blend of durability and style for **architectural settings**. And for unique situations (vandal-prone or wet areas), there are purpose-built solutions like polycarbonate and NEMA-rated fixtures. It's often wise to use a combination of types to cover all the bases in a large facility.

> **Insight:** One size does not fit all. **Don't default to one material for every area** of your building. Use thermoplastic units in the calm, dry indoor spots where they thrive, deploy steel or vandal-

> resistant units in the rough zones (warehouses, public entrances, etc.), and consider aluminum for places where style or corrosion-resistance is important (lobbies, coastal facilities). By strategically matching emergency light types to each location's demands, you'll get the best performance and value.

Conclusion and Additional Tips

Thermoplastic emergency lights are a mainstay of life safety lighting, prized for their affordability, ease of use, and reliability in standard conditions. They deliver the same essential function as any emergency light-automatically illuminating escape paths during a power loss-for a lower cost and with a lighter touch. When used appropriately, these plastic-bodied units can protect building occupants effectively for years. However, it's important to recognize their limitations and plan accordingly. Here are some final tips to ensure you get the most out of your thermoplastic emergency lighting:

- **Place Units Tactically:** Install lights where they will cover critical paths (stairs, corridors, exits) and also where they are least likely to be damaged. For instance, mounting fixtures high on walls or ceilings keeps them out of reach and out of harm's way. Use the lamp head adjustability to your advantage-aim the beams to overlap and minimize dark spots.
- **Secure Mounting:** Even though thermoplastic lights are light, always fasten them securely. Use the provided mounting plate and screw it firmly to a junction box or wall anchors. A loose emergency light could fall or fail at the worst time, so double-check that each unit is snug after installation.
- **Keep Spare Batteries (or Units):** Given their low cost, some facility managers keep a few spare thermoplastic units or batteries on hand. If one fails or a battery dies during an annual test, it's easy to swap in a replacement and then send the original for repair or recycling. This way, your emergency lighting remains uninterrupted. (Always use the correct battery type when replacing.)
- **Routine Testing and Log:** Set up a routine to push the test button on each unit every month and record the result. This habit ensures you catch problems early. It's also a good idea to do the full 90-minute discharge test annually during a planned downtime. Maintaining a written log of these tests will help with safety audits and liability protection, proving that you've been diligent about maintenance.
- **Upgrade Strategically:** If you find certain locations are too harsh for plastic units (perhaps you've had broken housings or short battery life due to heat), plan to upgrade those specific spots to steel or specialty lights. Thermoplastic models are inexpensive, so using them in gentle environments and investing more only where needed is a cost-effective strategy. Over time, you can standardize the more critical areas on heavy-duty units while keeping the majority of lights thermoplastic.

In conclusion, thermoplastic emergency lights provide dependable, code-compliant emergency

illumination for the vast majority of everyday applications. By understanding their features and constraints, you can deploy them wisely and maintain them so they'll work when it counts. They prove that enhancing safety doesn't have to be expensive or complicated-sometimes a simple plastic fixture with a battery is all it takes to light the way to safety during a crisis. With proper planning and upkeep, these thermoplastic units will serve as trusty guardians of your building's egress routes, shining bright when darkness falls.