

Licensed Mechanical Engineer Helps Make Movie Magic

Mechanical Engineers Support the Film Industry

The entertainment industry relies on “entertainment engineers,” e.g. mechanical engineers, electrical engineers, and others for standards <https://www.smpte.org>. Perhaps more importantly, the movie industry requires Licensed Mechanical Engineers to safely innovate and amaze. Film sets are complex physical productions, most of which are not digital special effects. The film industry utilizes Licensed Mechanical Engineers to create complex props and various special effects that move, exploded, burn, and fly. The mechanical engineers specializes in designing and making a wide range of mechanical devices that fulfill a specific purpose for the film or set they are engaged, or modify available technology to quickly achieve stupendous results. Licensed Mechanical Engineers also help in structural aspects of heaving rigging, such as lighting (See above Fig. 1 “Movie Boom Light Set”), suspending heavy objects, and the sound departments of a movie by creating the enhancing moods with these tools. Acoustics is often taught in university mechanical engineering departments, and requires complex design, material surface selections, and heavy numerical computation.

Mechanical Engineers Support the Film Industry as Entertainment Engineers

Mechanical Engineers are Needed in the Film Industry

Mechanical Engineers create mechanical systems for many purposes: scenic and entertainment staging, theatrical facilities, theme parks, and Super Bowl half-time extravaganzas; the “Chitty Chitty Bang Bang” flying car for a Broadway show, and displays such as Toy–R–Us’ T-Rex in Times Square. Mechanical Engineers are responsible for hydraulic systems, pneumatic systems, cable system and more . There are many examples of hydraulics in entertainment and the movie industry: the mechanism that simulates the rocking and rolling of the ocean, complete with complex gimbals, and sets for acts such as the Black-Eyed Peas, Tina Turner, the Rolling Stones, and Bon Jovi. Licensed Mechanical Engineers help ensure safety on the set for moving parts, fire, explosions, loud noises, lasers, fast cars and motorcycles, people suspended on flying rigs, and more. Use a Licensed Mechanical Engineer on set to make dangerous scenes safer for the actors and crew. (See Fig. 2 “Safety First.”)



Fig. 1 Movie Boom Light Set

Fig. 2 Safety First





Fig. 3 Men on automated set with safety gear

Automation:

The Set Director and Director may engage a Licensed Mechanical Engineer to design the automation systems ([Automated Guided Vehicles](#) that will control the movement of set pieces, flying scenery, and even the stage itself. A Licensed Mechanical Engineer reviews the designer's illustrated plans and physical models, then discusses the specific travel sequences and effects that must be accomplished through automation (See Figure 3). Films may have several interconnected stage platforms that simultaneously rotate and make vertical movements; the challenge is how to accomplish this activity while still accommodating actors engaged in dramatic fight scenes in near-total darkness. Mechanical engineers specialize in kinematics and dynamics of mechanisms, ranging from simple four bar mechanisms to full robotics.

Cooling:

Licensed mechanical engineers help not only with HVAC, but many other forms of cooling. An actor or actress in heavy wardrobe may experience extreme heat exposure. Further, the location may simply be very hot and humid. Licensed mechanical engineers can help you keep cool and comfortable in many extreme circumstances. One benefit of using a licensed engineer is cost reduction. A common definition of an engineer is "a bloke who can do with one dollar what anybody else can do with two." A fundamental understanding of physics and years of training can make engineers more efficient at tasks than lay persons, rapidly yielding economical solutions to your problems.

Editing, cinematography, makeup effects, reverse photography, production design, forced perspective, lighting, sound, special effects can all make Movie Magic. With the help of a Licensed Mechanical Engineer, layering techniques together, filmmakers are able to create a sense of authenticity which helps them tell their tale, captivate audiences, and draw the viewer into the story.

Information from:

<https://glewengineering.com/engineering-in-film-industry-how-can-engineers-work-on-movie-sets/>