



How to Value Engineer The Right Floor

FOR THE PHARMACEUTICAL & LIFE SCIENCES INDUSTRIES

VALUE ENGINEERING THE RIGHT FLOOR

A BETTER WAY TO ENGINEER COMMERCIAL FLOORING FOR LIFE SCIENCES & RESEARCH FACILITIES



The life sciences industry has nearly doubled in the Northeast over the past two decades. There are close to 300 biotech companies, pharma research and development labs, and manufacturing facilities that dot New England's landscape of technology parks and innovation think tanks.

In the last 20 years, nearly half of all industrial jobs in Massachusetts have been in the biotech sector. This number is up 20% alone in the last 5 years. Fueled by MIT, Harvard, and a number of university networks in the Bay State that support pharmaceutical research and development, the industry continues to experience a large degree of growth in our area.

Black Bear Coatings & Concrete has partnered with leading brands including Bristol Myers Squibb, Genzyme, and Shire, to newer more recently funded startups such as, Baxalta and Garden Remedies. to help shape the direction of manufacturing and testing environments.

We provide safe, cost-effective industrial flooring solutions for all areas of a facility. Inside and out, our team engineers longer-lasting products that meet and exceed compliance standards, and enhance the overall aesthetics of a workspace.

Critical Decisions

CONSIDERATIONS WHEN LAYING THE GROUNDWORK FOR A NEW FACILITY OR REPLACING A FLOOR IN NEED OF REPAIR

One of the most crucial decisions made in pharmaceutical manufacturing or the design of a life sciences research facility is engineering the appropriate flooring for every space.

What lies beneath can have huge implications on production, products, and the welfare of employees. Don't gloss over the effects of surface structure or underestimate the implications flooring can have on a life sciences environment. In the pharmaceutical industry contamination is a regular threat. Selecting the right floor can prevent biohazards and infectious disease transmission. The spread of contaminants can be contained with the appropriate coatings and floor system. Growth of bacteria can be minimized or eliminated by selecting the right materials and ensuring a flawless installation.



CHALLENGES CONTRACTORS MAY FACE

Minimizing Risk:

A pharmaceutical facility is accompanied by an inherent risk for contamination. Any on-site work should reflect the rigid health codes already in place – from appropriate attire to employee behavior, gowning procedures to equipment used, the repair and installation process should be on par with standard safety procedures. HEPA filtration tools and no or low VOC materials are commonly used in this environment.

Accommodating Tight Turnaround Times: Downtime is seldom allotted in manufacturing facilities or research labs. Work tends to be in brief shifts and off hours. Accommodating tight turnaround times requires adherence to a strict project timeline, as well as stringent cleanup of a site when exiting as to not disturb facility production during off hours.

Working in Active Facilities:

It's not uncommon for a renovation or installation to be completed during working hours and around daily activity of an active plant. When this occurs, it's vital to minimize the disruption to employees working near a jobsite, particularly in regards to sterile environments.

BLACKBEARCONCRETE.COM

THE AVERAGE PHARMACEUTICAL BUSINESS REPLACES COMMERCIAL FLOORING EVERY 7-10 YEARS

Cleanrooms

IN PHARMACEUTICAL MANUFACTURING SPACES, LABS, AND TESTING FACILITIES

When installing or repairing floors, one of the most complex spaces to accommodate in a pharmaceutical manufacturing facility is a cleanroom environment. Your flooring contractor needs to understand the specific requirements that go along with installing floors for these spaces.

Cleanrooms maintain low levels of environmental pollutants, such as dust, airborne microbes, aerosol particles, and chemical vapors. They have controlled levels of contamination. Specified by the number of particles per cubic meter at a specified particle size, cleanrooms are often classified by particulate count. The right contractor will know how to adjust installation procedures to protect the people and your products in this space.



Fluids & Liquids

Floor coatings, top coat formulas, and seepage from jobsite chemicals due to improper installation or protection of the space will compromise a cleanroom.



Dust & Vapors Construction debris, improper ventilation, or suctioning of dust and airborne particulates will require complete decontamination prior to any production.



Employees Depending on the cleanroom level, it may be necessary for installers to cover their clothing, skin, face and mouth, and hair to avoid fibers and saliva from tainting the space.



Tools & Equipment Pulsating machinery and friction could result in airborne particulates, and certain mops and cleaning materials will leave a residue that can pollute a cleanroom.

BEYOND THE CLEANROOM

Pharmaceutical and life sciences facility flooring demands specific coatings and protection to safeguard against imminent dangers that are commonly found in biochemical manufacturing. It becomes necessary to engineer a flooring solution that is not only durable and attractive, but one that is treated to withstand the elements of the environment. In addition to cleanrooms, sample indoor/outdoor spaces within life sciences facilities include:

- production
- change rooms
- cleanrooms
- testing facilities
- laboratories
- research spaces
- sterile environments

- locker rooms
- decontamination
- storage
- chemical storage
- dry storage
- freezers
- corporate workspaces

- common areas
- loading docks
- cafeterias
- holding tanks
- external storage of combustibles

Adapting to Your Environment

A LEVEL 4 THROUGH 8 CLEANROOM OR LAB HAS A UNIQUE SET OF REQUIREMENTS

Procedures are in place to maintain the sterile environment. The rating impacts the type of materials and tools that can be used to engineer and install a new industrial floor system. It also affects the behaviors of those on the jobsite. Rapid physical motion, coughing and sneezing are some of the innate actions that have been shown to contaminate sterile environments. Ways to minimize contamination risk on the jobsite include:



HEPA FILTERED

High Efficiency Particulate Air Filters (HEPA) are widely used in cleanroom environments. HEPA equipment maintains airflow and filters particulates as small as 0.3 microns with a 99.97% minimum particle-collective efficiency.



GOWNING

A cleanroom jobsite will require installation crews to wear gloves, masks, hair covers, and occasionally, full jumpsuits over clothes to ensure that organic matter from employees will not taint the environment.



MATERIALS

Depending on the level of cleanroom, some jobsites require the substitution of regular equipment with special tools which may reduce contamination. For example, swapping out paper products for plastic accessories may be necessary.



CLEANING

Whether leaving temporarily or closing out a jobsite, cleaning procedures should be addressed. From routine chemical scrubs or removal of equipment, each sterile construction environment needs processes that align with overall decontamination procedures.

Compliance & Regulatory Inspections

The pharmaceutical and biomed industry is heavily regulated and subject to inspections. Companies are required to comply with state and federal agencies or face steep penalties with the threat of shutdown.

Selecting the appropriate flooring solution should have a positive impact on compliance. Flooring will improve workplace safety, reduce the risk of widespread contamination, and minimize wear and tear that could compromise sterility and require frequent repair.

Inspectors look for a number of infractions on both the jobsite and within the finished product itself. They examine the cleanliness of a space and the maintenance required post-installation, biohazards that can pollute the building and endanger employees, as well as the overall safety of the workspace and materials being used. It's important that flooring contractors abide by all regulations set forth for the individual company.



FEDERAL DRUG ADMINISTRATION

The Federal Drug Administration (FDA) inspects pharmaceutical manufacturing facilities worldwide, and is responsible for protecting and promoting public health through the regulation and supervision of food safety, dietary supplements, prescription and OTC drugs vaccines, biopharmaceuticals, medical devices, cosmetics, and more.



ENVIRONMENTAL PROTECTION AGENCY

The United States Environmental Protection Agency (EPA) was created for the purpose of protecting human health and the environment by writing and enforcing regulations based on laws passed by Congress.



The main regulatory standard for ensuring pharmaceutical quality is the Current Good Manufacturing Practice (CGMPs) regulation for human pharmaceuticals. CGMPs provide for systems that assure proper design, monitoring, and control of manufacturing processes and facilities.

UNITED STATE DEPARTMENT OF AGRICULTURE

The United State Department of Agriculture (USDA) responsible for developing and executing federal laws related to farming, agriculture, forestry, and food can actually play a role in some pharmaceutical production.

OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION

The Occupational Safety and Health Administration (OSHA) is an agency that assures safe and healthful working conditions for working men and women by setting and enforcing standards and by providing training, outreach, education, and assistance.









Flooring Solutions

Ideal Options for PHARMACEUTICAL & LIFE SCIENCES

Common guidelines for engineering the right pharmaceutical flooring include formulating for anti-bacterial and chemical resistance, along with having a moisture mitigation system in place or using more moisture-resistant coatings. It is ideal to use low or no VOC materials and low-odor application, and provide a seamless, unified flooring that is skid and thermal shock resistant, along with an anti-static treatment. A quick drying or setting installation may be possible to minimize disruption to operations.



Ероху

A popular choice for offices and break rooms, restrooms, entryways, and shipping, receiving, and backroom storage, it offers the strength and durability to withstand extreme impact in high-traffic areas. Additional formulas can be added to ensure the necessary protection against by-products of pharmaceutical research and manufacturing.



Urethane

Ideal for stringent conditions in commercial kitchens and wet spaces, urethane flooring can withstand high-temperature cleaning and regular sanitization, as well as heat and freezing temperatures in climate regulated areas. The thermal shock resistance coupled with a seamless, nonslip surface offers optimum protection against safety hazards that can put your brand out of business.



MMA

A quicker curing floor, MMA offers the benefit of a fast installation for businesses under tight timelines. It provides a seamless, hygienic surface, and an array of color choices to choose from. MMA commercial floor solutions are an effective way to replace tile, vinyl, or failing floors.



Vapor Mitigation

Labs and research facilities will have numerous wet spaces that will need containment. Vapor mitigation and waterproofing systems are ideal to avoid moisture and seepage to adjacent areas, and to avoid contamination of products and people.

Adaptive Processes

ENGINEERING & INSTALLING INDUSTRIAL FLOORS

The overarching variables that dictate procedure on individual jobsites in the life sciences industry requires a good deal of flexibility. An adaptive process works well when engineering and installing a new flooring solution.

An adaptive process refers to the way an environment is assessed, a floor is engineered, a jobsite is prepared, and the product is installed. Individual requirements are addressed and standard operating procedures augmented to focus on the lasting implications of working on the specific site.

Adaptive processes are extremely successful when working under tight timeframes. It can also help to ensure that unannounced inspections are met with few or no violations. It allows the contractor or project manager to customize a workflow based on an environment, but maintains the flexibility to accommodate unpredictable circumstances. This type of activity is particularly useful when working on a pharmaceutical manufacturing project that could have a number of opposing demands.

In order to fully appreciate the impact of the environment and plan accordingly using an adaptive process, it is first necessary to ask probing questions related to the industry and jobsite.

- 1. HOW IS A SPACE BEING USED?
- 2. WHAT IS BEING MANUFACTURED IN THE BUILDING?
- 3. WHAT ARE THE AGGRESSIVE ELEMENTS THAT WILL BE PRESENT?
- 4. SHOULD WE REFRAIN FROM USING SPECIFIC MATERIALS OR TOOLS?
- 5. WHAT ARE THE SANITIZATION AND DECONTAMINATION PROCESSES?
- 6. WHO WILL BE PRESENT AT THE TIME OF THE WORK?
- 7. WILL WORK NEED TO BE COMPLETED DURING BUSINESS OR PRODUCTION HOURS?
- 8. WHAT REGULATORY AGENCIES DO YOU REPORT TO OR WILL BE INSPECTING THE WORK?



BLACKBEARCONCRETE.COM

PORTFOLIO OF WORK Floor systems are about more than just durability and compliance. There is a uniqueness and visual appeal that should support the brand.

Clients & Projects in Life Sciences and Pharmaceutical

ENGINEERING THE RIGHT FLOOR SOLUTION FOR EVERY SPACE, BLACK BEAR COATINGS ARE DURABLE AND COMPLIANT







Bristol-Myers Squibb















Johnson Controls





CASE STUDIES There's a reason our customer service satisfaction rate is over 98%. We develop genuine partnerships with clients, and they put their trust in us to get the job done time and time again.

BLACKBEARCONCRETE.COM

BAXALTA

BLACK BEAR MAINTAINS THE COMPLIANCE FOR THE BIOPHARMACEUTICAL DIVISION OF BAXTER

Baxalta

10 DAYS, 8,300 SQFT, LEVELING SUBSTRATE AND ADDING A MOISTURE MITIGATION SYSTEM TO STAY COMPLAINT



The general contractor reached out to Black Bear Coatings & Concrete to recoat flooring in need of repair. The original request was a simple topcoat overlay. Upon assessment of both spaces, it was revealed that the substrate was uneven and the environment's moisture would need to be addressed, or pose a threat to the new product. Black Bear value engineered a more extensive and effective solution. With tight timelines and two separate jobsites within the facility, the Black Bear crew needed to work swiftly during off hours.

Each space presented a unique set of requirements, from climate control to the weighted pressure of machinery

tread. The coordination of working in shifts meant that while one area's application set, the other area was prepped for processing.

Baxalta

BIOMERE

BLACK BEAR HELPS RETROFIT AN OLD MILL TO ENSURE A NEW RESEARCH FACILITY IS UP TO

Biomere

10 DAYS, 21,000 SQFT, TRANSFORMING TWO FLOORS IN AN OLD MILL INTO A SCIENTIFIC RESEARCH FACILITY



Biomere is a preclinical contract research organization (CRO) that offers an extensive portfolio of preclinical research services from in vitro analyses, early discovery and proof-of-concept, to discovery toxicology.

Black Bear was tasked with preparing existing foundations on multiple floors. In addition to surface renovation, a new solution needed to be engineered that would meet strict state and federal compliance.

When renovating the older mill building

to accommodate the company, it was apparent that parts of the floor could not be salvaged. It was necessary for Forever Mechanical to screw the floor back into the sub-floor to stabilize it and ready the spaces for Black Bear's system. Black Bear's crew needed to patch all screws, and repair and replace the cove base.

With the 5th floor of the building in dire condition, Black Bear proposed a flexible membrane, shop floor, and 2,400 linear feet of custom cove to renovate the space. With both sections of the building, crews needed to demo the existing floor and stabilize the foundation before applying epoxy and urethane layers that would insulate and waterproof the floors to protect against bacterial growth.



About Us

COMMERCIAL & INDUSTRIAL EPOXY | URETHANE MORTARS SURFACE RESTORATION | POLISHING | REPLACEMENT AND NEW FLOORING SYSTEMS | MITIGATION SYSTEMS



NICHE INDUSTRY PREFERRED EXPERTS Black Bear Coatings & Concrete is a partner you can trust. With over 30 years of combined experience designing, installing, repairing, and maintaining concrete floors, our comprehensive approach is all-encompassing. We know that selecting the correct resinous coating to install is defined by the performance of the material in a specific space. Black Bear takes the time to work with clients to understand the environmental conditions of a particular area – including substrate condition, chemical exposure, impact and wear resistance, thermal shock, and aesthetics.

Talk to An Expert

CONTACT US FOR AN ON-SITE ASSESSMENT TO LEARN HOW THE RIGHT FLOORING CAN IMPACT YOUR BUSINESS



THE TRUSTED EXPERTS WITH 30 YEARS OF COMBINED EXPERTISE

When it comes to your commercial or industrial flooring, you want a partner who can offer a wide array of design options and products, and one who has the industry experience to get the job done right – on time and on budget.

Don't run the risk of inferior installation or sub-par floor products. Contact us for a free on-site assessment of your project and learn how Black Bear can value engineer a longer-lasting solution for your business.

Address

488 Main Street Leominster, MA 01453

Phone

978.405.0017

Emai

info@blackbearconcrete. com