
**Harrison Elementary School: Caldwell-West Caldwell School District**—Participants in this study include Frank Ennis, Caldwell-West Caldwell Facilities Director and Chris Murphy, LEED AP. This study details the trial of Mythic Non-Toxic paint in the Harrison School. The Harrison School houses three programs: the Administrative Offices, Pre-Kindergarten Program, and Pre-School Disabled Program. Collaboratively, Ennis and Murphy constructed an action plan to meet the environmental and economic needs of the two project sites while upholding stringent health and safety standards. This study serves as a model for school districts looking to improve indoor air quality and safety standards while operating within a budget.
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Executive Summary

The focus of this case study is a comparative analysis of Mythic Non-Toxic Paint and the industry’s standard Big Box paints. Mythic Non-Toxic Paint is the first high performance, zero VOC, non-toxic, low-odor product available for sale to institutions. This sample case study tracks the Caldwell-West Caldwell School District’s transition to a non-toxic paint for the interior of the Harrison School where Administrative Offices, Pre-Kindergarten, and Preschool Disabled Programs are held. Tested for comparative price, durability, and performance, Mythic Non-Toxic Paint proved to be a viable alternative to the school’s previous paint choices. To conduct this study, Chris Murphy LEED AP and Frank Ennis, the school’s Facilities Director were consulted and interviewed to gain insight into the complexities of taking on such a project. The end result of this study shows Mythic to be a practical and cost-effective alternative to low VOC or zero VOC paints previously specified for commercial application.
Introduction

The Harrison School is open for use year-round, making seasonal painting a challenge for facilities. Usual practices require buildings to be vacated for painting because paint fumes are dangerous to inhale. Standard paints contain VOCs which are present in solvents, binders, colorants and other components of the individual paint formula. Most standard paints contain chemicals that are listed in the Clean Air Act, under Section 112 as Hazardous Air Pollutants; however, there is very little regulation in place to have them removed from formulas. When paint dries, these chemicals evaporate causing dangerous levels of toxins and carcinogens to be released into the indoor air environment. During times of paint application, indoor air pollution can rise by up to 1000 times the normal levels, creating an extremely toxic environment to people. In the Harrison School that houses the two summer programs for pre-schoolers, the Director of Facilities needed to be particularly aware of asthma, allergies, and or chemical sensitivities of these students who needed to be in the building for classes. Furthermore, administrative offices are in session for the summer and needed to be painted without disrupting daily activities. Prior to his 17-year tenure with the district, Ennis worked in the petro-chemical industry. Due to this background, Ennis has a broad understanding of the chemicals involved in producing most paints. In the role of Facilities Director, Ennis has stated that his priority is “always the safety of students, staff, and faculty.” Ennis and his staff have a history of specifying the best, safest painting products they can find. When Low and Zero VOC paints became available, Ennis did not hesitate based on price points to switch over to a safer product. With the mindset that a clean and safe school makes for a better learning environment, Ennis was open to adopting a non-toxic option, an option he referred to as “harmless” to the health of his workers and school occupants.
Challenges

New Jersey law dictates that painting projects are not permitted while students are in the building. Yet, under this legislation, school staff members are allowed to be in the building while painting takes place. Most buildings in the Caldwell-West Caldwell District are out of session for the summer, except the Harrison School where Board of Education Administration offices operated during the summer and the Pre-School Disabled Program holds summer classes. The Pre-School summer program is in session from 9 a.m. to noon, allowing painting to be done from noon-5 p.m. During these hours, the administrative staff are still in session and in the past have complained about paint fumes interrupting work. The exhaust system for the school only introduces a small percentage of outdoor air into the building, at a rate that would not effectively allow the building to off-gas in a time frame that would not disturb staff members. Volatile Organic Compounds (VOCs) are carbon-based chemical compounds that evaporate at room temperature. In liquid form, VOCs work as solvents to bind together the pigments, elasticizers, and other components in paint. As paint dries, these compounds are released as the liquid solidifies on to the wall surface. This process, known as off-gassing allows for VOCs to be dispersed into the air over long periods of time. Once these chemicals are released in the air as gas, they become part of the indoor air environment and only dissipated when external air is introduced, replacing old air with new. In the case of the Harrison School, the volume of external air drawn inside via the exhaust system is not enough to expel VOCs from interior air in a timeframe that would prevent harmful exposure to toxic chemicals. This exhaust system can also cause paint vapors to be spread to areas of the school that are not being painted, worsening issues of paint odor. Additionally, spreading vapors could create a problem for students with asthma, allergies, or chemical sensitivities, even after painting has been completed. When approached by Murphy, about the option of using Mythic Non-Toxic paint, Ennis was eager to try the product. Mythic Non-Toxic claims to be virtuously odorless and is 100% VOC and Toxin free. Since the Mythic brand is not included in the New Jersey School Purchasing matrix, Ennis needed to negotiate a contract to hire painters without including paint in the bid.
Purchasing Process

The Caldwell-West Caldwell school district operates under a bid system to purchase paint and to contract workers. Under this system, the Facilities Director will specify a brand of paint and the contracted painters are free to purchase as much paint as the bid price will allow. Effectively, the Facilities Director does not control which paint is selected or how much is purchased. Mythic Non-Toxic Paint is only sold through individual vendors and is consequently not included in the New Jersey bidding program. In order to specify Mythic Paint for his school district, Ennis needed to remove paint purchase from the bidding process. By doing so, the bid placed by the Caldwell-West Caldwell district would be limited to contracting painters and Ennis would purchase paint separately on behalf of the school district. Ennis estimated that the cost of a bid including paint and painters averaged around $36,000. By removing paint cost from the bid, Ennis was able to cut $13,000 from the bidding cost and control the paint purchase independently. With Ennis in direct control of paint purchasing, he was able to save money by specifying exact quantities required for individual projects. Paint bought under bid contract is not relegated for individual projects but bought in bulk and therefore more product is oftentimes purchased than necessary. When a job is completed, all left-over paint is taken off-site, leaving the permanent facilities staff without access to paint for touch-ups. When Ennis chose to buy Mythic Non-Toxic paint from his vendor, Murphy, he was able to regain control over the attic stock (the store of left-over paint to be used for touch-ups) of paint for his school district and purchase paint on a need basis, effectively saving costs on paint. Additionally, the vendor was able to organize school delivery, free of charge, again adding to the cost savings.
Project Details

Painting began during the week, from noon to 5 p.m., when children were not in the building. Ennis said that while it would have been safe to paint with Mythic Non-Toxic Paint while children were in the building, he felt more comfortable carrying out the project without students present. The staff, however, remained in the building and most were unaware that painting had even occurred because of the lack of odor. The slight odor left by the wet paint after application had completely dissipated by the following morning. Ennis noted that the schools only form of ventilation for classrooms and hallways are windows located in classrooms. To paint a classroom with standard paint would take over two days for the paint smell to dissipate, according to Ennis. After painting with Mythic, contractors did not report discomfort from headaches or any reaction to prolonged exposure to paint fumes. By comparison standard paint can take anywhere from six weeks to six years to off-gas completely, depending on ventilation and air turn over. In a school building where most of the air is re-circulated through the exhaust system off-gassing can be prolonged.

The interior hallways of the Harrison school were painted using two colors of Mythic Non-Toxic Paint. By painting a light shade of blue from the mid-level of the wall to the ceiling and a darker shade on the lower half, facilities could save the cost of having to repaint the entire wall when touchups are needed. In an elementary school most of the wear on walls occurs in the lower section. Therefore, because the lower section requires painting more frequently than the upper, painting with two tones reduces both time and dollar expenditures. In addition, Ennis said that Mythic Non-Toxic Paint covers better than any paint he used in the past. As a result, contractors only needed to paint one coat instead of the standard two coats. Again, a cost savings to the district. Plus, the administrative offices also only require one coat of paint and this could be accomplished without interrupting the daily activities of the staff.
Results

After painting the Harrison School with Mythic Non-Toxic Paint, Ennis has reported positive responses from the Caldwell-West Caldwell Board of Education. Presently, Mythic Non-Toxic Paint is the only paint used throughout the entire school district. Ennis is recorded stating, “a clean and safe school makes for a better learning environment.” Switching to Mythic paint has saved the school district between 15 to 20 percent in painting costs. According to Ennis, the cheap paint that most schools purchase through bids actually ends up costing more over time because traditional, toxic paints require two coats whereas Mythic Non-Toxic Paint only requires one. Mythic Non-Toxic Paint has proven to be a very cost effective solution for the Caldwell-West Caldwell district. Indoor air quality was notably improved by opting from a VOC and toxin free paint, adding to the health and safety qualifications of the district. In the words of Ennis, “Mythic is cost effective simply because it is safer for students.” A major set-back to school districts opting for a healthier paint for their buildings is cost. However, Mythic Non-Toxic Paint proves this as a “myth” because it has been shown to be competitively priced and effectively cheaper than other standard paint.