

## WHITE PAPER:

# Going “Retro” with AV Cart Retrofit Kits: The Advantages of Reusing Technology Carts in K-12 Environments

By Bretford Manufacturing, Inc.

## I. Background

The use of technology in the K-12 classroom is increasing, especially as the products become more affordable and accessible at this level. Studies show a correlation between improved teaching and learning when the use of tools like projectors, laptops, flat panels and document cameras are available. As a result, many school districts across the country have placed an emphasis on upgrading the educational environment with the latest technology equipment.

A majority of the school buildings in the U.S. are over 40 years old and not constructed to support today’s teaching methods. In fact, according to School Planning & Management Magazine, education is the number-one non-residential buildings market today with 79 percent of school construction and renovations taking place at the classroom level.

## II. AV Carts and Retrofit Kits

One of the oldest and most well-known technology support furniture products is the mobile AV cart. AV carts have been in the K-12 classroom environment for more than four decades. Some of the earlier carts were designed to hold everything from large CRT televisions to reel-to-reel projectors. However, as teachers and students increase their reliance on electronics equipment to enhance learning, the cart requirements are dramatically changing.

Retrofit kits have become a popular and cost-effective way for schools to update existing AV carts without having to completely replace them. Retrofit kits were initially created as a solution for a budget crunch. Schools, like businesses, are being asked to do more with less and the retrofit kit helps achieve this goal. Educational facilities that don’t have the funds to swap out old technology furniture can typically afford to upgrade it. Likewise, schools that have budgets cut in the midst of renovating have the opportunity to use retrofit kits to free up dollars for new electronics equipment.

## III. Choosing the Right AV Cart Retrofit Kit

Many challenges in the K-12 environment need to be taken into account when selecting an AV cart retrofit kit. From the safety of the children in the room to the building’s environmental standards, there are a myriad of issues that can impact retrofit kit selection.

**Functionality.** The best type of retrofit kit is one that makes it easier for an instructor or student to interact with the technology products on the cart. Look for large shelves that pull out on smooth-rolling glides and ones that enable the cart to maintain height adjustability. At the same time, it’s wise to select a kit that offers practical features like a top-shelf handle for greater control and more room to walk when moving the cart from location to location.

**Safety.** Not only must the AV cart protect the expensive and fragile equipment on it, but it must also protect the people—especially children—who are around it. A retrofit kit should fit seamlessly into the structure of the cart and not require heavy modifications that compromise structural integrity and can ultimately fail. UL certification is also a critical consideration when selecting a retrofit kit. A UL listed cart will no longer be certified if modifications are made to it unless those modifications are also separately certified. Look for kits that comply with UL Standard 1667 and have been stability and load tested for safe use specifically with a flat panel monitor. These kits should allow the cart to maintain its original UL listing.

**Durability.** While some of the technology equipment may be getting smaller, it's all fragile, especially the plasma and LCD monitors. Unlike a CRT TV, which distributes the weight across the cart, flat panel monitors concentrate their weight in a single location. For this reason, it's important to choose a retrofit kit with durable all-steel construction, reinforced steel shelves and a thick shelf base that securely holds the technology products and will not deform or tear. Proper fit and weight distribution is also critical. Look for kits that already have legs welded to the shelves for additional strength. They should not require any hole drilling into the existing structure, which can degrade integrity. Most importantly, the retrofit kit should be constructed specifically for use with existing products and attach seamlessly, not require modifications to make it work.

**Cost.** Retrofits kits are designed with budgets in mind. They are smaller than a full cart so they are less expensive to manufacture, ship and assemble. In fact, retrofit kits cost approximately 50 percent less than the cost of an entirely new cart, yet can help achieve the very same goal of supporting newer technology products. The savings can really add up, especially when all of the carts in a school or district are upgraded at the same time.

**Environmental Impact.** Retrofit kits allow schools to keep the carts they already have while putting them to new use. The kits already have a modest carbon footprint because they require only a small amount of material and energy to produce. Since the existing cart is reused, less waste ends up going into a landfill. It's wise to choose a kit made with post-consumer recycled steel, which is the number-one recycled material today. Also, look for one that uses the leg hardware, rubber mat and optional electric unit from the original cart. Lastly, select a cart that complies with the GREENGUARD® Environmental Institute's Children & Schools Indoor Air Quality standards, which contributes points toward LEED certification, the nationally accepted benchmark for the design, construction and operation of green buildings.

#### **IV. Retrofit AV Cart Challenge: A Note of Caution**

Not all retrofit kits are created equal. Schools should choose a retrofit kit that is designed specifically for use with the carts already in the classroom. Some aftermarket AV cart modifications incorporate potentially unsafe changes like drilling into the shelves, which compromises structural integrity and can ultimately fail. The goal is choose a retrofit kit that fits and functions seamlessly with an existing AV cart and updates it to mirror carts that are new to the market today.

#### **V. Conclusion**

AV cart retrofit kits are a practical and economical choice for K-12 schools looking to update the technology support furniture. Using the above tips will ensure that the most appropriate kits are selected so that technology can continue to be used to improve the teaching and learning processes.

#### **About Bretford Manufacturing, Inc.**

Bretford designs and manufactures dependable furniture products that are built to last for decades and are created to improve how people work and learn. Founded in 1948 and headquartered in Franklin Park, Ill., Bretford Manufacturing, Inc. holds more than six decades of expertise dedicated solely to the design and manufacture of furniture solutions. With nearly 400 employees and 450,000 square feet of production space, the company offers smart furniture designs that support evolving technology, enabling institutions, organizations and corporations to increase productivity and efficiency. Bretford's superior workmanship and environmentally compliant manufacturing and operation practices ensure dependable products, many of which are GREENGUARD Indoor Air Quality Certified®. Bretford products are backed by a 12-year standard warranty and the industry's best 20-year standard warranty on library furniture.



#### **Resource:**

School Planning and Management Magazine: Trends in Education 2010

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