Some things in this industry just do not make any “cents.” A great deal of time, effort, and money is spent to apply coatings in today’s world. Try to imagine the following—the black iron arrives at the coating contractor, it is pressure washed, salt tested, inspected, blasted, inspected, primed, inspected, intermediate coated, inspected, finish coated, inspected, and finally holiday tested to ensure that the user’s requirements have been met. What comes next is terrifying—shipping and installation!

The effort and time spent by the coating contractor and inspectors is significant in most cases to ensure that the finished product meets the user’s specifications. Why isn’t care taken to prevent damage to the finished product upon shipment and finally installation? I have spent many years inspecting and ultimately pondering this question. How often have you heard this from the coating contractor—“I don’t know why we spent all that time and effort because you will not recognize it by the time it arrives at the fabrication yard or by the time it is installed.”

I have been fortunate enough to have had the opportunity to work on many world-class projects. I have seen massive efforts to enforce user specifications through inspection and have witnessed some truly magnificent coating jobs by many coating contractors. It is unfortunate that all of this effort, time, and expense are often wasted after the piece is shipped and installed. It is realistic to say that two phases of coating are involved: the original job followed by the repair job. I have actually been a part of projects that ended up re-blasting and re-coating entire packages due to mechanical damage from shipping and installation. I have seen freshly coated piping and caisson get rolled onto trucks by forklift without use of padding, and then secured with chains. I have seen countless welders/fitters

An excellent coating job can be ruined by mechanical damage during shipping and installation of the coated piece. Coating repairs can be time-consuming, expensive, and may yield an inferior coating job. This article provides precautions to be taken to minimize coating damage subsequent to initial coating.
burning freshly painted steel and grinding without the use of fire blankets or some other means of protecting the applied coating (Figure 1). I have even seen freshly painted skid packages dragged behind a tractor or forklift so that they are in reach of a crawler crane. I have seen a newly painted deck turn to rust overnight because of grinding dust (Figure 2). Damage can occur from additional welding activities that are performed after coating (Figure 3). I have also seen craftsmen chipping away coatings with chipping hammers out of complete boredom while waiting for something constructive to do.

It is good common sense as an inspector to prevent mechanical damage whenever possible, within the inspector’s authority, by providing solutions to the folks who do not know any better. There is a big difference in not knowing any better and just not wanting to make the effort. Folks not wanting to make an effort are the most common. Fire blankets, carpet, rubber padding, cardboard, wood, and nylon slings, combined with good instruction for using them, are all ways to prevent mechanical damage at the fabrication yard and during installation. I have been on jobs that have required twice the man hours to repair the coating system than it took for the initial paint job to be performed!

A repair job will not yield the service life of the original coating job. Most repairs are done with power- or hand-tool cleaning and require much time and effort. Most repair jobs are below the thickness requirements, or, in some cases, twice the thickness since repairs are mostly done by brushing or rolling. Most repair jobs look bad because the edges are not “feathered” properly and do not “blend in.” It is common to see “lifting” with rust prevalent at the interface of a repair and the original coating due to poor overlapping techniques. Most repair jobs require mixing of “partial kits” due to the small size of the job, and many times end up sagging, pinholing, or not curing. Mixing of “partial kits” is a whole other subject I won’t touch at this time. Most repair jobs do not blend in with the original color and stand out. “Over blasting” is also a common occurrence in repair jobs. We have all heard the old phrase, “It looks like a leopard.” Many new semis, spars, decks, modules, living quarter buildings, and jackets leave the dockside looking like leopards.

In conclusion, it takes time and effort to ensure that mechanical damage is kept to a minimum. Mechanical damage is
Preventing Mechanical Damage Makes Good “Cents”!

Preventable. No one should be ignorant to the fact that some damage is expected and unavoidable. Before the work leaves the coating yard, however, ensure that the forklift has padding on the forks when contacting the work piece, and that nylon straps are being used instead of metal chains, and inform the trucking company to take the necessary precautions to prevent mechanical damage on the truck by the use of wood, cardboard, and rubber. Use fire blankets or tarps generously to cover painted items near grinding, welding, and cutting. Talk with your engineers and project managers to make them aware of the consequences of mechanical damage and the delays or additional man hours they will spend on repairs. You will need their support to enforce the preventative measures. Preventing mechanical damage makes good “cents” and can make your project a success.

KEN JUDICE, JR., is president of Hill Country Consulting and Inspection, Inc., PO Box 3120, Canyon Lake, TX 78133. He has 22 years of experience in the coatings industry. He is a NACE Level 3-certified Coating Inspector and an AWS-certified Welding Inspector.