

Dar Al Riyadh Insight #72

Construction Environmental Sustainability - Site Waste Management

Dar Al Riyadh Insights reflect the knowledge and experience of our Board, executives and staff in leading and providing PMC, design and construction management services. Dar Al Riyadh believes in the importance of broadly sharing knowledge with our clients and staff to improve project outcomes for the benefit of the Kingdom of Saudi Arabia.

Site waste management

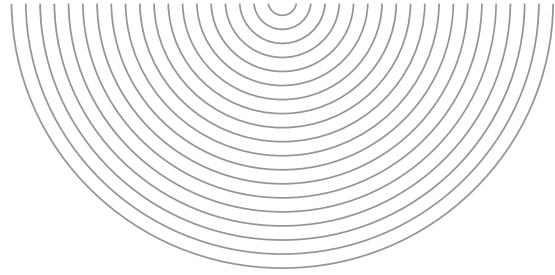
Construction sites generate waste with a significant portion of the materials arriving at the site leaving as waste. This represents a significant opportunity for the achievement of environmental sustainability during construction. In simplest terms:

- Bring to the site only what you need (or as close to zero waste as you can get)
- Use what you bring in the most environmentally efficient manner
- Recycle what you don't use, minimizing waste streams

Strategies to minimize potential waste materials at the site include shifting greater portions of facility fabrication and construction into a manufacturing type environment such as a pre-fabrication and assembly facility (manufacturer) or module yard with its manufacturing based processes. In these environments changed work processes reduce waste streams and promote reuse of scrap materials. To the extent that waste streams exist they are in more controlled, typically less impactful settings than final project sites. A second strategy involves use of cut to length materials such as lumber, piping and electrical conduit. Scrap reduction minimizes waste streams but requires strong supply chain capabilities to ensure the right materials are at site when required.

The utilization of construction materials in the most environmentally efficient manner begins with the transport of construction materials to the site. Transporting construction materials can represent 15% to 30% of construction costs but often these costs are embedded in unit material costs. Opportunities exist however to positively impact these costs while improving environmental sustainability at the same time. Opportunities include use of rail, ship or barge deliveries in lieu of trucks. On one large bridge project, sections were directly placed from the ship which transported them from overseas while on another they were lifted in place from a barge that transported them from an up river fabrication yard.

Utilization of site based materials, within limits, can also contribute to overall environmental sustainability. The earlier example of balancing cuts and fills to minimize offsite disposal of



surplus materials is one example. Others include use of on-site rock and aggregates especially for base and foundational materials and mulching or composting vegetation debris.

Recycling of waste materials to minimize waste streams begins with the steps taken to promote waste recycling. Examples include requiring single type packing material in any shipment to the site. Examples include all cellulose packaging or all plastic packaging. This promotes efficient recycling and keeps mixed packaging from getting into waste streams. Ready access to segregated recycling bins/dumpsters with frequent servicing further promotes waste recycling. Track and promote the sites waste recycling achievements. In many instances clean, segregated waste streams of reasonable volumes may be sold.

One additional opportunity for reuse/recycling relates to formwork where either the use of certified wood or reusable materials such as steel, plastic or wood is encouraged.