General Information

- Educational - Millmont Campus, Reading PA
- 98,000 sq ft total – New school construction
- Delivery method – bid (NRB was sub to GC)
- Stories – 2 story over underground parking
- Offsite – Steel and concrete PMC
- Type IIB – non-combustible
- Total project cost $26 million
- Total offsite component $7.7 million
- Key stakeholders, Owner, Architect, GC, NRB
Environmental Context

- Shaded area is modular using 66 pre-built roof and floor pans and 88 fully preassembled modules
- Off-site method was chosen mainly for accelerated schedule, reduced site disturbance and site restrictions
- 98,000 sq ft new school designed to blend with existing circa 1950 neighborhood
- Very limited work, staging and lay down area made off-site project delivery the method of choice.
Innovation
(Out of site challenges came considerable design innovation)

- Unique urban site location with zero lot line and underground parking.
- Integration of off-site and on-site demanded coordination with precise tolerances.
- Modules landed on matrix of structural steel supports in the parking garage with the modular floor design factored in to help distribute building loads.
- School is used as a teaching tool with a green roof in the courtyard over the garage.
Advantages gained

- Schedule reduction
  - Start 10/2007
  - Complete 10/2008
- Reduced disruption to site and local community
- Less construction pollutants and GHC’s from deliveries and workforce travel
- Reduced on-site activity for improved worker safety and security
- Quality management in a controlled environment resulted in minimal deficiency corrections at site
- Knowledgeable architect and owner. Early design decisions = reduced CO’s
Organizational Context

- Architect consulted with modular industry in advance for guidance on best practices
- Team structure was typical of Design-Bid-Build with the addition of modular sub-contractor.
- Architect and owner were engaged and understood off-site construction which helped the project roll out smoothly.
- GC was engaged in the process and worked collaboratively with NRB
- AutoCad was used for the project
- Formal agreements included AIA contract, schedule of values, AIA invoicing.
- Informal agreements between NRB & GC trading scopes where most practical to manage costs to the benefit of the project and the owner.
LESSONS LEARNED

- Overall the project went very smoothly so no change to execution. However because the project was a hybrid of site and off-site, the practical trading of scope between GC and NRB required a common spirit of co-operation. Possibly going forward some of that scope transfer could be sorted out in advance of issuing bid spec.

AWARDS & PUBLICATIONS

- MBI first place “PMC” educational over 10,000 sq ft
- 2008 MBI Best in Show
- 2008 MBI Judges Choice
- 2011 Business Profiles article
- 2009 Lancaster Sunday News