Advantages of the *Skanska CM Approach*

- Our Resources
- Our Experience
- Our Project Team
- Project Planning and Approach
- Key Preconstruction Issues
- Innovation and Technology
Skanska is Local

- Established in Raleigh in 1918
- Main office in RTP
- Over 250 employees
- $300 million in revenues
- #1 ranked CM in RTP by The Triangle Business Journal
Skanska is Green

- ENR #1 Green Builder for 2007
- Over 80 National & Local LEED Accredited Professionals
- Regional LEED Projects include:
  - EPA National Computer Center
  - Duke FCIEMAS
  - French Family Science Center
  - Raleigh Civic & Convention Center
Skanska is Experienced – CM at Risk

City of Raleigh - Raleigh Convention Center
UNC Hospitals – North Carolina Cancer Hospital
NC State University – Biomanufacturing, Training & Education Center
Duke University – French Family Science Center
NC State University – Engineering Building III
Duke University – FCIEMAS

SCO Certificate of Merit

Over $1.6 Billion Locally Since 2001
Skanska is Experienced – Correctional Facilities

- Buncombe County Detention Center
- Burke County Law Enforcement Center
- Charlottesville/Albemarle Regional Jail
- Hertford County Law Enforcement Center
- Spartanburg County Jail
- Wake County Emergency Jail
- Wake County Public Safety Center
- Leath Correctional Institution
- Union County Law Enforcement Center
- Pender County Correctional Institution
- Robeson County Jail
- Durham County Detention Facility
- Durham County Emergency Jail
- Hertford County Law Enforcement Center
High Performing Teams

What is a Team?
Commitment
Trust
Purpose
Communication
Involvement
Process Orientation
Continuous Improvement

Dr. Greg Dale, PhD, Assoc. Professor
Duke University
Project Team

Little Diversified Consulting
Center Gable Design & Project Management Consultants

Scott MacLeod Executive Oversight
Randy Blevins Executive Oversight

Allen Jones Project Executive

Steve Strouthamer
Pre-Construction Services Director

Dave Johnson
Estimating Manager

Terry Reaves
Architectural Estimator

Dick Cecich
Electrical Estimator

Don Davey
Mechanical Estimator

Peer Review Team
Scott Bannard
Pre-Construction Director
John Caerasi, AIA
Pre-Construction Director
John Kelly, AIA
Estimating Director
Kim Torra, P.E.
Senior Mechanical Estimator
Bob Benefield, LEED AP
Architectural Estimator

Project Management Team
Curtis Linker
Detention Center Project Manager
Brian Costell, LEED AP
Parking Garage Project Manager
Dick Cecich
Electrical Project Manager

Project Engineers

Project Oversight Team
Randy Hall
Detention Center Senior Superintendent
Neil Whisler
Parking Garage Superintendent

Assistant Superintendent

Peer Review Team
Chuck Jablonski
Vice President
Mark McLaughlin
Project Executive
Daniel Reiden
Senior Superintendent
Francis Coons
Superintendent
Mark O'shea
Assistant Superintendent
## Staff Experience Matrix

<table>
<thead>
<tr>
<th>Team Member</th>
<th>CM Experience</th>
<th>Local Experience</th>
<th>Detention Experience</th>
<th>Design Team Experience</th>
<th>Common Experience</th>
<th>Wake County Experience</th>
<th>Local Presence</th>
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<tbody>
<tr>
<td>Scott MacLeod</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td>Randy McNeely</td>
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<td></td>
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<td>Tom Hyzak</td>
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<td></td>
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<tr>
<td>Steve Stouthamer</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>8 years</td>
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<tr>
<td>Dave Johnson</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Terry Rowe</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Dick Cecich</td>
<td></td>
<td></td>
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<td>Don Davis</td>
<td></td>
<td></td>
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<tr>
<td>Renee Jones</td>
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<td></td>
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<tr>
<td>Gary Holbrooks</td>
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<tr>
<td>Curtiss Lindler</td>
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<td></td>
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<tr>
<td>Brian Cishek</td>
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<td></td>
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<tr>
<td>Butch Kessinger</td>
<td></td>
<td></td>
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<tr>
<td>Randy Hall</td>
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<td></td>
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<td>Neal Whaley</td>
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<tr>
<td>Keith Kelly</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2 years</td>
</tr>
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</table>

A Triangle Based Team with over 250 years of Local Experience & 20 Correctional Facilities.
Project Execution Plan

Understand Your Objectives; Translate into Project Objectives

Develop Execution Plan to Achieve Project Objectives

Establish Procedures that Support the Execution Plan

Execute Procedures; Monitor & Modify as Necessary

- Design deliverable plan
- Budget management plan
- Schedule management
- Site logistics plan
- Permitting plan
- Communication plan
- Procurement plan
- LEED management plan
- QA/QC plan
- MWBE management plan
- Safety management plan
- Commissioning plan

Our Roadmap to Success
Site Planning and Logistics

PHASE I - SITE CAPTURE:

- Maintain Security of Site & Facility
- Transition Vehicular Traffic for Deck Construction
- Establish Personnel Control Plan

Show All
Show Info
Site Planning and Logistics

PHASE II - DECK CONSTRUCTION:
- Maintain Security of Site & Facility
- Move Facility Parking to Temporary Location
- Segregate Construction Operations from Facility Operations
Site Planning and Logistics

PHASE III - BUILDING CONSTRUCTION:
- Maintain Security of Site & Facility
- Move Parking to New Deck
- Segregate Construction Operations from Facility Operations
- Develop Procedures for Access into Existing Secure Perimeter
## Construction Phase – Key Issues

### Challenges

<table>
<thead>
<tr>
<th>Workforce Orientation</th>
<th>Interface with existing facility</th>
<th>Regulatory approvals</th>
<th>Commissioning</th>
</tr>
</thead>
<tbody>
<tr>
<td>- keeping site personnel advised of ongoing security &amp; operational considerations</td>
<td>- mechanical, electrical, and security system tie-ins</td>
<td>- Detention grade materials make late changes difficult and expensive</td>
<td>- All systems must function properly at occupancy</td>
</tr>
</tbody>
</table>

### Solutions

| Maintain communications through orientation, pre-task planning, and weekly IFE production meetings | Advanced planning and coordination. Confirm as-built conditions and establish shut down and tie-in protocol | Incorporate regulatory reviews in overall project schedule and coordinate review meetings as early in construction as feasible | Develop commissioning plan during preconstruction phase. Implement start-up procedures as early as possible |
Pre-construction Services

Keys to Success

- Cost control
- Maintainability and sustainability of building components
- Procurement strategies
- MWBE planning
Cost Control...

- Early understanding of project scope
- Realistic forecasting approach
- Disciplined cost management program (PCE Process)
- Regular meeting attendance & reporting
- Proactive value management process

... for effective decision making
Market Knowledge...

...for Reliable Cost Information
Cost Control – *Cornerstone of our Pre-construction Services*

The “New” Way (Design Partner)

- Design & Redesign
- Value Engineer
- Estimate

The “Old” Way (Design Recipient)

- Design
- Value Engineer
- Estimate

SKANSKA
Estimating Model Study

- Paired 7’x 11’ Cell Modules, Front V-Chase
- 70 GSF per cell
- Single Occupancy Cell
- Model Includes
  - Cell Doors & Security Hardware
  - Polycarbonate Glazed Security Windows
  - Bunks, Desks & Stools
  - Combination Toilet/Sink
  - Front Mechanical Chase for HVAC, Water & Sewer
- Multiple Occupancy Cell – Future Consideration
## Estimating Model Study

<table>
<thead>
<tr>
<th></th>
<th>Masonry Partitions with CIP Concrete Structure</th>
<th>CIP Concrete Partitions and Structure</th>
<th>Precast Prefabricated Cell Modules</th>
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<tbody>
<tr>
<td>Initial Module Cost</td>
<td>Best</td>
<td>Good</td>
<td>Poor</td>
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<tr>
<td>Overall Arch./Str. Cost</td>
<td>Best</td>
<td>Average</td>
<td>Average</td>
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<tr>
<td>Overall Facility Cost</td>
<td>TBD – Requires further information</td>
<td>TBD – Requires further information</td>
<td>TBD – Requires further information</td>
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<tr>
<td>Schedule</td>
<td>Average</td>
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<td>Best</td>
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<tr>
<td>Change Flexibility</td>
<td>Best</td>
<td>Average</td>
<td>Poor</td>
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<tr>
<td>Field Coordination</td>
<td>Best</td>
<td>Average</td>
<td>Average</td>
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<tr>
<td>Life Cycle Cost</td>
<td>Good</td>
<td>Best</td>
<td>Best</td>
</tr>
</tbody>
</table>
Constructability/Maintainability/Sustainability

- Value Management Reviews with and Eye Towards Long Term Facility Maintainability
- Involve General Services in Constructability Reviews
- Identify Service Area Mock-Ups
- Life Cycle Impacts
Procurement Strategies

- Over 1200 vendors in RTRP – but we have to keep their interest !!
- Well Planned Project + CM Team = Peak Sub Interest = Best Value to Wake County

Initial Estimate (Systems)

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<thead>
<tr>
<th>Building Systems</th>
<th>Core &amp; Shell</th>
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<tr>
<td>0100 - Foundations</td>
<td>BP01 - Earthwork and Grading</td>
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<td>0200 - Substructure</td>
<td>BP02 - Paving and Walks</td>
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<td>0300 - Superstructure</td>
<td>BP03 - Concrete Foundations</td>
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<td>0400 - Exterior</td>
<td>BP04 - Concrete Flatwork</td>
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<td>0500 - Roofing</td>
<td>BP05 - CMU Construction</td>
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<tr>
<td>0600 - Interior</td>
<td>BP06 - Stone Masonry</td>
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<td>0700 - Conveying Systems</td>
<td>BP07 - Structural Steel</td>
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<td>0800 - Electrical Systems - Core Elements</td>
<td>BP08 - Miscellaneous Metals</td>
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<tr>
<td>0900 - General Requirements</td>
<td>BP09 - Millwork</td>
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<tr>
<th>Bid Packages</th>
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<tr>
<td>BP01 - Earthwork and Grading</td>
</tr>
<tr>
<td>BP02 - Paving and Walks</td>
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<tr>
<td>BP03 - Concrete Foundations</td>
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<td>BP04 - Concrete Flatwork</td>
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<tr>
<td>BP05 - CMU Construction</td>
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<tr>
<td>BP06 - Stone Masonry</td>
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<td>BP07 - Structural Steel</td>
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<td>BP08 - Miscellaneous Metals</td>
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<td>BP09 - Millwork</td>
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<th>Interior Construction</th>
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<td>0300 - Miscellaneous Metals</td>
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<td>0500 - Millwork</td>
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<tr>
<td>0600 - Ceiling Finishes</td>
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<td>0630 - Wall Finishes</td>
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<tr>
<td>0650 - Specialties</td>
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<tr>
<td>0700 - Casework and Cabinetry</td>
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<tr>
<td>0800 - Mechanical Systems - Space Fit-Out</td>
</tr>
<tr>
<td>0900 - Electrical Systems - Space Fit-Out</td>
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<table>
<thead>
<tr>
<th>Bid Packages</th>
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<tbody>
<tr>
<td>BP02 - Aluminum Windows and Curtainwall</td>
</tr>
<tr>
<td>BP03 - Drywall and Rough Carpentry</td>
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<tr>
<td>BP04 - Acoustical Ceilings</td>
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<td>BP05 - Resilient Flooring</td>
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<td>BP06 - Epoxy Flooring</td>
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<tr>
<td>BP07 - Painting and Wallcovering</td>
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<td>BP1000 - Specialties</td>
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<td>BP1010 - Vitrain Equipment</td>
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<td>BP1020 - Lab Equipment</td>
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<td>BP1030 - Lab Casework and Cabinetry</td>
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<td>BP1040 - Cold Rooms</td>
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<td>BP1050 - Fire Protection</td>
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<td>BP1060 - Plumbing</td>
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<tr>
<td>BP1070 - HVAC and Controls</td>
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<td>BP1080 - Electrical</td>
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<td>BP1090 - Telecommunications</td>
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<tr>
<th>CM Indirects</th>
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<td>Construction Contingency</td>
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<tr>
<td>Owner Indirects</td>
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<tr>
<td>FF&amp;E</td>
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<td>Specialty Equipment</td>
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<tr>
<td>Owner’s Project Contingency</td>
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<table>
<thead>
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<th>Benefits</th>
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<tbody>
<tr>
<td>Establishes Budgets for Each Package</td>
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<tr>
<td>Matches the Market Make-Up</td>
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<tr>
<td>Becomes the Basis for Construction Accounting</td>
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</table>
Investing in Our Community

MWBE Management Plan

1. Identify Resources
2. Outreach Strategies
3. Recruitment & Procurement
4. Technical Resource Assistance
5. Financial Assistance Plan
6. Reduces Barrier Packaging
7. 2nd Tier Strategies
8. Monitoring & Reporting
“...many contractors talk a good talk, however, nothing matters except results and we are very pleased with the results! ... the Raleigh Convention Center job is currently reporting 27.2%! This is a wonderful accomplishment, and a true testament to your commitment to this important initiative. “

Lawrence E. Wray
City of Raleigh
Innovation & Technology . . .

Production 30%

Waiting 40%

Moving 30%

. . . Improving Outcomes
Improving Communication with Trades

In-house CADD Coordination to Assist in Project Planning & Design Clarification
Improving Coordination . . .

Prefabrication to improve field production

In-house Clash Detection to Avoid Delays

... for improved schedules
Improving Quality...

Documentation of installed Conditions

Utilization of Full Scale Mock-ups

... to prevent rework and maintenance issues
Improving the Work Environment

An Approach Targeted at a Better Quality of Work Life
Advantages of the Skanska CM Approach

Resources
Experience
People
Commitment
A Partnering Approach to Success

HDR Architecture
- Spartanburg Co. Law Enforcement Center
- Federal Law Enforcement Training Center
- University of Virginia Biomedical Engineering & Medical Sciences Building
- Cooper River Bridge Charleston, SC

Wake County
- Wake County Public Safety Center
- Wake County Eva Perry Memorial Library
- Wake County Sunnybrook Community Health Building
- Wake County Sunnybrook Community Health Building

Wake County
- Wake County Emergency Jail
- Wake County East Regional Library
- Wake County Falstaff Human Services Center

Little Diversified
- Mecklenburg County Pre-Trial Detention Structure
- University of North Carolina Morrison Residence Hall Renovation
- Tompkins Associates Central Campus
- Greensboro College Proctor Hall
- Agora Developments Falls Village Shopping Center
- Skanska USA Offices Multiple Locations
The Triangle is Our Home . . .
Raising the Standard in the Triangle . . .

2007 #1 Construction Manager in the Triangle by the Triangle Business Journal

2007 Raleigh News & Observer’s Greenest Office Award winner

2007 Triangle Business Journal’s Best Places to Work Award winner

2007 Durham Chamber of Commerce’s Circle of Influence Diversity Award winner

2007 Sustainable North Carolina Environmental Leadership Award winner


- Scott MacLeod

SKANSKA