Oldcastle Infrastructure™
A CRH COMPANY

3096 Precast Concrete Maxi-Mod Buildings

CITY OF OPELIKA

New Fiber Optic Building for New FTTH Network

Opelika, AL

The City of Opelika is developing a new fiber to the home (FTTH) network to provide both broadband services as well as the ability to monitor and manage their own energy consumption. The FTTH new fiber optic network and new smart grid technology for the network will give residents and businesses access to new highquality broadband voice, data and video services, including lightning-fast Internet access, IPTV and video-on-demand services.

Opelika will be the first city in the State of Alabama to build an all fiber optic network and will leverage that infrastructure to enhance economic development and attract new businesses to the community.

CONSTRUCTION CHALLENGE

The $2.6 million project included the complete "Full Turn Key" construction of a 60 foot by 96 foot building that would house the new head-in building and data center building. The scope of work consisted of manufacturing, out-fitting and installation of the building, fencing, power service, dc installation, racking and generators.

PRECAST SOLUTION

The turnkey project involved the manufacturing and complete out-fitting of (2) two Oldcastle Infrastructure # 3096 Precast Concrete Maxi-Mod components to create the required 60 ft x 96 foot building with all specified equipment.

DESIGN & CONSTRUCTION TEAM

General Contractor
RACO, Inc.

Owner
City of Opelika

Precaster
Oldcastle Infrastructure

Manufacturing Facility
Oldcastle Infrastructure
Newnan, Georgia

In addition, the fully out-fitted building modules were shipped, installed and made fully functional for the City of Opelika. The # 3096 Precast Concrete Maxi-Mod components were manufactured at our Newnan, GA facility and foundations were installed in the field by our Oldcastle Shelter Solutions Group.

CONSTRUCTION SCHEDULE

Start Date
May 2012
Completion Date
Scheduled for August 1, 2012

SCOPE OF WORK

Precast Structure

A. STRUCTURAL ENGINEERING

Engineering:	Provided complete product engineering services.
Drawings:	Provided detailed engineering drawings.
Supervision:	Provided an onsite managing supervisor.

B. PRECAST CONCRETE SHELL

Size	(2) Model 3096 maxi-mod concrete building.
Each outside dimension:	~ 97'-4" Long x 31'-4" Wide x 10'-1" High.
Each finished inside dimension:	~ 96'-0" Long x 30'-0" W x 10'-0" H.
Weight:	Approximate weight: 59,000 pounds per concrete section.
Specifications:	Floor load: 150 PSF Roof load: 60 PSF.
	Wind load: 130 MPH, Exp "C".
	Seismic Zone: Zone 4.

C. FINISHES

Exterior Finish:	Smooth chamfered surface w/ textured finished.
Interior Finish:	Interior walls & ceiling finished w/FRP laminated board.
Insulation:	Outside walls & ceiling insulated.
Floor:	VCT anti-static tile with rubber base molding.
Interior Walls:	Steel Stud 2x4 framing, insulation, drywall, and FRP (2hr rated); (2) Video Head-End Offices-# 1 & #2; (1) Set-Up Office/Lab; (1) Electrical/Battery Room; (1) Storage/Receiving Area; (1) Server Room.
Roofing:	60 mil Duro Last Roof with a 20 year warranty

D. DOORS AND OPENINGS

Doors:	(3) 4'-0" x 7'-0" heavy duty steel doors and frames.
Doors:	(9) 6'-0" x 7'-0" heavy duty steel doors and frames.
Locks:	(12) Locksets w/ changeable core; (6) Mortise; (5) Passage; (4) Panic Bars Doors; frames have electric strike & card reader
Door Hardware:	NRP Stainless steel hinges, door closer, door pick plate, door holder, weather strip, aluminum threshold, 2.5"drip cap.

E. POWER

Power Service:	1200A, 3Ø, 480V
Disconnect Switch:	(1) 2000A @ 480VAC 3 PHASE main switch gear.
Surge Suppression:	(2) 100K Peak Amp Surge Suppressor.
Generator:	Included in section 11.
ATS -A:	ASCO 7000 series service entrance rated with isolation 1200A/4P ATS – NEMA1.
ATS -B:	ASCO 7000 series with isolation bypass switch – 1200A/4P ATS – NEMA1.
Main Distribution Panel:	(1) 1200A (DSSB) support phase one loads.
HVAC Panel:	(1) 600A HVAC (HM) Panel.
DC/UPS Panel:	(1) 800A (HC) Panel.

LA Panel:	(1) 225A (LA) Housekeeping Panel.
HA Panel:	(1) 100A Lighting Panel.
Transformer:	(1) 75kVa 480VAC to120VAC step transformer for non-critical housekeeping loads.
Convenience Outlets:	(61) 20A, 120V Duplex outlets (as needed throughout bldg.).
Exterior GFI Outlets:	(11) 20A, 120V outlets.
Power Conditioning:	(2) APC Symmetra PX 100 kW UPS with 50 kVA modules, PDU & cables with connectors to the "A" power strips in Rows 1 & 2 (3) APC Symmetra PX 40 kW UPS with 10 kVA modules, including batteries, PDU & cables with connectors to the "A" power strips in Rows 1 & 2 complete.
DC Plant/Batteries:	Lineage DC Plant and Batteries.

F. ENVIRONMENTAL SYSTEM

HVAC:	(2) Bard W60A1C06MP 2. 5 Ton 3Ø HVAC Units with dehumidification, 9kw heat, "E" controls (low ambient control). (17) Bard W60A1D06MP 5 Ton 3Ø HVAC Units with dehumidification, 9kw heat, "E" controls (low ambient control).
Controls:	(10) Bard MC4000B Lead Lag Controller with enhanced alarm board.
HFans:	(5) Broan 331H wall exhaust fans.
Grills:	Return air, and exhaust grills.

G. ALARMS

Security Management:	Security Management System per E2.06 and the Security Management System specification.

H. LIGHTING

Interior (Mod A):	(96) 4' fluorescent light fixtures with 20% up light.
Interior (Mod B):	(20) 4' fluorescent light fixtures with wire guards.
Exterior:	(13) 100 HPS Exterior fixtures with photo cell.
Emergency:	(11) Emergency fixture with exit sign and dual flood lights.
Exit:	(8) Exit sign/lights.
Switches:	(12) 20 amp light switches.

I. CABLE LADDER:

Cable Ladder:	(750) LF of 12" gray cable ladder mounted above rack spaces: Ladder mounting hardware, Two layers of cable ladder mounted above DC rows, One lay of cable ladder mounted above AC rows.
Fiber tray:	(321) LF of fiber tray as shown on drawing T2.01.

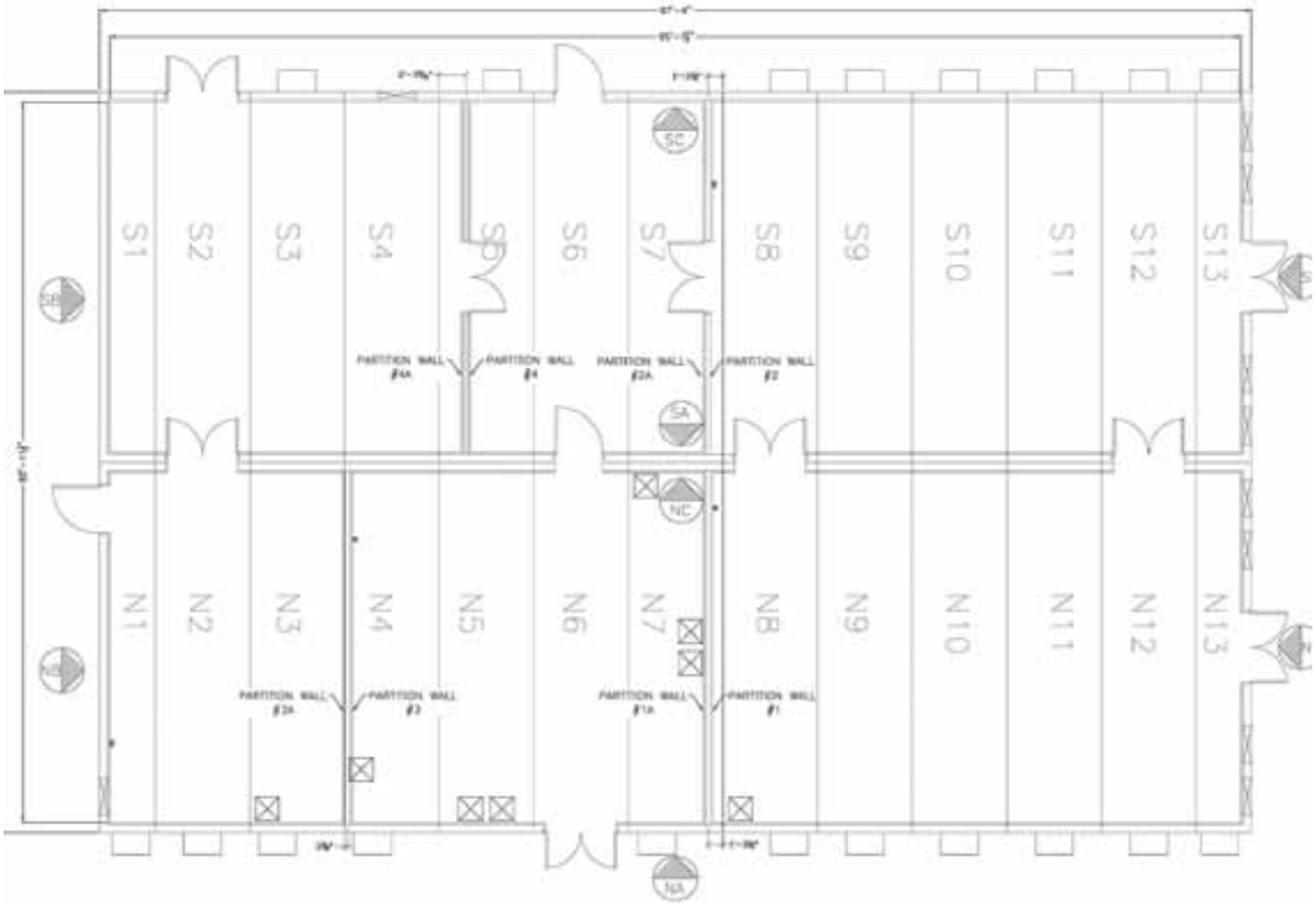
J. GROUNDING WILL MEET REQUIREMENTS ON T2.03 & T2.04.

Halo:	No.2 AWG Bare, Stranded copper wire around inside perimeter of building.
Bonding:	No. 6 insulated copper wire from metallic items such as conduit, electrical boxes and equipment to

	perimeter ground bus. #2 stranded green jacketed communication equipment ground bus secured to Newton #2106C brackets mounted to the cable ladder.
Ground Bar:	(2) 24" x 4" x ¼" Cooper ground bars, insulators, connecting rods & exterior; Copper straps (4") to earth ring; One bar interior, one exterior.

K. ON-SITE MECHANICAL AND ELECTRICAL

Electrical (exterior):	
Exterior ground halo :	Perimeter loop with copper cable, 10' copper cladded rods, inspections ports,conduit entry into building with all connections cadwelded.
Lightning protection:	Lightning protection system adhered to roof; lightning arrestors adhered to roof with each down leg cadweld to 10' copper cladded rod connected to the main ground loop.
Generator work:	Included as part of Section 11.
Power Conditioning:	Included as part of Section 7.
Electrical (interior):	Included as part of section seven.
Plumbing:	Water lines and condensate lines. Lines outside 5 feet from the building are excluded.



Fire Protection:	System engineering per NFPA protocol; tanks, piping and FE-25 agent to 9% concentration; smoke detectors and relays; abort buttons, pull stations and strobes; required testing, start-up and instructions.
HVAC:	Included as part of section seven.
Controls and automation:	Included as part of section seven.

L. EQUIPMENT

Generator:	CAT Model C27 - 750 KW (480V) diesel generator with standard weather enclosure with critical grade silencer; main line circuit breaker; 24 hour belly fuel tank (1,600 gallon); analog / digital control panel; start-up and training.
Generator work:	Receive, set and anchor; up to 20 lf of conduits (line voltage, blocker heater and controls) and matching number of conductors for 750KW generator. UG conduits to be encased in concrete.
Load Bank Test:	Complete a 4 hour load bank test of the generator per specifications and plans.
ATS -A:	Included as a part of Section 7.
ATS -B:	Included as a part of Section 7.
Power Conditioning:	Included as a part of Section 7.

M. ELECTRONIC EQUIPMENT INTEGRATION

Cable ladder:	Included in section seven.

About Oldcastle Infrastructure

Oldcastle Infrastructure, A CRH Company, is the leading provider of building materials, products and services for infrastructure projects to several market sectors nationwide, including: Building Structures, Communications, Energy, Transportation and Water.

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