

The Duval County Unified Courthouse Facility

Jacksonville, Florida

Darre'll Alston

Construction Management



CPEP Website: <http://www.engr.psu.edu/ae/thesis/portfolios/2011/dma5056/index.html>

Project Analysis Overview

The Design Team:

- **Owner:** City of Jacksonville
- **Architect:** KBJ Architecture, INC.
- **General Contractor:** Turner Construction Company
- **MEP Engineer:** TLC Engineering for Architecture
- **Structural:** McVeigh & Mangum Engineering INC.
- **Civil Engineer:** Civil Services, INC
- **Landscape Architect:** FLAGG Design Studio, LLC

General Project Information:

- **Construction Dates:** May 2009 – May 2012
- **Building Area:** 798,000 square feet
- **Cost:** \$224 Million
- **Story Levels:** 7 total
- **Project Delivery Method:** Design-Build

Architecture

Greek influence:

- White concrete façade
- Doric columns
- Temple representations

Primary building material is concrete:

- Matches existing architecture in surrounding area
- Locally manufactured and supports efficiency
- Limestone precast concrete panels at 5000psi

Secondary building material is glass:

- Maximum day-lighting
- Spandrel, storefront vision, and curtain wall glazing

The functionality of spaces grows with hierarchy:

- **Level one:** Maintenance and public office supports
- **Level two-five:** Courtrooms and justice proceedings
- **Level six:** Attorney and court official offices
- **Level seven:** Judicial and chief justice offices

Construction

- Work sequence is broken up into four phases that generally includes a center section, colonnade section, west section, and east section respectively. Project sequencing follows a flow of starting on the inner portions of the building and working towards the outer portions and then reversing order to maximize work productivity. This effort best represents a dependent task schedule.

Structural

- **Foundation:** Auger and Lateral Piles serve as soil bearing work. Concrete footings, pile caps at 42" to 75" in depth, slabs, and beam aid in support.
- **Superstructure:** Mainly composed of 8x29, 19x29, 27x29, 36x29 beams and joists. Masonry wall units at 3000 psi. Shear-wall system at 4000 psi. Column composition is steel at 50 ksi and concrete at 3000 psi.
- **Two Roof System:** Steep roof system supported by aluminum metal seam and frame. Flat roof system supported by limestone aggregate concrete.

Electrical/Lighting

- **Primary Source:** Utility Transformer at 2500kVA
 - **Back-Up Generator:** 277/480V, 3 phase at 1875kVA
- *Services provided by J.E.A. Utility Company
- **Interior Lighting:** Florescent (T5, T8 & Compact)
 - **Exterior Lighting:** Metal Halide
 - **Controls:** Timed Switches and Motion Sensors

Mechanical/Plumbing

- **Mechanical system:** Variable Air Volume system at 3300-50000 CFM.
- **Recovery system:** 3 Make-Up air handling units at 40000 CFM.
- **Pump System:** Chilled water, CRU, and MAU.
- **Boilers:** Two low emission rated with input/output levels of 16330/13390 CFM respectively.

*All plumbing is conducted with gravity and pressure flow rates from a Triplex System Booster Pump.