MINNEAPOLIS' NEW CENTRAL LIBRARY ACHIEVES AESTHETIC GOALS WITH CUSTOM COMPOSITE COLUMN FORMS BY MOLDED FIBER GLASS COMPANIES.

PROJECT PROFILE:

Production on the New Central Library building in downtown Minneapolis, MN, which began in 2003 and is scheduled for completion in 2006, is slated to replace the outdated, nearly 100 year-old Central Library. Being touted as a dynamic, resource-rich and world-class destination link for the city, the 6-level structure is part of "Great Library's of Minneapolis", a ten-year $166 million public/private capital improvement partnership program whose goal is to upgrade all of Minneapolis' Public Libraries by 2010.

OPPORTUNITY/ CHALLENGE:

Designed by American Institute of Architects (AIA) Gold Medal winning architectural firm Cesar Pelli & Associates, aesthetic goals were a pivotal key to the design and construction specifications. The landmark project, covering two-blocks and 400,000-sq. ft., would require approximately 400 columns that would be prominently adorned throughout the facilities' exterior. As a visual focal point of the project, specifications required that the concrete columns (featuring capitals) have minimum seams and bug holes visible.

After reviewing paper and steel round column form (RCF) manufacturing options, which didn't meet seam and one-piece vertical height (19') requirements, St. Paul, MN-based project distributor Brock White Company contacted MFG Construction Products of Independence, KS (a division of Molded Fiber Glass Companies) to explore/present a composite RCF solution.

MFG produced a mock-up RCF made of fiberglass-reinforced thermo-set composite, applied 3-4 pours to test the mix design: assuring column finish and release agent requirements and ensuring against bug holes. The two-seam composite RCF solution produced a smooth/clean finish to the 19' tall forms.

DESIGN / PROCESSES:

Having achieved the desired aesthetic and production results, MFG Construction Products was selected as the sole supplier for the New Central Library project's monolithic forms. Production ensued on the custom-made forms: made in two-piece sets, shipped to Minneapolis and assembled on-site.

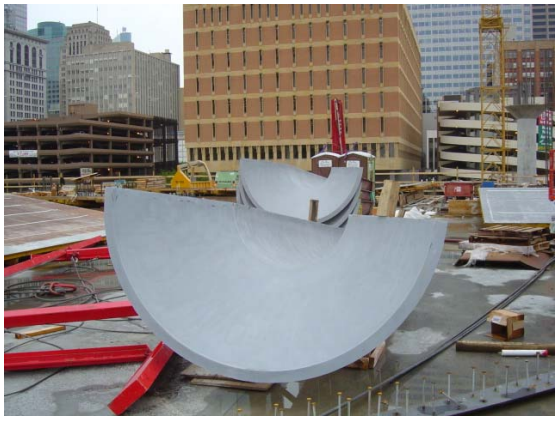
Approximately 30-40 (19' x 40") custom forms were used to produce/erect roughly 400 columns in the six-level building. The building's first floor column design was at 19' and each ensuing floor decreasing by one-foot. The forms, therefore, were cut down proportionately to meet successive level dimensions: being braced, shirned, oiled and leveled, then poured for each floor's requirements.

Each 19'x40" column required about 8 yards of concrete. The 8000 psi concrete mix had a high cement-to-concrete ratio which required that the forms be released from the columns after only one day or the cement would react with the fiberglass forms.

CONCLUSION:

Roland Studler, Brock White Company Project Account Supervisor, noted the systems efficiency stating, "Since the forms were designed and constructed for repeated use (with normal care and application of form release), approximately 80 pours were achieved on each form…plus with an average of 5 pours being made each day, minimal turnaround time was also experienced".

Studler also noted a deformation issue involving the 90° Capital design which was overcome in fast-order, "The capitals that were molded at the plant became 'out-of-plumb' by ½" during transport…MFG personnel reacted quickly by performing cut, slice, re-expoxy and re-brace adjustments on-site to ensure their horizontal uniformity and achieve the aesthetic design goals".



Although custom designed, the RCF forms provided for the New Central Library project featured MFG Construction Products standards: only one vertical seam, lightweight, easy-to-handle, simple set up/removal, and supplied with complete bracing collars and 'fast' bolts. Unlike paper or steel RCF, MFG forms are corrosion-resistant and can therefore be stored conveniently and economically out doors. They also have the ability to nest/stack to reduce storage/shipping space and cost requirements.