DRAKE UNIVERSITY CENTER
The following is this student's intended proposal for the academic requirements of course 406, a development of Drake University Center on the campus at Des Moines, Iowa:

--to follow-up on miscellaneous problems brought to my attention at the final jury

--to establish a typical furnishings layout throughout said building

--to explore by means of sketch form, solutions to interior design

--to explore by the above mentioned method building site relationship details

--to explore and solve certain problems related to the production phase of said building

--to organize and document the past year's work in thesis

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OUTLINE ARCHITECTURAL SPECIFICATION

SITE: Ground floor excavation. Finish grading, landscaping, site paving and site lighting.


SUPERSTRUCTURE

FLOORS: 5" slab on grade. Steel framing, typically with 2½" slab on "Cofar" and 5" composite slab.

GENERAL FRAMING: Upper level: bar joists at meeting and ballrooms. Steel beams over central spans.

ROOF: Poured gypsum deck 1½" rigid insulation. Tern metal at periphery and mechanical penthouse.

EXTERIOR WALLS: 12" cavity walls with 1" styrofoam insulation.

INTERIOR WALLS: Gypsum dry wall on steel stud interior walls, paint finish.

WINDOWS: Minimal ventilating sash, Hope's intermediate galvanized. Fixed glazing, and plate as necessary.


STAIRS: Steel frame stairs and balusters. Oak rail, vinyl treads.

ELEVATORS & DUMBWAITERS: Rotary oildraulic or equal. Key operated.

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FINISHES AND DETAILS

FLOORS: Carpeting and vinyl asbestos throughout with vinyl base, excepting vinyl stair treads. Ceramic tile bathroom floors. Quarry tile entry vestibule.

CEILINGS: 2 hour drywall ceiling or 2 hour fire rated spline type acoustic ceiling.

TRIM AND HARDWARE: Dull chrome plated brass.

RESPONSIBILITIES OF ARCHITECT

Advise on site, foundations, systems and materials, construction feasibility

Prepare technical packages for the various contracts

Prepare technical packages for separate purchases of long-lead-time equipment and materials

Advertise, receive proposals and help award contracts for long-lead-time equipment and materials, proposals and various contracts

Make recommendations to owner regarding fragmentation of work into contract packages

Interface separate contracts to eliminate conflict and overlap between separate contractors

Establish general conditions to provide for temporary facilities for all contractors to perform, manage, inspect and supervise

With owner, conduct pre-bid conferences to inform prospective bidders of requirements and clarifications

With owner, identify variances between "current working estimate" and approved budget

With owner, display project cost overruns or underruns in both detailed and summary forms

With owner, provide effective project fiscal control

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With owner, provide case flow reports and forecasts, and other timely accounting reports.

With owner's field representative and prime contractor, provide documentation of all changes made in the approved schedule and approved budget.

With owner's field representative and prime contractor, automate the processing of shop drawings and record drawings.

With owner's field representative, provide a complete record on each construction activity in plan showing actual duration and actual cost.

With owner's field representative, establish administration of field operations and publish resultant responsibilities and procedures in manual form.

With owner's field representative and scheduling consultant, conduct pre-construction conferences with successful bidders.

Establish and implement procedures to be followed for expediting and processing and approval of shop drawings, catalogs and samples, and the scheduling of material requirements.

With owner's field representative, supervise prime contracts pre-dating general contractor on job.

With owner's field representative, inspect work and...
implement procedures for acceptance or rejection of completed work of all prime contractors

With owner's field representative, implement remedial procedures for rejected work

With owner's field representative, supervise and implement compliance of all prime contractors with: safety regulations, minority labor programs, job record requirements and job accounting requirements

Make recommendations to owner regarding changes

Implement owner's procedure, document, and administer processing of change orders

With owner, implement value engineering procedures and determine where and when to be applied
CENTRAL UTILITIES CONNECTIONS & SERVICE TYPES

--Delivery of medium temperature hot water for heating to be to a point five feet outside the northeast corner of subject building

--Medium temperature hot water delivered to be at a temperature of 280-degrees F.

--Anticipate operating with a 70-degree temperature drop before returning to central utilities plant

--Chilled water for air cooling will be delivered to a point five feet outside the northeast corner of subject building

--Chilled water to be 42-degrees F.

--Anticipate a return water temperature of no greater than 52-degrees F. for chilled water

--Primary electrical energy at 13.2 KV for 3-phase 4-wire Y service

--Concrete underground manhole will terminate feeder and will be located as close to building site as practical

--Primary feeder from vault will have G & W nitrogen-filled tap box (vault and tap box by owner) into electrical switchgear room and unit substation

--Outdoor vault (by owner) contemplates future extension of primary circuit to future buildings in area

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INVESTIGATION AND RESOLUTION OF STRUCTURAL SYSTEMS

VARIOUS SYSTEMS CONSIDERED:

1. Cast-in-place concrete
   a. One-way beams and slab--considered impractical because of span length and arrangement.
   b. One-way pan joists and beams--considered an excellent possibility because of relative cost and good flexibility for mechanical and circulation openings through slabs.
   c. Two-way systems--waffel, flat slab or flat plate systems--considered impractical because of relatively large number and size of randomly placed and shaped openings through the slabs.

2. Precast concrete
   a. Double tee and ledger beams or spread single and ledger beams--considered impractical because of large number of openings and areas of raised floor or ramps.

3. Steel structure
   a. Composite beams and girder with "cofar" slabs--considered an excellent possibility because of relative cost and good flexibility
to accommodate openings.

b. Composite bar joists and conventional beams—considered a good solution from a pure cost standpoint, but less than desirable because of fireproofing and floor vibration characteristics.

The one-way concrete pan joist and the composite cofar systems are in all likelihood the best systems to receive further consideration.

The relative cost differential, if any, between the two systems is small when all architectural, structural and mechanical aspects are taken into account. But the time schedule for the steel "cofar" systems is definitely superior.
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