

INTRODUCTION

Job order contracting (JOC) is a construction delivery method developed by the military in the 1980s as a means to overcome the typical challenges associated with the traditional design-bid-build method of hiring general contractors. Normally used for minor construction, repairs or alteration of facilities when the work is of a recurring nature and the amount of work is indefinite, a JOC program is well suited for institutions like universities and hospitals with large buildings and/or multi-building campuses. The JOC program is a proven delivery method for many federal, state and local institutions. Highlights of a typical JOC program include:

- Contract has a low guaranteed volume of work with a high but realistic maximum.
- Contract has a fixed term that is between six months and two years with Owner's option to renew for a fixed period.
- Contractor normally bids a coefficient against pre-priced tasks or a unit price book such as RSMeans.
- As contract is renewed, unit prices are adjusted based on construction cost index or using the latest edition of a unit price book.
- Projects are accomplished by issuing individual job orders.
- Single project costs are predefined with a not to exceed amount.

BENEFITS OF JOC PROGRAMS

- **High Quality.** Owners select JOC contractors through a qualification-based process, by evaluating the contractors' experience with similar sites/clients, team members' knowledge and expertise, and other factors that impact the quality of work. If they hire multiple contractors for the JOC program, they can assign the project to the contractor whose strengths are best suited to the project type (such as clinical or laboratory spaces, office space, etc.). Also, the JOC contractor can prequalify and use the best quality trade contractors, holding them to the same high quality standards.
- **Responsive and Fast Turnaround.** A job order typically takes 3-4 weeks from request for pricing to start of construction. Urgent requests can be done much faster. This speed is possible because projects do not require soliciting and acquiring a contract, detailed plans and specifications, and a long approval process. Having the contractor already on site also contributes to speed and responsiveness. Since the JOC contract establishes prices for each unit of work or materials, it is faster and easier to arrive at a fixed price for each job. JOC programs do not require price negotiations which also can delay a project's start.
- **Reliable.** Long-term relationship, fixed pricing and simplified paperwork help meet Owner expectations for performance and price. The contractor is motivated to impress the Owner with fast, dependable, quality service to receive the maximum amount of work from referrals and call backs. Contractor's employees will be onsite constantly which gives the Owner comfort in knowing the contractor will understand working procedures, utility outage process, and working hours within the facility, eliminating the learning curve that comes with using different contractors for each project.
- **Simple.** The simplified design documents and acquisition process eliminates the need for detailed construction documents. Job orders are negotiated on a line-by-line basis under the guidelines and specifications of the overall contract.
- **Cost Savings.** Since the contractor is already on board, the reduction in administration, design, and construction management costs can be significant. Additionally, the contractor can walk the project site with the Owner, cover any contingencies that may not be shown in the drawings, and help identify potential cost reduction items.
- **Minimal Risk.** If the Owner experiences problems with the contractor, the Owner can unilaterally decide to stop using the contract once the guaranteed minimum amount is awarded (usually this amount is quite small) or at the end of the initial contract term. Additionally, Owners who implement a performance-based procurement system may terminate the JOC contractor for lack of performance.
- **Teamwork.** One of the nicest features of JOC is the teamwork approach generated between the Owner and contractor. The contractor usually assigns a single point of contact to manage the program, whom the Owner comes to know and rely upon. An effective contract provides motivation for the contractor to perform well and exceed the Owner's expectations. The contractor can gain repeat business and a great reputation by doing so. The Owner receives quality work, done when it is needed, at a fair price. It provides a positive partnering relationship in which both contractor and Owner understand that either they both succeed or neither does.

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PROJECTS BEST SUITED FOR JOC

Some of the project characteristics that may make JOC a more appropriate construction delivery method are listed below. Not all of these criteria have to be present for JOC to be the best choice – sometimes just a single factor can favor the JOC delivery method. Of course, Owners must make the final decision about how to best procure the project by weighing of all the project requirements.

- **Smaller, Medium Priority Projects.** These projects keep getting delayed because they are smaller and not the highest priority. However, if they're already defined and covered under an umbrella contract, they can be pushed through without having to wait on the procurement process.
- **Replacement-in-Kind Projects.** Replacement-in-kind projects are great for JOC where the design of the new installation is the same as it was previously. Because the scope is replacement-in-kind and very little, if any, design is required, a JOC can allow Owners to procure the work quickly and begin construction within 3-4 weeks of identifying the project or sooner depending on the material lead times.
- **Time-Sensitive Projects.** JOC should be considered for projects with extremely tight deadlines, such as emergency and/or safety work that must be immediately addressed and corrected. JOC also may be considered for projects with time sensitive funding where construction must start by a certain date.
- **Projects Supplementing In-House Staff.** If the Owner's internal facilities and maintenance department is overwhelmed and doesn't have enough staff to get all the work done, JOC can quickly supplement the in-house staff and reduce the outstanding workload. JOC can also be used in cases where the in-house staff has the time to perform the work but may not have the necessary trades to complete 100% of the project.
- **Projects Without Clearly Defined Scope.** Scope does not need to be well defined for a JOC project to be successful. The JOC contractor, being the expert in that type of work, can help the Owner define the scope.
- **Projects That Do Not Require 100% Design.** Many projects are designed for procurement purposes only. In JOC, a project only has to be designed to the point that both the Owner and the contractor understand the final scope. JOC projects can be described with partial drawings, which result in additional design savings to the Owner, as it does not require preparing 100% drawings complete with a full bid package.
- **Phased Projects.** With a JOC, Owners can subdivide the scope into multiple job orders to expedite construction. While the design is being completed, Owners may elect to issue a job order for long lead items to be installed later and another job order to demolish the existing space. Placing an order for long lead items and completing demolition work helps expedite the overall project completion. Once the design is completed, a job order can be issued for the remainder of the project, or the larger buildout portion of the job can be procured with traditional delivery methods.
- **Sub Projects of New Building Construction.** While the design for the new building is being finalized and bid, JOC can be used to remediate and demolish the existing building as well as perform the necessary site work preparation. Using JOC to complete the front end portions of the project helps expedite the completion of the overall construction. Once the traditional bid contract is awarded, change orders are minimized since the contractor is starting work with a clean site.
- **Weather-Dependent Work.** In JOC, prices are fixed for the term of the contract. For work that is dependent on the weather, such as concrete and asphalt work or other site work, Owners can scope the projects in the winter. Once the weather turns and construction is able to start, the Owner can issue the job order for the previously approved price proposal. The leg work is completed ahead of time, maximizing the available construction time during the better weather months.
- **Punch List Work on Traditionally Bid Projects.** If the contractor who was awarded a traditionally bid contract is not completing punch list work in a timely manner, JOC can be used to complete the outstanding portions of the work.

CHALLENGES OF JOC PROGRAMS

- **Not Enough Volume.** For the JOC concept to work well, it has to be a win-win situation for the Owner as well as for the contractor. The JOC program rewards a performing contractor with a large volume of work. To maximize his efficiency, the JOC contractor must set up an on-site management team to be immediately responsive to the facility Owner's needs. The contractor is rewarded for the set-up costs by being able to do a sufficiently large volume of work, over which the set-up costs are distributed. If the duration and time between individual job orders is too small or too infrequent to warrant an on-site team, the contractor will be inefficient which forces them to perform

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work at a loss. Owners should try to maximize the volume of work managed through the JOC program, which allows contractors to be more accurate in pricing their coefficients. It is in the Owner's and contractor's best interest to be as specific as possible regarding the minimum and maximum dollar volume of work expectations when advertising a JOC contract.

- **Limited Ability to Verify Component Costs.** It can be difficult for Owners to check the quantity on some unit-priced items like ductwork poundage, linear feet of electrical conduit and wire, square feet of walls, etc.
- **Potential for Favoritism.** With JOC programs, the Owner's project managers have a lot of control over the allocation of work, which, if mismanaged, may result in unethical behavior by the project manager and/or contractor. The best way to avoid these and other potential problems is to have a well thought-out implementation plan that fairly distributes the workload to all contractors approved to perform JOC services.
- **Contract Misunderstanding.** JOC is very simple to use once it is implemented, but it is not very easy to properly implement. All of the contractor's staff and the Owner's staff must be knowledgeable about the JOC program and must be trained to administer the contract properly for it to truly be successful. Laws governing the use of JOC and the forms of contracts vary from state to state. Owners interested in starting a JOC program should consult with other Owners and contractors in their state who have experience in using the JOC method. Or, they may consider hiring a consultant to prevent contract errors, provide hands-on training in the execution of JOC contracts, and greatly increase the program's likelihood of success. Gordian Group and Choice Facility Partners are two of several consultants who specialize in helping Owners implement JOC programs.

CASE STUDY

The following case study illustrates how a state institution, the University of Texas MD Anderson Cancer Center (MD Anderson), uses the JOC program to service its buildings. Its facilities in the Texas Medical Center, where the company is headquartered, encompass more than 14 million square feet. Employees work in 60 different buildings across the greater Houston area. For more than 15 years MD Anderson has successfully utilized a JOC program for the minor construction, repair, rehabilitation or alteration of its facilities within the greater Houston area. Vaughn Construction has actively served as one of MD Anderson's JOC contractors for two six-year terms and one five-year term, performing \$2-6 million worth of construction projects per year.

The four example projects described below illustrate how MD Anderson uses its JOC program for upgrades, repairs, remodeling, and a new construction project.

UPGRADE PROJECT

The recycle compactor at one of the loading docks had outgrown its capacity. MD Anderson wanted to upgrade to a larger compactor and relocate the existing compactor to another facility on a campus that did not have recycling capabilities. After discussing the project with MD Anderson's representative, the Vaughn project manager walked the site with a compactor service contractor and an electrician to evaluate the existing conditions, ensure the existing compactor could be relocated with minimal modifications at the new facility, ensure electrical service was adequate, etc. During the walkthrough, Vaughn also discovered that a metal panel on the existing compactor needed to be replaced due to corrosion. Vaughn prepared a proposal using the unit price book and submitted it to the Owner within two weeks. The proposal was accepted and Vaughn started the project about four weeks later, once the new compactor was delivered.

REPAIR PROJECT

The VAV boxes that serve over 100 patient rooms throughout several floors of MD Anderson's hospital have surpassed their useful service life and repairs/cost on them are beginning to mount. Vaughn and several of its prequalified HVAC trade contractors who are familiar with MD Anderson's facilities attended a walkthrough to evaluate the areas and conditions of the work. Since all of the VAV boxes are located in occupied patient rooms, the VAV boxes could be replaced only when the rooms are vacant. After Vaughn assessed the conditions and scope, they prepare a cost proposal using their unit price book and coefficient. Once MD Anderson approved the proposal, Vaughn ordered all the VAV boxes at the beginning of the project and stored and retrieved them when needed as rooms became available. Due to the repetitive and phased nature of the project, it would have been incredibly difficult, if not impossible, for MD Anderson to price this project on the street using a traditional (hard bid) delivery method, not knowing how many mobilizations it would take or how many rooms would be available at one time, etc. Since Vaughn and its HVAC trade contractor were already familiar with the site, employees, procedures, etc., they were able to respond more quickly with a more efficient cost to deliver the project over an extended timeframe.

REMODEL PROJECT

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MD Anderson is a global leader in its advanced cancer treatment facilities. Patients from all over the world come here to receive treatment using the newest technology available. As a result, every time a new cancer treatment technology becomes available, MD Anderson has the opportunity to remodel. When MD Anderson purchased a new Linear Accelerator, the old equipment needed to be removed and the room and control room had to be renovated. Due to the size and technical expertise needed on this project, MD Anderson engaged an architectural firm to draw contract documents. Although this design duration would be required on all delivery methods, MD Anderson benefitted from having Vaughn on site from day one to provide constructability feedback and share past experiences from previous similar projects. For example, Vaughn evaluated the equipment's path of travel through the building to verify it would fit through doorways and around corners. They verified existing utilities had the capacity to serve the new equipment and were sized correctly. And, they provided general coordination of drawings to resolve any conflicts between vendor equipment drawings and MEP engineering drawings before concrete was poured. The timeframe for this project was critical because each day that equipment is down for upgrade, revenue is lost. The doctors and equipment users have very important expectations and deadlines. Hiring Vaughn to complete the project help MD Anderson reassure its stakeholders the project would be completed on time, and their expectations would be met.

NEW CONSTRUCTION PROJECT

MD Anderson's 62-building campus in the Texas Medical Center has shuttle buses to transport employees and patients among its different buildings. One of the new bus stops did not have a shelter in place, causing the employees and patients to suffer in poor weather conditions or waste time walking to a different bus stop. Vaughn met with MD Anderson and architect to develop best location and assist with constructability input. Once the design was complete, Vaughn budgeted the job using the unit price book and coefficient to establish a firm price for the project. Their line item approach to the project cost made it easy to adjust the budget for the project by comparing the cost of different alternatives. To help meet MD Anderson's budget for this project, Vaughn recommended replacing the expensive decorative glazing originally proposed with a more cost effective Plexiglas option. With the design in budget, MD Anderson approved the project, and Vaughn began work almost immediately.

CONCLUSION

JOC programs have helped many institutions complete projects in much less time and, when properly managed, with less money than a traditionally managed project, without any loss in quality or workmanship. More information on job order contracting is available from the Center for Job Order Contracting Excellence (CJE). CJE includes members and participants from all areas of the construction industry, including publicly funded (federal, state) Owners, facility managers, purchasing cooperatives, JOC contractors, trade contractors, engineering and architectural firms, consulting firms, unit price book publishers, and others. Visit their web site at www.jocexcellence.org.

ABOUT VAUGHN CONSTRUCTION

Vaughn Construction is a Texas-based construction company that specializes in new construction, renovations and additions to civic, health-care, education and research facilities. The privately-held company has offices in Austin, Bryan/College Station, Dallas/Fort Worth, El Paso, Houston, Lubbock, San Antonio, and the Texas Medical Center (Houston).

For additional information, visit www.vaughnconstruction.com.