Chapter IX

Music Facilities, Architecture, and Planning

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Foreword

As a young boy, and later in my life as a youthful architectural student, I often found myself staring in awe at complicated buildings and wondering how such marvelous things actually began. What were the designers’ first steps? What were their first thoughts? What questions did they ask, or, more to the point, did they even ask questions? And if they did ask questions, who did they speak to? As I organized my thoughts for this chapter, I wanted more than anything else to remove the mystery surrounding at least a few of the initial programming and design steps taken by an experienced architect for music and performing arts buildings. My goal is to answer the following music executive’s question: “Might there actually be some form of a neophyte-comprehendible, step-by-step process that successful designers of performing arts facilities actually use to program and design these marvelous buildings?” The following is my attempt to disclose and quantify some of the initial steps in this complicated process.

Step 1: Identifying the Need

Of course, the first step in the creation of a new building for the performing arts is the music executive’s becoming personally aware, and then sharing this awareness with others in the institution’s administration, that the fulfillment of the school’s academic mission is currently hamstrung by the absence of an adequate physical plant. Physical plant inadequacies come in many forms: too few or too small rooms; too little acoustic isolation between music spaces (precluding their simultaneous effective use); inadequate technology in rooms for music instruction; poor internal room acoustics (preventing or inhibiting the teaching of high-quality applied music skills); poor mechanical systems that insidiously destroy valuable musical instruments. The list of such deficiencies is nearly endless.

Oftentimes the “Identifying the Need” process begins as a result of an NASM site visit as part of either first-time accreditation or accreditation renewal. The logical follow-ups to this first step are (1) your institution’s administration must acknowledge the existing physical plant’s deficiencies; (2) new and/or renovated performing arts facilities must be placed on the institution’s capital projects list; (3) commitment by the administration to either funding the initial planning steps needed to rectify the deficiencies or, at the very least, assisting in securing private funding; and (4) formation of design professional selection and/or project building committees. It should be noted that the school's faculty and staff should play key roles in both of the aforementioned committees. Many universities have a university architect whose office will be required to be involved in all aspects of planning and execution of all construction and renovation on campus.
Step 2: Selection of a Design Professional

Once the need for new or renovated performing arts facilities has been embraced by an institution, the next step is for the design professional selection committee to identify, invite, short-list, interview, select, negotiate with, and finally contract with a professional design team for part or all of the building work to be discovered and recommended through the programming, design and construction processes.

Identify a List of Experienced Design Professionals

There are many ways to develop a comprehensive list of qualified design professionals to work with the university in pursuit of performing arts design excellence. Probably the best lists come from other NASM-accredited institutions that have successfully and recently traversed these perilous waters.

The personal recommendations of design teams from other fine arts institution chairs, deans, and directors are a proven and valuable source of quality names for your list. Design firms experienced with performing arts programming and design issues need cost no more to hire than firms lacking such expertise. Furthermore, experienced design teams often include not only architects but also an acoustician, a theatre consultant, and a cost consultant. Once a list of firms has been developed, a letter of interest or a request for proposal (RFP) is sent to each firm describing the composition of the department, school, or program; its existing facilities and their perceived deficiencies; the commitment to rectifying said deficiencies; and an inquiry regarding the firm’s interest in being considered for this project commission. RFP documents can be very detailed, requesting specific information about the firm (i.e., size of staff, list and photos of related project experience, recommendations, current workload, names and resumes of proposed project personnel, design philosophy, etc.).

Develop Short List of Design Teams

The design professional selection committee first establishes an evaluation criteria and rating system for selection (i.e., #1 criteria/10 points: numerous, successful, similar size/scope/type project experiences; #2 criteria/9 points: recommendations of other NASM institutions; #3 criteria/8 points: on-time/on-budget project performance; #4 criteria/7 points: record of client service; etc.).

The design professional selection committee next reviews all letters of interest and RFP responses and ranks them in the order of #1/most qualified to #?/least qualified then develops a short list of the top three to five firms to be interviewed. The chair of the design professional selection committee sends notices to all responding firms notifying them of the firms on the short list and thanking all for participating. Interview dates, times, and terms are established alphabetically and transmitted to the short-listed firms.

Interview Short List of Design Teams

The best interviews last approximately 90 minutes and allow for a 45- to 60-minute presentation of qualifications and credentials by members of the proposed design team followed by a 20- to 30-minute question and answer period. Discussing the subtleties and specific details of the interview process could consume many pages of this chapter’s text. Suffice it to say that the selection committee should ask the interviewing firms to highlight in their presentation only
those criteria most important to the institution and the project at hand, whatever those criteria may be. Instruct the interviewing firms not to attempt contact with members of the selection committee and not to show design solutions for the specific project at hand (this should be an interview process, not a design competition; that selection methodology will be discussed next). In order to achieve the best interview results, a copy of the rating/ranking criteria form used by committee members during the interviews should be provided to all short-listed firms in advance of their interviews.

**Design Competition Selection Methodology**

From time to time, institutions flirt with the apparent attractions of a design competition selection methodology, in lieu of a qualifications-based selection process. One perceived benefit is the institution’s thinking that it will be able to select a qualified design team and procure a completed project design, replete with project images and plans suitable for fundraising purposes, in an abbreviated timeframe and without cost to the institution. Although this perception may be correct, you should make those promoting this approach aware of the following potential liabilities:

1. If your design team selection process is to be anything more than simply a “beauty contest,” all competing firms must work from the identical building program (list of project spaces, needs, and goals). To achieve this you will have to either outsource development of this document to a qualified firm or prepare it internally through the university architect’s office or another administrator.

2. Most design competitions begin with some form of RFP process to select the competing firms from a larger group of interested firms and then offer some form of minimal compensation to each of those firms selected. Design competitions with minimal or no compensation can and will cause many qualified, successful, and/or busy firms to withdraw from further consideration purely for reasons of expense.

**Select and Contract with the Preferred Design Team**

These steps in the process are basically self-explanatory, regardless of the selection methodology employed by the institution. However, if the preferred selection process for the design team is a “qualifications-based” process and not solely price-sensitive, the institution’s appropriate department (business and finance, physical plant, corporate legal counsel, etc.) must first rank the interviewed design teams and then conduct financial negotiations, starting with the #1 team, then moving to #2, and so on, if financial terms cannot be reconciled with the higher-ranked team.

**Step 3: Project Programming and Anticipatable Fees**

I believe that every successful building project begins with the creation of a building program document. It is an owner-requirement to furnish just such a document to the architect prior to development of your project’s construction/bid documents. An informal definition of a successful building program would be “the detailed written and drawn description of nearly every aspect of the envisioned final building solution/product.” A building program is not a
building design but rather the book that the designers use as a guide to beginning the design process.

A successful building programming process requires true collaboration between the “trinity” of an institution’s professional design team, administration and/or university architect, and end-product user. Programming documents typically have a table of contents, a written executive summary for the “too-busy folks,” and a series of detailed space summary spreadsheets, technical room diagrams, room description sheets, critical room-to-room adjacency diagrams, descriptions of realistic project phasing, and some form of construction cost and total project cost opinions.

Building program documents vary in size, complexity, and cost, just like the projects they describe. However, we believe it safe to assume that the cost of a comprehensive building program circa year 2006 for a 200-major school of music, containing all the aforementioned parts and involving primarily new construction, should be not much less than $50,000 nor more than $100,000 plus reimbursable expenses, with the average being in the $70,000 price range.

The figures that follow show some examples of some of the typical components of the building program document.

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**FIGURE 1** Excerpt from a sample building program summary spreadsheet
FIGURE 2 Sample building program room description sheet

FIGURE 3 Sample building program technical room diagram: recital hall
FIGURE 4 Excerpt from a sample building program graphic program diagram

FIGURE 5 Excerpt from a sample building program relationship diagram
Step 4: Project Pre-Design and Anticipatable Fees

As stated earlier in this report, a building program document is not a building design, only a written and graphic depiction of the spaces needed, the technologies to be incorporated, their relationships to each other, and the overall project goals that have been deemed essential by the institution for the initiation of a successful design direction or design solution.

Many institutions ask the design team to prepare convincing and realistic color exterior-interior renderings and computer fly-by-and-through building animations, in addition to architectural site and floor plans (see examples in Figures 6–10). These documents assist in answering the following fundamental questions often asked by skeptical institution administrators, fiscally conservative board members, and potential project donors:

- What will the project look like?
- How big will it be?
- Where will it go on campus?
- What will it cost?

![Conceptual design floor plan](image1)

![Conceptual design site plan](image2)
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**Figure 8** Conceptual design bird’s eye isometric rendering

**Figure 9** Conceptual design exterior rendering

**Figures 10A and 10B** Conceptual design interior renderings
Assuming that the institution sufficiently values “donor honesty” when it comes to seeking financial gifts in support of a capital building project, and also that the institution wants to procure the renderings and presentation drawings/tools that actually depict what the building might really look like, the institution and the chosen design team, or another architect of the institution’s choosing, must enter into a pre-design or conceptual design agreement to prepare the building program document.

Architects contract with higher education institutions in many different ways, but professional services fees calculated at a percentage of the cost of construction (CC) is the most common methodology. Performing arts projects requiring new construction command professional basic and special services fees in the 9 to 13 percent range, depending upon the amount of fees paid to basic consultants (i.e., SE [structural], MEP [mechanical, electrical, and plumbing] engineering consultants) and special consultants (i.e., acoustical, theatrical, cost, graphics, data-telecommunications, landscape architect, architectural lighting, civil engineering consultants, etc.).

Basic professional services are divided into five project phases: (1) schematic design phase (SD), (2) design development phase (DD), (3) construction documents phase (CD), (4) bidding/negotiation phase (B/N), and (5) construction administration phase (CA). The American Institute of Architects (AIA) recommends that the schematic design phase represent approximately 15 percent of a total professional services fee with conceptual design comprising approximately one-third of this phase. Therefore, a sample budget for the conceptual pre-design work needed for a building project with approximately 100,000 gross square feet (GSF) of new building construction and a $300/GSF cost might look like the following:

\[
100,000 \text{ GSF} \times 300/\text{GSF construction budget} = 30,000,000 \text{ construction cost only}
\]

\[
30,000,000 \times 12\% \text{ total professional fee} = 3,600,000
\]

\[
3,600,000 \times (15\% \text{ schematic design} \times 33\% \text{ completion for conceptual design}) \approx 180,000
\]

\[
180,000 \times 65\% \text{ net professional conceptual design fees due only architect, acoustician, theatre, and cost consultants} \approx 120,000^*
\]

In summary, it would be reasonable for an institution to assume the following approximate budget:

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building programming</td>
<td>$80,000</td>
</tr>
<tr>
<td>Development of conceptual design for a 100,000 GSF/ $30.0M performing arts project</td>
<td>$120,000**</td>
</tr>
<tr>
<td>Reimbursable expenses</td>
<td>$25,000</td>
</tr>
<tr>
<td>Presentation deliverables (i.e., donor-attractive computer animations, interior and exterior renderings, color site and floor plans, etc.)</td>
<td>$25,000</td>
</tr>
</tbody>
</table>

\* There may be no absolute need to involve the services of SE, civil, and MEP consulting engineers at this time.

\** This suggested conceptual design professional fee is paid only once to a project design team and is deducted from any future paid professional service fees.
Step 5: Estimating

Estimating is simply too complex a subject to be adequately addressed within the limits of this chapter. The main pitfalls of estimating these types of building projects lie in understanding the differences between the following issues:

- $/SF per space–type cost estimate methodology vs. line-item/material-quantity take-off estimate methodology
- Gross SF (GSF) vs. net SF (NSF)
- Construction cost vs. total project cost

Concerning the difference between $/SF estimates and line-item/material-quantity estimates, we will begin with the $/SF per space–type estimate. This type of estimate is typical for building program documents where no actual building drawings exist for an estimator to “take off” or use to measure material quantities. These estimates are fraught with inaccuracies and assumptions, warranting that they be officially called “cost opinions” in lieu of “cost estimates.” But without those detailed and expensive drawings of a real project, which a cost estimator would use to develop projections of actual material and labor quantities, $/SF estimates are often the best and only method available. Line-item/material-quantity estimates offer much greater accuracy, especially if prepared by a cost consultant who is familiar with performing arts building projects. Figures 11 and 12 show examples of these two methodologies.

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**FIGURE 11** Excerpt from $/SF/space-type cost estimate methodology (Vermeulens Cost Consultants)

**FIGURE 12** Excerpt from line-item/unit cost summary sheet (Vermeulens Cost Consultants)
Concerning the difference between net SF (NSF) and gross SF (GSF), knowledgeable and experienced design teams will apply at least a 60 to 65 percent efficiency factor to a performing arts project’s NSF in order to develop a true number for the total size or GSF of a project. This square footage grossing or “efficiency factor” is applied to a project’s NSF to account for the amount of building that must be constructed under thick, sound-isolating/shaped interior partitions, under columns and exterior walls, in hallways, in elevators and fire stairs, in public restrooms, in mechanical-electrical-telephone-custodial rooms, in loading docks, and in weather vestibule building entries. Basically what this means is that for every 60 SF of space that you want in the building, you will build and pay for something more like 100 SF.

Finally, concerning the difference between construction cost and total project cost, in performing arts projects the cost of construction normally represents only two-thirds to three-fourths of a project’s total cost. The list of additional charges that constitute this 25 to 33 percent increase in total cost is long but often includes such additional project costs as:

- Fixtures, furnishings, and equipment (FF&E—e.g., loose project furniture, classroom audio-video equipment, artwork, administrative computers and fax/copy machines, filing cabinets, movable storage shelving, etc.)
- Special acoustical systems (e.g., recording studio equipment, sound and audio playback systems, adjustable acoustical drapery systems, etc.)
- Special theatrical systems (e.g., performance curtains and “soft goods,” theatrical lighting power distribution-fixtures-control, scenery “rigging” systems, audience seating and ADA-compliant sightlines, vertically drawn scenery and acoustical systems, etc.)
- Parking and site work (parking lots and structures, roadways and sidewalks, basic site preparations and finish-grading for new construction and proper drainage, bike racks, emergency campus phones, exterior site and building lighting, landscaping/plant materials and irrigation systems, etc.)
- Campus utility improvements (i.e., the cost of bringing campus electric, domestic water, gas, sewer, data-telephone, energy management, chilled-water, high-temp water, or steam utilities to the building via direct bury or utility tunnel, etc.)
- Professional fees (basic and special service consultants)
- Institution project management fees
- Institution project endowment fees
- Institution internal and/or external fundraising consultant fees
- Programming, design, and construction contingencies
- Construction escalation (required if the project’s projected construction is more than a year in the future)
- Owner-furnished telecommunication equipment and wiring
- Moving/relocation and temporary facility costs
- New, reworked, and special musical instruments (e.g., pianos, organs, etc.)
- Extensive project construction administration or “commissioning” expenses (e.g., owner’s expense for employing a full- or part-time clerk of the works during the construction phase, post-occupancy expense of project “commissioning” or providing extensive checking of and user instruction on all project systems)

Figure 13 provides an example of a spreadsheet showing total project cost.
Step 6: Fund-raising

The need for philanthropic funding of both public and private performing arts building projects is a reality for most institutions. Most institutions need private donor dollars, and private donors need to see what they are funding! It’s just that simple.

Most successful institutions have developed their own method of fund-raising, so I will simply say that the products of a contemporary pre-design project phase will provide your fund-raisers with sufficient graphic and cost estimation materials to meet their needs and to answer their donors’ questions. These “fund-raising tools” consist of color site and floor plan drawings, interior and exterior 3-D color renderings, and even computer-generated animations illustrating what it might look like to move through and fly around the building. Finally, retaining the services of a professional design team that commits to assisting the institution with fund-raising presentations to key donors can also be beneficial to the overall success of the project.

Summary

It is hoped that the above discussion can serve as a primer on the earliest phases of the architecture and planning for performing arts projects. It should also be noted that most experienced and qualified performing arts architects who are interested in a project will agree to visit an institution without cost or obligation to discuss these matters in person with a building committee, or if travel is not possible, then they will be ready to discuss these matters via telephone or e-mail. A committee’s questions concerning the intricacies and subtleties of this type of project need never go unanswered.