

SOUND DESIGN

DEFINITIONS

"SOUND" shall include but not be limited to: the selection of the location, orientation, type and quality of electronically reproduced and/or enhanced sound to be used in the Production and the placement and duration of all sound cues and aural effects to be used in the Production, in consultation with the Director and the Composer, if any.

"PRELIMINARY DESIGN REQUIREMENTS" are defined as including a description of the basic approach to the use of sound in the production, a rough inventory of equipment, special rigging, general specifications of any special sound effect devices, preproduction and recording requirements, composition and arrangement services, musical personnel, equipment rental, performance clearances, royalty payments, legal assistance, and sufficient further information which is required as determined by the Theatre to reasonably estimate costs with the understanding that these Preliminary Design Requirements reflect the discussions among the Designer(s), the Director, the Composer (if any) and the Theatre.

"COMPLETED DESIGN REQUIREMENTS" are defined as including all plots, schedules, specifications, working drawings, tracking sheets, recording agreements, scores and arrangements, contracts, clearance forms, royalty agreements, detailed system test and troubleshooting procedures, spare parts availability and system performance standards, as set out below, that the Theatre requires for detailed costing and execution of the Design.

"APPROVED DESIGN" is defined as the total electronically reproduced and/or enhanced sound of the Production and all pertinent documentation required for the execution of same, to the satisfaction of the Designer, the Director, the Composer (if any) and the Theatre. In any case, approval is deemed to have been reached at the completion of the Opening Performance or the date of completion of the Designer's residency period, whichever occurs first.

COMMUNICATION STANDARDS

- 1). The loudspeaker and microphone location plot is the primary graphic tool used to convey the precise information needed to accurately position these transducers in the theatre.
- 2). A centre line vertical section should accompany the location plot when any of the mounting positions are variable with respect to position of vertical trim.
- 3). The system signal flow block diagram is the primary graphic tool used to convey the precise information needed to electrically interconnect all system components.
- 4). A patching schedule should accompany the block diagram when

patch bays are involved at any point in the signal flow path.

- 5). Technical drawings and diagrams should be clean, clear and inscribed on a standard drafting medium.
- 6). Each drawing and diagram should be framed by a border.
- 7). Recommended scales for loudspeaker and microphone location plots and sections are: 1:25, 1:50, $\frac{1}{4}$ "=1'-0", or $\frac{1}{2}$ "=1'-0".
- 8). The legend block on all drawings and diagrams should include the following information:
 - a) Production title and date
 - b) Theatre space
 - c) Producer
 - d) Director
 - e) Designers - sets and sound
 - f) Drawing title
 - g) Scale
 - h) Drawn by
 - i) Date
 - j) Drawing #
- 9). All lettering should be clear, neat and read from one direction regardless of the orientation of the symbol being identified.
- 10). The key should contain the following information:
 - a) An example of every type of symbol used, with identification listing:
 - i) generic type of device
 - ii) brand & model number
 - iii) operating configuration
 - b) A typical device showing labels with all symbols and numbers used, as: channels, audio levels, balancing, connectors, mode, circuits, configuration, remote control, attenuation, crossover settings, etc.
- 11). There are various international graphic standards currently in use in Canada. The best authority, entitled "Graphic Symbols for Electrical and Electronics Diagrams," including sound equipment, is Canadian Standards Association standard Z99. This standard has also been acknowledged by the Graphic Standards Committee within the Sound Design Commission of the United States Institute for Theatre Technology as the appropriate reference for graphic symbolism to be used in theatrical sound system drawings.

Also useful are:

- ANSI standard Y32.2/IEEE standard 315/CSA Z99 "Graphic Symbols for Electrical and Electronics Diagrams:
- ANSI standard Y32.9 "Graphic Symbols for Electrical Wiring and Layout Diagrams used in Architecture and Building Construction"

- ANSI standard Y32.16 "Reference Designations for Electrical and Electronics Parts and Equipments"
- ANSI standard Y10.1 "Glossary of Terms Concerning Letter Symbols"
- ANSI/IEEE standard 260 "IEEE Standard Letter Symbols for Units of Measurement"

All of these are updated periodically and may be obtained from:

Standards Council of Canada
350 Sparks, Suite 1200
Ottawa, ON
K1P 6N7
Tel: 613/238-3222 Fax: 613/995-4564 Toll-free: 800/267-8220

- 12). The sound plot is the primary tool used to condense the total of all auditory functions of the sound design into a manageable form.
- 13). Recording tracking sheets are the primary tools used to document the source and type of all component sounds used in the preproduction and recording process.
- 14). A detailed source identification schedule should accompany all tracking sheets when copyrighted materials are used in the production of prerecorded sound.
- 15). A detailed session contract should be filed and a copy should accompany all tracking sheets when live musicians are used in the recording process.
- 16). Cue sheets, either manually- or computer-generated, are the primary tools used to convey the precise information needed to perform every cue or operation during the show.

RECOMMENDED WORKING PROCEDURES

<PRELIMINARY DESIGN>

- 1). Preliminary designs should be presented, discussed and approved prior to doing the completed designs. Written cost estimates should be provided by the theatre.
- 2). It is the responsibility of the Sound Designer to provide sufficient information in the following areas to allow the theatre to cost the design:
 - a). Rough inventory of equipment or of additional equipment.
 - b). Special rigging or mounting positions.
 - c). General specifications for any special sound effects.
 - d). Rough inventory of consumables such as tape, disks, scoring pads, track sheets, cue sheets, etc.
 - e). Estimated equipment and studio rental and personnel needs for preproduction and recording.

<COMPLETED AND APPROVED DESIGN>

- 1). The loudspeaker and microphone placement plot should include these details:
 - a). Centre Line
 - b). Prosc. or Setting Line
 - c). A Scaled Ruling
 - d). Horizontal mounting positions should be shown as a double continuous line broken by the appropriate transducer symbol
 - e). Vertical locations should be indicated in their correct placement, in "phantom" view, that is, drawn as a dashed outline or hatched solid of the top unit(s). Detailed transducer positions may be shown by:
 - i) displaced orthographic projection
 - ii) isometric elevation
 - iii) fold-out view
 - f). A label for each mounting location, giving name and number of the location, and flyline number if applicable. Optional information may include:
 - i) trim height
 - ii) number of circuits required
 - iii) total of each type of unit required
 - iv) attenuator/crossover settings
 - g) Deck practical loudspeakers and fixed microphones may be listed or shown on a separate sheet or on a groundplan
 - h) An indication of intercom, biscuit, headphone, monitor/paging speaker circuits/position if applicable
 - i) Special rigging details, custom mounting brackets or harnesses, etc.
 - j) A minimum indication of venue architecture or scenery that does not obstruct the transducer symbols or information
- 2). The centre line section should include these recommended details:
 - a). Permanently installed transducers (including infrared systems)
 - b). Flyline index, if applicable
 - c). Sightline indications for masking
 - d). Graphic representation of:

- i) location of all electric pipes and other show-specific obstructions
 - ii) location of all permanent architectural features affecting coverage
 - iii) any other objects that affect rigging or masking
- e). Mounting heights, scaled accurately should be drawn and labelled
- 3). The transducer schedule should list all loudspeakers and microphones numerically by location. Columns should be provided listing (as applicable):

a). Location/application

b). Transducer number

c). Amplifier(s)

d). Circuit(s)

e). Type of unit(s)

f). Phase polarity

g). Crossover details

h). Attenuator setting(s)

i). Phantom powering

j). Capsule type

k). Rolloff setting

l). Input channel(s)

m). Splitter circuit(s)

n). Extras, i.e: specific serial numbers, colour coding, etc.

o). Notes

4). The amplifier schedule should list all units, grouped by amplifier. Columns should be provided listing:

a). Amplifier #

b). Location

c). Output channel #(s)

d). Loudspeaker #(s)

e). Number and type of loudspeakers

- f). Loudspeaker circuit(s)
- g). Net load impedance
- h). Phase polarity
- i). Amplifier type & power rating
- j). Input gain setting
- k). Extra notes, i.e: bridged/normal mode, balanced/unbalanced input option, etc.

5). It is the responsibility of the Sound Designer to provide sufficient information in the following areas to permit the design to be realized:

- a). A list stating any special components to be installed into particular transducer prior to hanging, installation or use.
 - b). A very special accessory list detailing windscreens, pop filters, special capsules, new wireless batteries, etc. to be used or installed at special times during the performance
 - c). An equipment list detailing all required equipment such as special parts, spare diaphragms, capsules, or other potential replacement/expendable items and any other plans and specifications necessary for the realization of the sound design on an on-going basis over the expected life span of the production.
- 6). The system signal flow block diagram should include these details, drawn in standard graphic representation:
- a). All active and passive sound devices and components, connected or not
 - b). All inputs and outputs indicating type of connector
 - c). All interconnections showing routing, splices, pathways, junctions, etc.
 - d). Dashed outlines indicating equipment contained within the same physical space
 - e). Adequate labeling to indicate generic and specific types of devices, applications, channels, connection details, circuit labeling, shielding information, cable type, operating modes, switch settings, jumpering, etc.
 - f). Indication of all patching options with detail showing patchbay labeling
 - g). Any specific equipment information necessary for proper understanding enlarged and shown separately in adequate detail to ensure complete unambiguity

7). The sound plot should include these details:

- a). A two-dimensional chart showing the sound events of the production
- b). On the x-axis the show begins on the left at the Intro music/Top of Act I and ends on the right at the Curtain call/audience exit music.
- c). On the y-axis the sound sources begin at the bottom with live microphones and end at the top with effect device returns.
- d). Horizontal bars are drawn to exemplify the use of a specific sound source over a period of time during the show.
- e). Labels are entered inside the bar describing the type of sound, its function, destination, duration and other details as necessary.

8). Recording tracking sheets should include these details:

- a). Tape/disk type
- b). Speed/sampling rate
- c). Number of tracks
- d). Master or slave
- e). Type of SMPTE code
- f). Name of cue and production
- g). Composer
- h). Conductor
- i). Take, timing and editing history
- j). Instrumentation on each track
- k). Musician/instrument identification
- l). Doubling/comping history
- m). Noise reduction
- n). Test tones and reference level
- o). Details on any copyrighted material used: composer, publisher, clearance organization

9). A session contract should include these details:

- a). Name of union signatory
- b). Name of contractor
- c). Name of session leader
- d). Names of all musicians and their instruments
- e). Details of any doubling used
- f). Purpose of recording, explanation of end use
- g). Details of remuneration and dues

11). Cue sheets should include the following details:

- a). Name of production and cue number
- b). Cue name or label
- c). Type of cue, i.e. mic, tape, preset, fade, MIDI, etc.
- d). Number of identical follow repeats (loops)
- e). Time for execution as an automatic follow
- f). Whether to reset the stopwatch or not when the cue goes
- g). Sound source(s) selected for control by cue
- h). Fade rate(s) if applicable
- i). Volume levels by source
- j). Effect send levels and assignments if applicable
- k). Effect return levels and assignments if applicable
- l). Direct preset assignments by source
- m). Output matrix level/switch settings by row/column
(input/output)
- n). Master output level settings by output channels

INFORMATION LIST

PRELIMINARY information to be provided by the Theatre:

All plans and lists provided to the set designer and lighting designer.

A full set of technical drawings of the show.

A complete inventory of pertinent equipment, including quantity,

type, power, channels, etc.

A complete inventory of accessories and sub-assemblies

A complete inventory of all consumable and replacement parts normally stocked

Accurate and up-to-date scale plan and section of the venue(s)

Technical data including locations of all permanently installed sound circuits and transducer mounting positions.

Accurate and up-to-date equipment manuals for all sound equipment in the venue(s)

Detailed system signal flow or block diagram(s) for all existing systems showing all inputs, outputs and patch points available.

ADDENDUM

I. It is expressly understood and agreed between the Parties as follows:

A. "SOUND" as used in this Schedule and in this Agreement, of which this Schedule forms a part, shall include but not be limited to: the selection of the location, orientation, type and quality of electronically reproduced and enhanced sound to be used in the Production and the placement and duration of all sound cues and aural effects to be used in the Production, in consultation with the Director and the Composer, if any.

B. "PRELIMINARY DESIGN REQUIREMENTS" as used in this Agreement, is defined as including a description of the basic approach to the use of sound in the Production, a rough inventory of equipment, special rigging, general specifications of any special sound effect devices, preproduction and recording requirements, composition and arrangement services, musical personnel, equipment rental, performance clearances, royalty payments, legal assistance, and sufficient further information which is required as determined by the Theatre to reasonably estimate costs with the understanding that the Preliminary Design Requirements reflect the discussions among the Designer(s), the Director, the Composer (if any) and the Theatre.

C. "COMPLETED DESIGN REQUIREMENTS" as used in this Agreement is defined as including all plots, schedules, specifications, working drawings, tracking sheets, recording agreements, scores and arrangements, contracts, clearance forms, royalty agreements, detailed system test and trouble shooting procedures, spare parts availability and system performance standards, as set out below, that the Theatre requires for detailed costing and execution of the Design.

D. "APPROVED DESIGN" as used in this Agreement is defined as the total electronically reproduced and enhanced sound of the Production and all pertinent documentation required for the execution of same, to the satisfaction of the Designer, the

Director, the Composer (if any) and the Theatre. In any case, approval is deemed to have been reached at the completion of the Opening Performance or the date of completion of the Designer's residency period, whichever occurs first.

II. PRODUCTION BUDGET

1. As of the date of this Agreement, the design requirements of the Production are budgeted as follows:

SOUND MATERIALS \$.....

PREPRODUCTION & RECORDING
(expressed as required)

COMPOSITION & ROYALTIES
(expressed as required)

ADDITIONAL EQUIPMENT
(expressed as required)

LABOUR & STAGE TIME
(expressed as required)

RUNNING CREW
(expressed as required)

OTHER
(expressed as required)

2. It is understood that the Designer will submit Completed Design Requirements which he/she reasonably expects can be executed within the above estimates and the equipment provided by the Theatre. Notwithstanding the above it is understood that the final responsibility for the labour and material estimates and costs rests with the Theatre, and the Designer agrees to re-design or alter his/her Design Requirements if approval has not been given.

3. It is understood and agreed that the Director shall be informed of the figures set out in this Schedule and, should any of these figures be revised, the Director and the Designer shall be notified.

4. It is understood and agreed that regular Production expenditure statements will be made available to the Designer upon request.

III. THE DESIGNER AGREES:

1. To design the Sound to correspond with the needs of the Production, such needs having been defined in discussions with the Director, the other Designers, the Composer (if any) and the Theatre.

2. To coordinate and direct the realization of the Sound in direct communication with the Head of the Sound Crew, Production Manager, Director, Stage Manager, or with any other agent as appointed by the Theatre.

3. To provide: a loudspeaker and microphone location plot showing type and position of all components and patching schedules, system signal flow block diagrams, full equipment list, additional schedules, specifications and working drawings and charts for auxiliary equipment settings and operation, special effects and other items necessary for realization of the Sound.
4. To maximize the use of the inventory of equipment and components provided by the Theatre. The purchase or rental of any additional equipment or component is to be approved in advance by the Theatre.
5. To attend rehearsals as necessary and at least one run-through prior to the first sound cuing session.
6. To develop an outline of the cue sequence with the Director.
7. To supervise the system set-up in the Theatre, to direct the system testing and adjustment and its related patching and interconnection.
8. To supervise the reproduction and recording of all original music and sound effects and to ensure musical and performance personnel are properly hired, remunerated and credited on appropriate contract forms.
9. To thoroughly document all orchestration, arrangements, edits, studio set-ups, tracking sheets, mixes and sources of all recorded material.
10. To arrange for performance clearances of all copyrighted material used as sound sources and to complete all necessary royalty agreements.
11. To set and record the sound cues and to supervise the execution and operation of the Sound during technical and dress rehearsals and the first public performance. To be available for consultation until the opening performance of the Production.
12. To provide updated plots, schedules and cue descriptions of the Approved Design.
13. To design and/or supervise special effects including special loudspeakers or microphones on the set or in the Theatre in consultation with the other Designers, the Director, the Composer (if any) and the Theatre.
14. To be available at mutually agreeable dates and specified locations for consultation(s) with the Director, other Designers, the Composer (if any) and/or the designated representative of the Theatre, and to be available as specified in General Provisions to supervise and approve all the of the work mentioned above.

IV. THE THEATRE AGREES TO:

1. Provide accurate and up-to-date: scale plan and section of the venue(s), equipment lists and technical data including a "scale

plan" locating all permanently installed sound circuits and mounting positions.

2. Provide accurate and up-to-date: equipment manuals for all sound equipment in the venue(s) and a detailed system signal flow or block diagram showing all inputs, outputs and patch points available.

3. Keep all sound equipment in good repair and reliable, serviceable condition.

4. For the cueing sessions to provide the majority of the set as it is expected to be during actual performances.

5. A rehearsal script or a working draft or an outline indicating the parameters of the design shall be provided no less than weeks prior to the Completed Design Deadline or upon execution of this Agreement.

Designer: Theatre: