

Current issues with design of performance venues....OP

Iain Mackintosh, Jodi Myers, Stan Pressner

Conceptual mistakes endure long after technical installations, marriage of engineering and design of spaces, less conflict between actor and architect, found space, design failures, truth about costs, true flexibility; future audiences, maintaining the anticipation, embracing change, use of foyers, a new generation of producers; eliminate restrictions, inventing venues, stretching the boundaries.

The change from manual to automation.....ST1

Jeroen de Leeuw, Nikk Turnham, Ingemar Melander, Mark Taylor

Issues involved in introducing automated systems, need for good organisation, participation by management and technicians, importance of consultants, input from users, increased operational costs, time for training, installation of steel-band hoists, problems with powered systems; City Theatre, Gothenburg, history, changes to services, need for a consistent crew; upgrades and new installations in Hong Kong, operators must be able to see movements, need for back-up systems, long term replacements, knowing the 'real' cost.

Modern stage engineering.....ST2

Richard Brett, Wolf-Guido Patten, Tom Neville

Copenhagen Opera, fly tower, grid, mainstage flying installations, stage control systems, lighting windlasses, rolling cyclorama, stage elevators, cloth storage elevator, stage wagon system, pinion drive method, ballet floor wagon, revolving stage, wagon controls; upgrade of Opera Bolshoi, existing old installations, extent of works, hydraulic mainstage elevators, compensating elevators, ballet floor, lightweight aluminium flying hoists, control systems; Cirque du Soleil and Kà, concept of the design, extent of technical installations, control of rigging and machinery, movement of the special stage floor platforms, safety, hydraulic installation, setting the right timescale, peer review, pre-testing essential, realism in terms of failures, plan for the unexpected.

The essential services support.....ST3

Mark White, David Ludlam, Colin Darlington

Reliability, power requirements for lighting, dimmer use survey, fire prevention, circuit impedance, theatre power consumption, risk to performers, harmonics, cooling dimmers, power for sound; importance of equipotential bonding, understanding the risks; C-form connectors; electricity in dressing rooms, portable appliance testing; services co-ordination, bus-bars; importance of brief to engineers; mechanical services options, smoke extraction, smoke effects, workshops and temporary cables.

New approaches to power flying.....ST4

Reind Brackman, Herbert Tober, John Hastie, Charles Haines

Legislation in the Netherlands, costs of change to power, planning a fly system, development of SynchroDisk, methods of installation, point hoist trolley, control systems; point hoist called 'Fly', parameters, benefits, examples; development of 'BigTow' winches, 3D flying, details of Beamhoist; steel band hoists, parameters, strength of bands, Thalia Theater installation, Spider hoist, recent developments.

What is happening in the fly tower.....ST5

Michael Nishball, Louis Janssen, Clive Odom, Oliver Plunkett

Counterweight rigging in US, grid designs, spot line wells, chain hoist rigging, placing of hangers, gallery design, tie-off rails, load compensation chains, design of Winspear Opera House; benefits in Holland from use of power flying, examples of poor grids, development and examples of 'wire-less' grids; conventional UK grids, pressed steel and egg-crate grids, suspended grids, tensioned-wire grids, grid loading, point hoist systems, loads on grids, effect on structure, placing of hoists, load factors and shock loads.

Stage engineering standards.....ST6

Olle Söderberg, John Ketchell, Jens Schröder

Reasons for a European Standard, CEN Workshop approach; European Standards organisations, the single market, principles of standardisation, importance of consensus; international members of CEN; structure and

Stage engineering standards (cont'd).....ST6

timescale of CEN Workshop Agreement; structure of the European Stage Engineering Standard, DIN 56950, similarity of over-stage and under-stage equipment, explanation of terms used, loads and forces; non-prescriptive format, Safety Integrity Levels, loading on fly bars, marking and instruction books; Machine Directive, problems of complying with timescale, anticipated progress to the new standard.

The importance of maintenance.....ST7

Bill Sapsis, Mark Priestley, Mark Ager, Frank Sturmheit, Ken Golding

Inspection and maintenance in the US, problems with clients and users, risks of not doing maintenance, access to equipment; need for near 100% reliability, proactive maintenance; powered systems more expensive than manual, approaches to and costs of maintenance, dedicated systems engineering department; the 40-20-10 rule, life of mechanical, electrical and computer systems, interfaces; depreciation versus maintenance costs, potential losses through system failures, benefits of leasing installations; service life, cleanliness, objectives of maintenance; satisfying insurers, planned preventative maintenance, qualities of engineers, keeping records, assessing duty cycle .

The critical nature of the stage floor.....ST8

Richard Brett, Peter Ross, Adam Huggard, Bob Dagger

European floor loadings, dangers of point loads, access equipment loads, loads on wagons, rolling loads, benefits of triple-swivel castors, imposed loads on building structure, stage flooring options; timber in construction, weight to strength ratio, design of typical floor panels, edge loads, suitable timbers; performance floor injury protection, limb injury, characteristics of dance floors, shock absorption, resilience, impact isolation, surface stability, surface friction, dance floor constructions; DIN 18032, getting a consensus on requirements, test methods and equipment, storage of complete dance floors.

Obtaining realistic tenders.....ST9

Gerbrand Borgdorff, John Hastie, Nick Mobsby, Andy Hayles

European tendering procedures, their use internationally, transparency, objectivity, non-discrimination, benefits for client, user, consultant and contractor; problems with European procedures, unfair assessments, excessive documentation, pricing schedules, minimal bid time, unrealistic budgets, importance of using established contractors, relationship with end users; contractors part of team, costs of tendering, competence of consultants, equipment integration, evaluation of bids, value-engineering; accuracy of guide prices, project overspend, direct purchase of loose equipment, mark-ups, benefits of negotiation.

Future trends in automation.....ST10

Don MacLean, Geoff Wheel, Mark Ager

Importance of standardisation, automation unlikely to offer cost savings, speed of changeovers, more varied programmes, consistent repetition of shows, reduced cost of winches, need for trained staff, open system architecture, common standards, real-time 3D modelling, simpler optical-fibre backbone infrastructure; background to Royal Opera House systems, resulting increase in show size and complexity, dependence on crew, production achievements, health and safety; ability to extend systems, 3D motion, off-stage plotting, links between systems, increased time availability on stage, artistic achievement, the 'wow' factor.

Design processes for performing arts buildings.....CD

Richard Brett, Peter Longman, Richard Pilbrow and the delegates

Smaller spaces for good acoustics, the importance of the performer, unique nature of live performance, participation in performance, energy, found spaces, tangible philosophies, projects led by artists, operations to be more flexible, realistic auditorium sizes, need for input from users, regulators should listen to practitioners, provision of economic data to funders, need to look internationally, superstar architects, need for passion, benefits of peer review, users failure to understand details of projects, young generation of designers, understanding scale, design is a collaborative process, input to design as early as possible, theatres to become found spaces for future generations, technology must be useful, the role of the owner, learning from both failures and successes.