

WORCESTER AUDITORIUM

GREAT ORGAN

CHOIR ORGAN

16-8	Dulciana	M	73
16	Diapason	M	61
8	Diapason I	M	61
8	Diapason 3	M	61
4	Principal	M	61
2	Fifteenth	M	61
	(Mixture VI 12,15		
	(17,19,21,22)	M	366
8	Harmonic Flute	M	61
4	Flute Ouverte	M	61
16	Trombone	R	61
8	Trumpet	R	61
4	Clarion	R	61

Enclosed Section
Playable on Choir

16-8-4	Stopped Diapason	W	85
8	Diapason 2		61
8	Diapason 4		61
5-1/3	Quint		61
4	Octave		61
3-1/5	Tierce		61
2-2/3	Twelfth		61
2	Super Octave 12,15,19		61
	22		61
17	Harmonics		244
8	Hohl Flute		61
8	Violoncello		61
16	Fagotto		61
8-4	Tromba		73
	Chimes		
	Harp - Celesta		
	Tremolo		

SWELL ORGAN

16	Contra Geigen	M	73
8	Geigen	M	73
5-1/3	Geigen Quint	M	61
4	Octave Geigen	M	73
2	Fifteenth	M	61
8	Diapason	M	73
16-8-4	Dulciana	M	97
2-2/3-2			
8	Gamba	M	73
8	Viole d'Orchestre	M	73
8	Salicional	M	73
8	Voix Celeste	M	73
4	Viole	M	73
16-8	Rohr Flute	W	85
8	Clarabella	W	73
4	Wald Flute	M	73
2	Piccolo	M	61
	Dolce Cornet 12-15-17	183 III	
	Harmonics 12-15-19-22	244 IV	
16	Double Trumpet	R	73
8	Cornocean	R	73
8	French Trumpet	R	73
4	Clarion	R	73
16-8	Oboe	R	85-23
8	Vox Humana	R	61
	Tremolo		

16-8-4	Gemshorn	M	97
8	Horn Diapason	M	73
5-1/3	Gemshorn Quint	M	61
3-1/5	Tierce	M	61
2-2/3	Gemshorn Nazard	M	61
1-1/3	Larigot	M	61
1-3/5	Tierce	M	61
1	Twenty-second	M	61
	Mixture 15-19-22 III		185
8	Concert Flute	W	73
8	Cor de Nuit	W	73
4	Silver Flute	M	73
8	Viola	M	73
8	Viole d'Amour	M	73
8	Viole Celeste(um)	M	73
4	Muted Viole <i>Fagotto</i>	M	73
16	English Horn	R	73
8	Clarinet	R	73
8	Trumpet	R	73
8-4	Celesta		Tones

SOLO ORGAN

16-8-4	Gamba	M	97
8	Gamba Celeste	M	73
8	Violins II Rks	M	146
8	Cello	W	73
8	Major Flute	W	73
8	Orchestral Flute	M	73
4	Traverse Flute	W	73
16	Wald Horn	R	73
4	Octave	M	73
8	Tuba	R	73
8	Military Trumpet	R	73
4	Clarion	R	73
8	Orchestral Oboe	R	61
8	French Horn	R	61
	Tremolo		

PEDAL ORGAN

32-16-8	Diapason (Bearded) #2	W	56
16-8	Diapason #1	W	44
16-8-4	Diapason #3	M	56
16-10-2/3	Bourdon	W	56-8
8-4			
32-16-8	Violone	W	56
8-4	Principal	M	44
6-2/5	Tierce	M	32
5-1/3	Quint	M	32
4-4/7	Septieme	M	32
32-16-8-4	Trombone	R	68
16-8-4	Trumpet	R	56
16-8	Dulciana (Great)		
16	Contra Geigen (Swell)		
16-8-4	Contra Gemshorn (Choir)		
8	Gamba (Solo)		
8	Gamba Celeste (Solo)		
16-8-4-2	Lieblich Gedackt (Swell)		
16	Double Trumpet (Swell)		
16	Contra Oboe (Swell)		
16	English Horn (Choir)		
16	Wald Horn (Solo)		
	Chimes		

8' Flute Celeste
8' Viol. Celeste
8' 2nd Diapason (Eng)
16' Contra Fagotto

73681

COUPLERS

Wright to Trumpet
Wright to Trombone
Wright to Tuba
Wright to Bass
Wright to Drums
Wright to Cymbals
Wright to Percussion
Wright to Solo
Wright to Pedal
Wright to Solo

ECHO ORGAN

16-8-4-2	Dulciana	87
8	Diapason	73
8	Flute	73
8	Unda Maris	61 with Dulciana
4	Flute d'Amour	73
3	Rks	183
	Vox Humana	73
	Chimes	25 Tubes

ECHO PEDAL

16 Dulciana 32 Notes

Wright to Trumpet
Wright to Trombone
Wright to Tuba

Wright to Bass
Wright to Drums
Wright to Cymbals
Wright to Percussion
Wright to Solo
Wright to Pedal
Wright to Solo

WRIGHT TO TRUMPET

Wright to Trumpet - connected by pedals.
Wright to Trombone - connected by pedals.
Wright to Tuba - connected by pedals.
Wright to Bass - connected by pedals.
Wright to Drums - connected by pedals.
Wright to Cymbals - connected by pedals.
Wright to Percussion - connected by pedals.
Wright to Solo - connected by pedals.
Wright to Pedal - connected by pedals.
Wright to Solo - connected by pedals.

WRIGHT TO TROMBONE

Wright to Trombone - connected by pedals.
Wright to Tuba - connected by pedals.
Wright to Bass - connected by pedals.
Wright to Drums - connected by pedals.
Wright to Cymbals - connected by pedals.
Wright to Percussion - connected by pedals.
Wright to Solo - connected by pedals.
Wright to Pedal - connected by pedals.
Wright to Solo - connected by pedals.

WRIGHT TO TUBA

Wright to Tuba - connected by pedals.
Wright to Bass - connected by pedals.
Wright to Drums - connected by pedals.
Wright to Cymbals - connected by pedals.
Wright to Percussion - connected by pedals.
Wright to Solo - connected by pedals.
Wright to Pedal - connected by pedals.
Wright to Solo - connected by pedals.

WRIGHT TO BASS

Wright to Bass - connected by pedals.
Wright to Drums - connected by pedals.
Wright to Cymbals - connected by pedals.
Wright to Percussion - connected by pedals.
Wright to Solo - connected by pedals.
Wright to Pedal - connected by pedals.
Wright to Solo - connected by pedals.

WRIGHT TO DRUMS

Wright to Drums - connected by pedals.
Wright to Cymbals - connected by pedals.
Wright to Percussion - connected by pedals.
Wright to Solo - connected by pedals.
Wright to Pedal - connected by pedals.
Wright to Solo - connected by pedals.

WRIGHT TO CYMBALS

Wright to Cymbals - connected by pedals.
Wright to Percussion - connected by pedals.
Wright to Solo - connected by pedals.
Wright to Pedal - connected by pedals.
Wright to Solo - connected by pedals.

WRIGHT TO PERCUSSION

Wright to Percussion - connected by pedals.
Wright to Solo - connected by pedals.
Wright to Pedal - connected by pedals.
Wright to Solo - connected by pedals.

Worcester Auditorium

COUPLERS

Great to Pedal	8-4	Echo to Echo	8-4
Swell to Pedal	8-4	Echo on and off switch	
Choir to Pedal	8-4		
Solo to Pedal	8-4		
Swell to Great	16-8-4		
Choir to Great	16-8-4		
Solo to Great	16-8-4		
Swell	16-4-U.R.		
Choir	16-4-U.R.		
Solo	16-4-U.R.		
Solo to Swell	8		
Swell to Choir	16-8-4	<i>gt - uncoupled to ch</i>	
Solo to Choir	16-8-4	<i>gt - uncoupled to ch</i>	
Great to Solo	8-4		
Swell to Solo	8-4		

Pedal Movements

- Great Expression
- Swell Expression
- Choir Expression
- Echo and Solo Expression
- All Swells to Solo by piston and pedal with indicator.
- Crescendo with piston control for 8 set-ups.
- Great, Swell, Choir, Solo to Pedal, Reversible (by piston and pedal).
- 32' pedal stops Off Crescendo (Reversible piston) and pedal
- 16' Manual stops " " " " " " and manual

COMBINATION PISTONS

- 10 affecting Great stops - 1st touch) Manual Couplers to first touch
- 10 affecting Swell stops 1st touch) by On and Off pistons for each manual
- 10 " " " " " ") Pedal stops by second touch. Pedal
- 10 " " " " " ") couplers to second touch of all
- 8 " " " " " ") manual pistons by On and Off pistons.
- 12 " " " " " ") Entire Organ - Duplicated by pedals.
- General Cancel - putting all stops and coupler tablets in "off" position
- All Off - Operating General Cancel, closing Crescendo pedal and cancelling Sforzandos.

ACCESSORIES

- Sforzando M. F.
- Sforzando F. F.
- Manual 16' Coupler reversible piston located under each respective manual.
- Manual 4' " " " " " " " " " " " "
- Blower of ample capacity for full demands of Organ.
- Generator of ample " " " " " " " " " " " "
- Switches installed in console for lights and blower motor.
- Crescendo Indicator
- Clock
- Adjustable bench to match console.
- Indicator to show position of each swell pedal
- Swell pedals to one made interchangeable.

DETAILS OF CONSTRUCTIONMATERIAL

The material used throughout to be the best grade for the purpose. Lumber to be yard air dried and then kiln dried under the supervision of an expert in the kiln equipment of the highest type entirely upon the builder's own premises. After kiln drying the lumber is not to be removed from the kiln building until cut to size and ready to use. The lumber used to be selected for the particular purpose for which it is used both as regards cellular structure, strength and weight. Bass wood, fir or similar cheap substitutes for fine lumber is not to be used in either Organ structure or pipe work.

FINISH

Throughout the Organ where required, the structure to be finished with a waterproof material, the efficiency of which remains constant for a period of at least five years. The balance of the Organ to be finished with two coats of lacquer free from adulterants.

ENGINEERING

The strength of the structural members, the electrical calculations, size of wind conductors and other technical matters entering into the design and construction of the Organ to be scientifically figured throughout with ample margins of safety. This work to be supervised by a recognized mechanical engineer.

REGULATORS

Regulators to be constructed of clear and flawless quarter sawn poplar wood or white wood. Gussetts and ribs to be leathered with the best obtainable grade of alum tanned sheep skins especially prepared for the purpose. In addition to the above leathering, the main rib hinges are to be covered with impregnated duck fabric to insure strength and freedom from atmosphere disturbances. All regulators to be provided with a lever action reducing the motion of the regulator valve to one-half of the motion of the regulator top. Each regulator valve to be fitted with a pneumatic to relieve back pressure. Pressure to be obtained by adjustable tempered coil springs.

BLOWER AND GENERATOR

A direct connected electric blower of metal construction guaranteed of ample capacity for the Organ with motor wound to suit local electrical conditions to be furnished. Generator of ample capacity made to hold within five per cent of its name plate voltage at no load and full load to be connected by direct coupling to blower motor.

WIND CHESTS

Each wind chest shall be designed to permit the most advantageous location of the individual pipes in the particular Organ in which it is placed. No stock chests to be used. The best grade of California Sugar Pine obtainable and quarter sawn poplar especially cut and sawn for this purpose to be used exclusively.

Channels, pipe holes and other air passages in the wind chests to be flooded twice at intervals not closer than 24 hours apart with hot varnish. No paraffin, white lead, or other cheap substitutes for this protective coating to be used. The stop action to be effected by pitman valves insuring as prompt response from the stop action both on and off, as from the manual keys.

Chest valves to be made from the finest obtainable pneumatic leather imported especially for the highest grade of Organ work. All pipes to be individually fitted to the chests, plumbed and fitted in the most careful manner.

CONDUCTORS

All wind conductors carrying wind to the different structural portions of the Organ to be made of galvanized iron of heavy gauge. All to be lock-seamed and soldered lengthwise with the seam and at all joints.

Conductors to be connected to the Organ with laminated wooden collars of not less than five thicknesses of cross-banded clear lumber of equal thickness. Collars to be packed with genuine leather to prevent air leakage at point of contact with Organ. Wooden wind conductors, which are possible sources of serious trouble from leakage are not to be used.

DETAILS OF CONSTRUCTION continued

SWELL SHADES Swell shades to be constructed of clear California Sugar Pine. Each shade to be formed of not less than 7 strips glued to each other. Shades to be of ample thickness, in no case less than 2". Edges of swell shades to be carefully felted with felt made for the purpose containing a large percentage of wool. Ball bearing mountings, packed in lubricant, to be used on all swellshades. A simple easily adjusted take-up to be provided to allow for wear.

SWELL ACTION The shades to be operated by an electro-pneumatic motor. The motion and number of divisions to be carefully regulated to insure maximum expressive powers from the swell shades and not less than 14 positions of the shades to be available. The action to be silent both in opening and closing and the speed of operation to be prompt beyond criticism.

MAGNETS Magnets to be made in the builder's own factory under his direct supervision, to be of the low current consuming type and wound with enamelled copper wire over insulation on a Swedish iron core, annealed dead soft. Poles with windings to be pressfitted into bases of solid Bakelite. All packing to be used to be sumac tanned lamb skin, free from corrosive action from the surrounding materials. No blotting paper, cork or similar substitutes to be used as magnet packing material. Magnet caps to be of molded Bakelite attached to the base with machine screws. Electrical leads to be molded in place in the magnet base allowing all wiring to be done outside the wind chest. Magnets to be replaceable without dismantling any structural portions of the Organ. No screens over magnet ports to be used therefore no cleaning or removal of screens to be necessary. The design of the base to form a well to trap dust and prevent ciphering. The armature to be guided entirely by mould polished Bakelite walls. The motion of the armature to be set at .030".

CONTACTS All manual key and relay contacts to be of coin silver .999% fine. Contact wires in blocks to be of coin ~~or~~ silver as required. Pedal contacts to be of coin silver. All contacts to be of the self cleaning type.

SWITCHES, ETC. A remote control starting switch to meet the same current conditions as the blower motor is also supplied by the organ builder. A regulator, or regulators if required, to control the pressure of wind and eliminate the passage of sound through the wind pipes to be supplied and located in the blower room. Switch plates heavily plated with silver set in low cut grooves in switchboards.

CONSOLE To be of compact and efficient design and so constructed that all parts are accessible for regulation. Dimensions between manuals, and manuals and pedal keys to be the accepted standard. No celluloid or other inflammable ivory substitutes to be used for key platings, stop controls, or pistons.

PEDAL KEYBOARD Pedal keyboard to be concave and radiating to standard dimensions and to be removable without disturbing any electrical connections or adjustments. Pedal keys to be of hard maple. Natural keys to be of one piece construction and finished in two coats of shellac. Sharps to be ebony finish, said finish to penetrate to the center of sharp. Strength of spring of all pedal keys to be adjustable (by screw driver) within any reasonable limits to suit preference of performer.

MANUAL KEYS Manual keys to be made of best grade of key pine and naturals to be faced with genuine elephant ivory. Sharps to be made of ebony. Edges of all keys to be buffed to remove sharp edges. Keys to be well bushed throughout. All key boards to be constructed so as to be accessible for service and regulation without removal or disturbance of any other part of the Console.

DETAILS OF CONSTRUCTION continued

- MANUAL KEYS Keys to be adjustable (by screw driver) for strength of spring, point of contact and distance of motion. Adjustable key springs to be of oil tempered flat spring steel.
- STOP CONTROLS Stop controls to be genuine ivory tablets mounted in natural finished rosewood frames, set into stop cheeks of laminated construction, the exterior faces of which are to be fine mahogany veneer. Entire stop action system to be prompt in action and quiet in operation.
For draw knob control if preferred, solid ivory draw knobs to be used on solid ivory shanks set in velvet bushed openings in stop cheeks. To move in straight line without angular motion. Stop controls, either tablet or draw knob, to be equipped with springs to insure full motion on and off.
All engraving to be deep cut from master dies.
Reversible pedals to be as prompt in response as key action.
Pedals to be silent in operation and effective by 1/8" movement of operating member.
- SWELL PEDALS Swell pedals to be direct connected to contact assembly of Bakelite and phosphor bronze. Heavy contacts to be used, all of the self cleaning type. The tension on the Swell Pedal to be adjustable.
- CONSOLE CASE Console case of builder's standard design, built of any native hard wood to be finished to match purchaser's sample, is included in this contract. Key frames, stop cheeks, nameboard and other visible interior portions of the console to be of mahogany, dull finished.
Exterior and interior portions of console to represent the highest type of fine cabinet work and finishing. A bench of the same high quality as the console case work and to match the design of the same, is also included in this contract.
- COMBINATION ACTION Entire combination action to be built in builder's own factory. To be prompt in action and designed for quiet operation. Console to be held to minimum size by transferring combination setting mechanism from the console to the Organ proper or blower room. All combinations to be instantly set by the performer seated on the bench by means of a setter piston.
- PIPES Every pipe used in this Organ to be built and voiced in builder's factory for the particular purpose as called for in the stop specification. All cast metals to be alloyed and cast by builder. Spotted metal to contain at least 45% of pure block tin and the balance to be virgin lead. Heavy gauge metal to be employed throughout all metal stops. All cylindrical pipes to be equipped with tuning slides, except zinc bass pipes which are to be equipped with leathered tuning rolls.
Wood pipes to be made of clear sugar pine, mahogany, walnut or maple as required for the desired tone quality. To be thoroughly glue-sized inside and coated with at least two coats of pure shellac on the outside. Stoppers of stopped pipes to be fitted tight with heavy cork insert and leather packing.
- VOICING The voicing of every pipe in the Organ, including pedal pipes to be treated in the most artistic manner consistent with the location and uses for which the Organ is intended. No voicing, scaling, or treatment of the pipe work to be instituted before complete information is available. No stock, piece work, or bonus system voicing to be used. The entire Organ to be assembled, and tuned and regulated at the factory by the original voicers.

DETAILS OF CONSTRUCTION continued

INSTALLATION

The Organ to be set up, tuned and tone regulated complete in place and the instrument turned over to the purchaser in perfect condition, and shall be to the complete satisfaction of the purchaser.

GUARANTEE

All materials and workmanship are guaranteed for five years against defects of any nature.