A. E. Schlueter Pipe Organ Company, Lithonia, Georgia
Tallowood Baptist Church, Houston, Texas

From the organbuilder

While our firm has been very prolific as a builder of new instruments since our founding in 1973, our company also has been very significant as a rebuilder and maintenance firm. So in 2011, when our firm was invited to Tallowood Baptist Church in Houston, Texas, we approached a situation that required all of our skill sets.

A four-manual, 84-rank instrument by another firm had been contracted years earlier and was installed in their new sanctuary between 2008 and 2011. The church was having numerous concerns about the organ after it had been installed. There were mechanical and performance issues, but even more than this, the organ simply did not support their worship.

Under the direction of the Reverend Carlos Ichter, minister of music, a number of pipe organ builders and consultants were invited to provide an assessment of the organ. The "solutions" given by others ranged from accepting it as it was and trying to increase wind pressure to completely starting over. With the considerable cost, this was not a consideration the church could contemplate, and accepting it as it was would not be an option.

We were asked if we could look at the organ to determine if we could find a way to make the organ a success and what it would require. As we studied the organ and researched the church records, we found numerous contracts, changes, and alterations that had occurred in the design of the instrument from its inception up to when it was installed. Without belaboring the point, this told an interesting story and explained the footing the church took with negotiations going forward, where they had to question everything that they were told.

We started our formal study of the instrument by bringing a team of eight of our staff to the church for one week. We studied the stoplist and scaling of the organ, the chest actions, the winding system, the expression shades, the organ console, the electrical system and relays, and the organ chassis as a whole. We dissected the internal workings of the organ and to better know the pipework, took the time to tune the organ. Next, we voiced some samples of the existing pipework to explore the latitude available for change.

The placement of the organ was in organ chambers in the front of the chancel behind a façade of 32′ pipes, and in a rear antiphonal. The chancel organ chambers sit high in the sanctuary with relatively small tone openings. Portions of these chambers have significant tone traps. The layout and placement of the pipework and chassis acted as physical barriers to the tonal egress of other stops in the organ. There were multiple instances of bass pipes being placed directly in the front of the chambers and covering the tone openings to a very large degree.

We started our tonal design with a needs study and development of a clearly written, cogent plan for the musical support role of the organ in the church. Our work was to be a change agent to the development of an eclectic instrument that could take part in all forms of music including choral and congregational accompaniment, its role with orchestra, and service playing.

Much of the flue pipework in the organ was of decent quality and well built. However, the organ had a number of individual symphonic, orchestral-oriented stops—which, while beautiful, had been allowed more influence on the overall specification at the expense of a solid foundational accompaniment core. We felt that through reallocation of the flue resources we could accomplish the artistic considerations of a revised specification, while preserving many of the resources in a fiscally conservative manner.

To begin our work, the pipework and console were removed to our workshop to be refurbished for the new specification. We remanufactured the drawknob jambs to include an entirely new string organ, replaced all of the drawknobs and engraving, replaced the tablet rail, and relocated the combination control panel to a central location so it could easily be seen by the organist. We also made changes to the console expression shoes and pedalboard to conform to AGO specifications, rewired the piston sequencer to function in a conventional manner, and added several pistons to the organ for performance features.

The specification contained a large number of slotted stops, including strings, harmonic pipes, and mixture compositions. The slotting exacerbated the fifth at the expense of the unison pitch and became unstable at a pressure that the pipe mouth cutups couldn't handle. This third harmonic of the series was pervasive in all of the larger massed flue choruses. Through additions, stop exchange, reallocation of pipework, re-pitching and revoicing, we were able to reinforce the unison registers and improve treble ascendency.

The organ as it had been conceived included a partially enclosed Great. This had placed the flutes and reed of the Great division in the rearmost location of the entire organ where the dynamics were diminutive at best. We decided to abandon this location for a chamber next to the Swell and Great divisions that could speak directly into the sanctuary. This new unenclosed Great location allowed the diapason, flutes, and reed to speak unimpeded into the 2,200-seat room. This projected their full color and harmonics without a loss of dynamics. In the rightmost chamber location, we added to the independent resources of the Pedal division and extended the compass of two Pedal registers, so they could be drawn into the Great as secondary manual registers, balancing out the 8′ fundamental tone from both sides of the chancel.

Many of the strings throughout the organ were orchestral in nature, and small scaled. These thin string stops did not support choral and congregational accompaniment or blend well with the principal and flute chorus *fonds*. In our design, we decided to gather these romantic resources into an enclosed string division with the inclusion of an 8′ Tibia and 8′ Vox Humana. The movement of these stops from the Great, Swell, and Choir allowed room to add larger divisional strings and additional foundational flue resources.

The Antiphonal division was enlarged with an independent 8′ Rohrflute. Included with this division are 16′, 8′, 8′ registers to the pedal. The result proved very useful for providing reinforcement and sculpture to the chancel Pedal in the room acoustics.

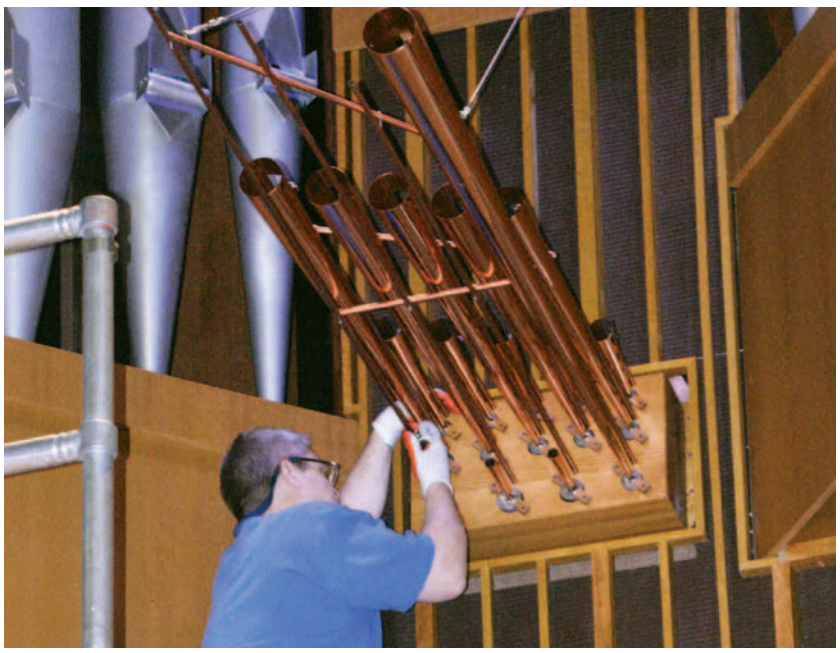
The organ reeds were generally of a darker color. Some of the organ reeds had been designed for another instrument and had been repurposed and modified for this organ. In addition to the sound of the organ reeds, which was not conducive to our tonal vision, there were a number of loose shallots, and tongue and wedge issues, and tongues that created voicing and tuning problems. Due to differing wind pressures, it was not possible to consider moving reed stops from division to division in support of the revised specification. At the completion of our work, all of the reeds had been rebuilt or replaced.

The largest solo reed in this organ is the 8′ Tuba Mirabilis. Built of copper and installed as an "en Chamade," it had been on 24″ wind pressure, which was too commanding for the sanctuary. It was re-tongued and revoiced on 19″ wind pressure. Even revoiced, the horizontal focus leaves it as a commanding reed but with greater blending use. We added an 8′ Tromba Heroique stop to the Solo division as a scalable dynamic registration option. With the Solo expression box open it can be a commanding solo stop, but closed can be used as a large ensemble chorus reed.

The Pedal did not have the *gravitas* that was required of it. The 32′, 16′ Violone unit and 16′ Principal in the façade were revoiced to better fit the room. The 16′ Major Bourdon was rescaled with higher arched cut-ups added to allow more foundational weight. In the Pedal, we added several additional 16′ registers, additional 8′ stops, and a large mixture. In the case of the 32′ reed registers, they had subdued speech and colors that were not cohesive with the final specification as we envisioned it. This became a moot point, as there was no room to relocate these stops. We replaced these extensions with digital voices, which, in this instance, was a better tonal choice.

The internal layout of the pipework, windchests, winding system, expression shades, and chassis blocked sound. Additionally, there were portions of the organ where access for tuning and maintenance was very difficult. We found places in the

The organ façade pipe racking and structure had to be rebuilt with a significant amount of lumber and steel. Seen here is some of the scaffolding used to work on the 32′ Violone pipes. (Photo credit: Brian Olivier)



Marc Conley reinstalling the 8′ Tuba Mirabilis after revoicing and modification to the supporting racks (Photo credit: Brian Olivier)

organ where some individual pipes had been offset and other places where notes had been silenced rather than attempt repairs on individual chest actions. In conjunction with the redesigned specification we addressed serviceability, winding, and tonal egress.

The windchests were built with a proprietary form of electro-mechanical action in conjunction with an internally developed individual electro-pneumatic action. The reason for the blended actions seems to have been the very high wind pressures employed. The measured wind pressures on the organ ranged from 6¼″ up to a high of 28″. This is a realm where electro-mechanical action has rarely been used, with typical wind pressures between 3″–5″ being the historic norm for most instruments with this type of chest action. Unfortunately, the individual electro-pneumatic actions had very little travel and constricted the flow of wind into the pipe toes. The result was that a large number of bass pipes were starved of wind. As part of a test we stripped off the rubber cloth pouch on one of the actions and rebuilt it to allow greater depth of travel. The result of this test was immediate and noticeable. These valves were removed from the organ and rebuilt for a large number of the bass registers in the organ, including the 32′ Violone and the core 16′ and 8′ foundational registers.

In our negotiations with the church the façade pipes and its structure were a specific exclusion. The pipes of the façade are from the 32′ Violone, 16′ Principal, and the 8′ Second Open Diapason, as well as a large number of dummy pipes. Our intent was to voice the pipes of the façade, not taking liability for their construction or racking. As the church had reasoned and we had concurred, it was brand new and should not have been an issue. This supposition changed when several pipes of the (horizontal) 8′ Tuba Mirabilis had hooks that had separated and the racking for these pipes had deflected downward. This set of pipes was in the façade hanging directly over the choir members' heads and became a looming concern. The church asked us to scaffold up the front of the church and survey the condition of the entire façade and its racking. We found a number of problems that had the potential to be safety issues. Over a period of two weeks we scaffolded the front of the church, secured the toeboards, added vertical structure, installed custom steel supports, added secondary hooks on a number of pipes, and properly secured the pipe racks to the structure.

The original horizontal expression shades were made with edges over half the thickness of the non-beveled part of the expression shades and opened toward the ceiling. This directed sound into tone traps and away from the choir and congregation. These shades had 4″ of felt on the front and rear beveled surfaces for a total of 8′ of absorptive felt. The tonal result was a shade opening that acted nearly half-closed even when the shades were wide open. In addition to occlusion, the open shades presented a felted wall to the enclosed division and provided absorption for the non-enclosed stops in front of the shades. We replaced all of the expression shades in the chancel divisions. This allowed one-third more opening to the enclosed divisions and reduced the sound absorption of the open shades to a negligible factor.

To generate the high wind pressures called for in the original organ design, there were a large number of blowers feeding into each other to raise the wind pressures. This created internal turbulence, noise, and heat, as well as noticeable flutter in some of the reservoir tops. The leather on the reservoirs

A. E. Schlueter Pipe Organ Company

Tallowood Baptist Church, Houston, Texas

Items in Red denote changes and/or additions by Schlueter

GREAT—Manual II (unenclosed)
32′ Contra Violone
16′ Violone
16′ Bourdon
8′ Octave
8′ First Open Diapason
8′ Second Open Diapason
8′ Principal
8′ Violoncello (String)
8′ Cello Celeste (String)
8′ Harmonic Flute
8′ Bourdon
4′ Diapason
4′ Octave
4′ Zauber Flute
2⅔′ Twelfth
2′ Fifteenth
2′ Waldflute
1⅗′ Seventeenth TC
V Mounted Cornet
V Chorus Mixture
16′ Double Trumpet
8′ Trumpet
4′ Clarion
8′ Tromba (Pedal)
8′ Tromba Heroique (Solo)
8′ Tuba Mirabilis (Solo)
Chimes
Tremolo
Great 16′
Great Unison Off
Great 4′
MIDI on Great

CHOIR—Manual I (enclosed)
16′ Gemshorn
8′ English Diapason
8′ Weit Principal
8′ Rohr Flute
8′ Nachthorn
8′ Gemshorn
8′ Gemshorn Celeste TC
8′ Dolcan
8′ Dolcan Celeste
8′ Unda Maris II
4′ Octave
4′ Fugara
4′ Clear Flute
4′ Dolcan Celeste II
2⅔′ Twelfth
2′ Fifteenth
2′ Silver Flute
1⅗′ Seventeenth
1⅓′ Nineteenth
IV Choral Mixture
III Sharp Mixture
16′ English Horn
8′ Petite Trumpet
8′ English Horn
8′ Clarinet
4′ Holzregal
4′ Cremona
8′ Tuba Mirabilis (Solo)
Tremolo
Choir 16′
Choir Unison Off
Choir 4′
Harp
MIDI on Choir

SWELL—Manual III (enclosed)
16′ Contra Viola TC
16′ Minor Bourdon
8′ Diapason
8′ Viola Pomposa
8′ Viola Celeste TC
8′ Muted Viole
8′ Muted Viole Celeste TC
8′ Traverse Flute
8′ Stopped Diapason
4′ Octave Diapason
4′ Viola
4′ Muted Viole
4′ Muted Viole Celeste
4′ Traverse Flute
2⅔′ Twelfth
2′ Principal
2′ Harmonic Piccolo
1⅗′ Tierce
1⅓′ Nineteenth
III Full Mixture
III Sharp Mixture
16′ Double Wald Horn
16′ Double Oboe TC
8′ Trumpet
8′ Wald Horn
8′ Oboe
8′ Vox Humana (String)
4′ Clarion
8′ Tromba Heroique (Choir)
8′ Tuba Mirabilis (Solo)
Tremolo
Swell 16′
Swell Unison Off
Swell 4′
MIDI on Swell A
MIDI on Swell B
MIDI on Swell C

STRING—Floating
(new division in place of old enclosed Great)
16′ Contre Viol
16′ Viole Celeste TC
8′ Tibia
8′ String Diapason
8′ Viole d'Orchestra
8′ Viole Celeste TC
8′ Violoncello
8′ Cello Celeste
8′ Salicional
8′ Voix Celeste
4′ Viola
4′ Viola Celeste
8′ Vox Humana
Tremolo

SOLO—Manual IV (enclosed)
16′ Gamba TC
8′ Stentorphone
8′ Gamba
8′ Gamba Celeste
8′ Major Flute
5⅓′ Gross Quinte
4′ Harmonic Flute
2′ Piccolo Magnum
16′ Orchestral Bassoon
8′ Bell Clarinet
8′ Horn
8′ Orchestral Bassoon
8′ Tromba Heroique
16′ Tuba Mirabilis
8′ Tuba Mirabilis
4′ Tuba Mirabilis
Tremolo I (Flues)
Tremolo II (Reeds)
Solo 16′
Solo Unison Off
Solo 4′
MIDI on Solo A
MIDI on Solo B

ANTIPHONAL—Floating (enclosed)
8′ Open Diapason
8′ Rohr Flute
8′ Dolce Celeste II
4′ Octave
2⅔′ Twelfth
2′ Fifteenth

PEDAL
64′ Gravissima (resultant)
32′ Double Open (digital)
32′ Contra Violone
32′ Contra Bourdon (digital)
16′ Wood Open (digital)
16′ Open Diapason
16′ Violone (extension)
16′ Contre Viol (String)
16′ Gemshorn (Choir)
16′ Subbass
16′ Bourdon (Great)
16′ Minor Bourdon (Swell)
8′ Octave
8′ Diapason (Great)
8′ Gamba (Solo)
8′ Subbass (extension)
8′ Bourdon (Great)
8′ Stopped Diapason (Swell)
4′ Choral Bass
4′ Cantus Flute (Solo)
4′ Cantus Flute (Great)
IV Mixture
32′ Harmonics (wired Cornet series)
32′ Contra Trombone (digital)
32′ Contra Bassoon (digital)
16′ Trombone
16′ Double Trumpet (Great)
16′ Waldhorn (Swell)
16′ Orchestral Bassoon (Solo)
8′ Trombone (extension)
8′ Trumpet (Great)
8′ Wald Horn (Swell)
4′ Tromba (extension)
4′ English Horn (Choir)
8′ Tromba Heroique (Solo)
Chimes
MIDI On Pedal

ANTIPHONAL PEDAL
16′ Stille Gedeckt
8′ Stille Principal
8′ Stille Gedeckt

Couplers
Great to Pedal 8′
Great to Pedal 4′
Swell to Pedal 8′
Swell to Pedal 4′
Choir to Pedal 8′
Choir to Pedal 4′
Solo to Pedal 8′
Solo to Pedal 4′
Antiphonal to Pedal 8′
String to Pedal 8′

Swell to Great 16′
Swell to Great 8′
Swell to Great 4′
Choir to Great 16′
Choir to Great 8′
Choir to Great 4′
Solo on Great
Antiphonal to Great 8′
String to Great 8′
Pedal to Great

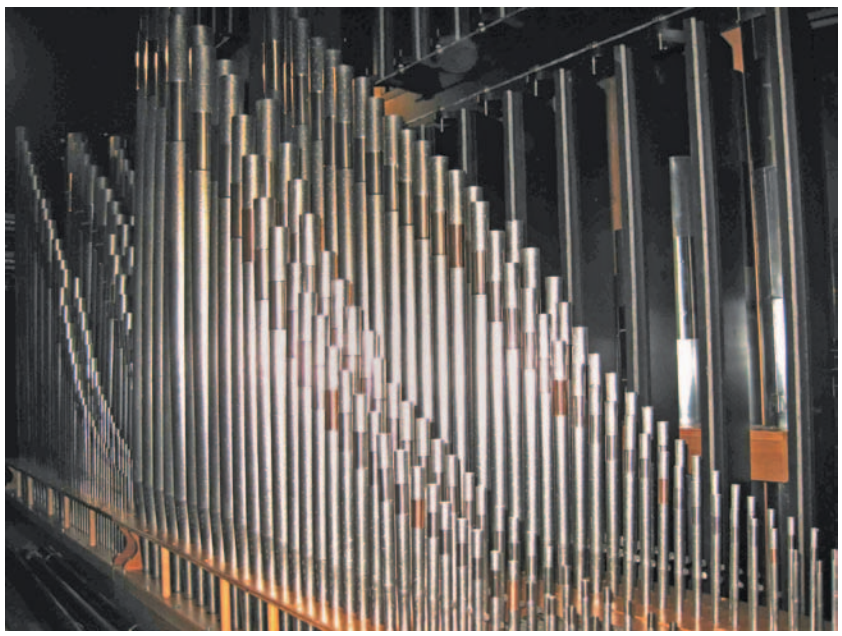
Choir to Swell 8′
Solo on Swell
Antiphonal Off Swell
String Off Swell

Swell to Choir 16′
Swell to Choir 8′
Swell to Choir 4′
Solo on Choir
Antiphonal to Choir 8′
String to Choir 8′

Antiphonal to Solo 8′
String to Solo 8′

4 manuals, 94 ranks

Console with revised layout, new controls, and new expression shoes (Photo credit: Mark Johanson)



The new String division with the new vertical expression shades that provide one-third more tonal egress (Photo credit: Brian Olivier)

was not well adhered and was beginning to separate from the reservoir wood shells. We knew that for the organ to be successful, we would need to redesign the winding system. This was not a small consideration. In the end all of the reservoirs were rebuilt or replaced with new. We were able to reduce the total number of reservoirs from 49 to 31, and reduce the number of blowers from nine to five, total. We also replaced twelve tremolos.

Our full team of pipe voicers were brought to Tallowood where we located a voicing machine and several workbenches outside of the organ chambers in a stairwell. The voicing of this organ was a marathon of setting pipe samples in the chambers and then removing the pipes so that the large degree of work could be performed outside of the chamber. These pipes were then handed back into the organ chambers and tonally finished. In an instrument on multiple levels with eight separate chamber locations and 94 ranks that included 5,598 speaking pipes, this was no small undertaking. We were able to process the pipework in a seamless fashion, trading off table work with in-chamber finishing. Even with these efficiencies, this process still took months of work. We brought up the organ by division and encouraged the church to begin using it in worship services after approximately half of the instrument was completed. Attending services and rehearsals became a way to gauge and focus our efforts. It was exciting for our firm and for the church, as each week there were additional resources made available to be heard for the first time. In a final review of the project, there were numerous changes that we made to the instrument. My notes show 168 separate items, all of which had subsets. I was asked at one point about one of the smaller changes we were making. The question was, "how important will that one change be?" I answered that one change may in and of itself be small in stature; however, the multiplicity of small changes would couple to become a great change. In the end, the choices we made allowed for a successful outcome, where others had not seen this route to success—at least not at a reasonable cost given the degree of change required. A measure of this success, at the end of this project, was that the church's faith had been restored in pipe organ builders. We would like to thank the congregation and leadership of the church for the faith that they personally placed in us. I also would be remiss if I did not take a moment to thank our staff for their dedicated efforts.

—Arthur E. Schlueter III
Artistic and Tonal Direction
A. E. Schlueter Pipe Organ Company

From the minister of music

The journey to the completion of our pipe organ was not an easy one. When we came to the full realization that our original instrument was riddled with problems, we sought the council of numerous organists and organ builders in order to find a viable solution. The A.E. Schlueter Pipe Organ Company offered us the most attractive option for completion of our instrument. We spent nearly three years addressing numerous concerns, including listening to disenchanted church members and allowing for difficult conversations in committee meetings. Ultimately, the church approved the proposal from Schlueter, and we now have a beautiful, completed instrument. We are grateful for the Schlueter team and the Tallowood members for the completion of this magnificent instrument for the glory of God.

—Carlos Ichter
Cover photo credit: Mark Johanson

David Petty and Associates, Eugene, Oregon
University of Oregon School of Music, Eugene, Oregon

David Petty and Associates have recently updated their Opus 4 for the University of Oregon School of Music. The 13-stop mechanical-action practice instrument has been in heavy use since its installation in March of 2011. The thirteenth stop, an 8′ Principal made of poplar, along with simple pipe screens, was installed over the summer, completing the instrument.

The project was initiated when the previous instrument (an eight-stop Flentrop) was ruined in a flood in late 2007. Petty & Associates removed the heavily damaged instrument, salvaging five ranks of usable metal pipes along with the keyboards and mechanical coupler action, which were used in the new instrument. The Petty instrument has a new case, new chests, new key and stop action, and new blower and regulator as well as seven new ranks of pipes, built in the Petty shop. The builder's work can be viewed at www.pettyorgans.com.

David Petty Opus 4

David Petty and Associates
University of Oregon School of Music

GREAT (I)
8′ Principal
8′ Gedackt (metal)
4′ Octave
4′ Flute (façade)
2′ Principal

SWELL (II)
8′ Oak Gedackt
8′ Rohrflute
4′ Koppelflute
2⅔′ Nasard
8′ Regal

PEDAL
16′ Soubass
8′ Gedackt (Gt)
4′ Flute

Couplers: II/I, I/P, II/P
Variable Tremulant

2 manuals, 12 ranks

Petty Opus 4, Swell division