

Under the Magnifying Glass

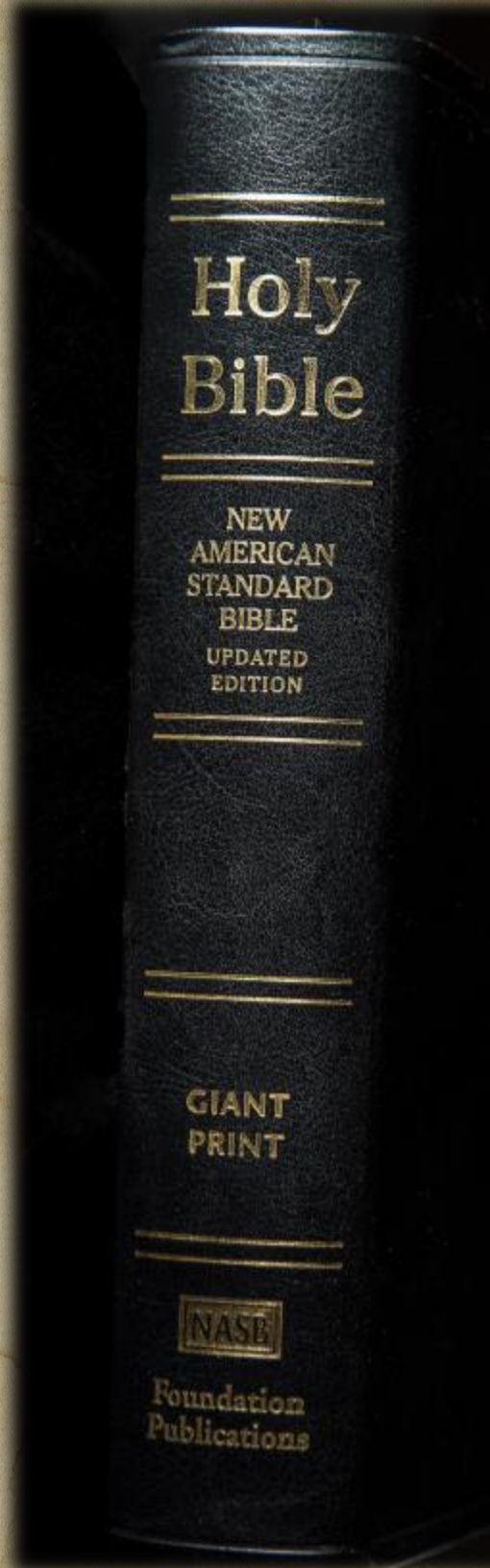
SOLOMON'S TEMPLE

A New and Old Testament Bible Study

Does the temple have anything to offer the
Christian Church today?

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Flow Chart Format
For bible study handouts



Under the Magnifying Glass

SOLOMON'S TEMPLE

Part 1

Over history, the outside world has viewed Solomon's Temple as a monument, a symbol of wealth and power, a tool to secure political power within the kingdom and with neighboring nations. Within the nation of Israel, the temple was viewed as God's House and a means to worship God and to show God their faithfulness. Showing their faithfulness was short-lived when Solomon allowed idols and altars of other gods within the land of Israel. It seems that God gave the people of Israel 400 years to redeem themselves before allowing the destruction of a building dedicated to Him.

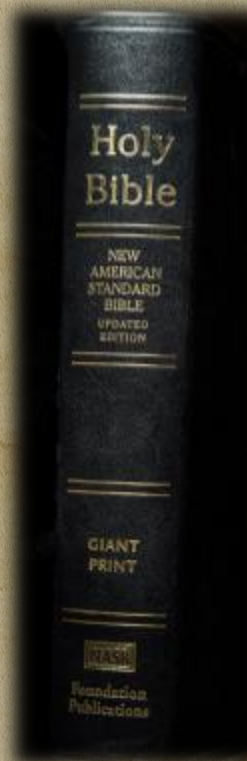
A question that has troubled me for years was, what purpose was the temple since it was treated so poorly to the point that false idols and altars made their way into the temple, and it seemed that God did nothing until He sent the Babylonians to destroy it? Oddly enough, while the Israelites were in exile, the Torah or the Old Testaments history and teaching were compiled into a complete set of manuscripts comparable to a book today. This was also perhaps the first time where the detailed description of Solomon's Temple was first turned into a preserved written record. It seems that history did not preserve any of the actual written plans King David gave to Solomon.

Here we are 3500 years later. The next question that came to mind is, what happens when you apply modern science and knowledge to Solomon's Temple? As it turns out, several details translate perfectly into modern churches today. These include sanitation, building design, structural design, heating and cooling, lighting, clean air, sound, and acoustics. While my initial pursuit was for church sound and acoustics, since then, Solomon's Temple has revealed itself to become a template for the modern church that creates the ideal worship space for every type of Christian church worship.

The burning question from me was, was the temple just a relic of the past, or was it also meant for Christians after the resurrection of Jesus Christ? The following is a flow chart that highlights a link of events from Creation to the present and how Solomon's Temple may not have been just a relic but a blueprint for the Christian Church until the return of Jesus Christ.

Part 1

Flow Chart Format
For bible study handouts



Under the Magnifying Glass

The House God Designed - Solomon's Temple

John 1:1-3 In the beginning was the Word, and the Word was with God, and the Word was God. He was in the beginning with God. All things came into being through Him, and apart from Him not even one thing came into being that has come into being.

Col 1:15-17 He is the image of the invisible God, the firstborn of all creation: for by Him all things were created, *both* in the heavens and on earth, visible and invisible, whether thrones, or dominions, or rulers, or authorities—all things have been created through Him and for Him. He is before all things, and in Him all things hold together.

Jesus is declared as part of the Godhead and has always existed. You cannot separate Jesus from God or the Holy Spirit. Everything God spoke into creation and everything created since, was and is through Jesus.

This included the laws of Moses, the Ten Commandments, and Solomon's Temple.

Mat 5:17 Think not that I am come to destroy the law, or the prophets: I am not come to destroy, but to fulfil.

Jesus had to say this.
Since all things came through Him, then He could not go against the laws that He and His Father gave us.
God cannot cancel God.

All things were created through Jesus, including the design of the Ark of the Covenant and Solomon's Temple.

David wanted to build a house for the Ark of the Covenant and told the prophet Nathan about it.
God told Nathan to tell David that he will not build the temple, but his son would.
David accepted what God told him.

Near the end of David's life and when Solomon was old enough to understand, David said to him, - **1Ch 28:19** "All this," said David, "the LORD made me understand in writing by His hand upon me, all the details of this pattern."



This verse in **1Ch 28:19** "All this," said David, "the LORD made me understand in writing by His hand upon me, all the details of this pattern." makes it clear that King David was in good standing with God and that this design was not to be altered by Solomon. Since God is temporal, and Jesus is able to be physical, one could conclude that it was the hand of Jesus that guided the hand of King David.

It is understood that King David put Solomon on the throne about 4 years before he died.

King Solomon started to build the temple in the fourth year of his reign over all of Israel and Judah.

It is not certain how old Solomon was when he became king or when he started to build the temple. This suggests that Solomon was on the throne for 8 years before starting the temple and 4 years after his father died.

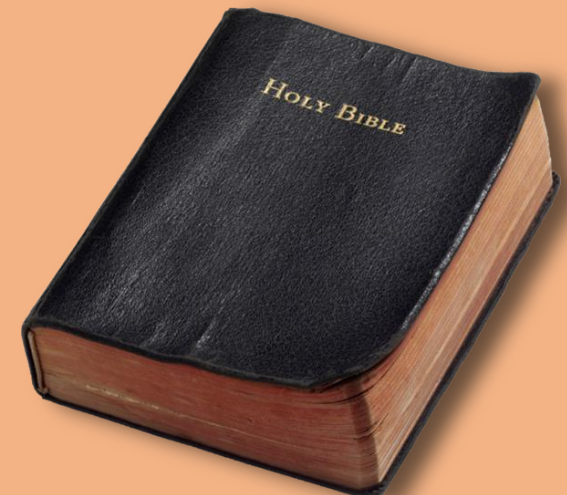
Construction of Solomon's Temple Begins

The temple took seven years to build.

Internal Dimensions **1Ki 6:2** And the house which king Solomon built for the LORD, the length thereof was threescore cubits, and the breadth thereof twenty cubits, and the height thereof thirty cubits.

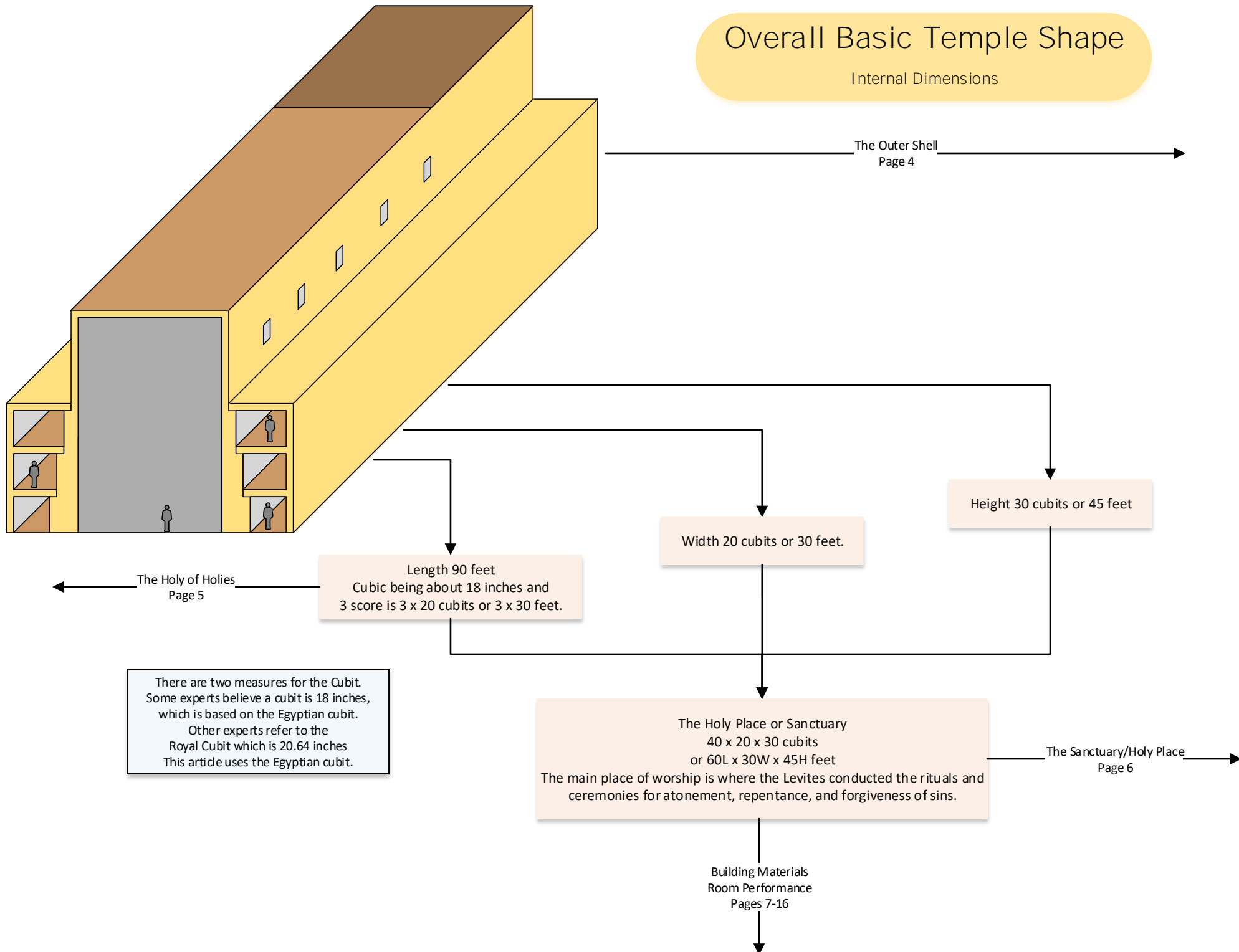
This is the only building in the Bible where God touched a person to accomplish a task.

This building was so important to God that Jesus helped David's hand to design all of the elements and details. These complex components account for all aspects of worship and teaching that carries forward to modern churches.



Overall Basic Temple Shape

Internal Dimensions



Temple Storage and support

The Outer Shell Additional dimension details

1Ki 6:5-6 And against the wall of the house he built chambers round about, against the walls of the house round about, both of the temple and of the oracle: and he made chambers round about: The nethermost chamber was five cubits broad, and the middle was six cubits broad, and the third was seven cubits broad:

The overall Outside dimensions would be 105 feet X 60 feet wide x 46.5 feet high

Total Storage Area
6,456 sq. feet

Third floor storage was
2,497 sq. feet, 10.5 feet wide

Second floor storage was
2,155 sq. feet, 9 feet wide

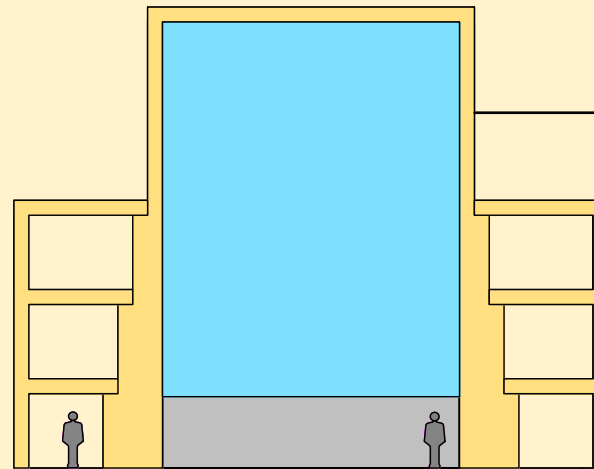
First floor of storage was
1,804.5 sq. feet, 7.5 feet wide

Space for Teaching, cooking, for those who were tasked with cleaning, cooking and maintaining the lamps.

Storage for food, oil, cooking supplies, clothing, Holy Scripture and living quarters.

Storage tools, cloth, musical instruments, treasury, cleaning and long term storage.

One of the largest complaints heard from most churches is lack of storage, and classroom space. From Solomon's Temple, with the 5 to 1 ratio of sanctuary versus supporting area, by building up rather than out, we get a complete church that includes all of the storage, classrooms, offices, prayer rooms, and fellowship hall a modern church needs.



With the thicker lower walls and chambers, it would have kept the temperature consistent day and night.

This would suggest that the base of the temple wall was 4 cubits or 6 feet wide. The upper wall would have 18 inches wide. The roof could have been 18 inches thick.

Building a stepped wall avoids the added high cost of steel and the complexities that comes with using steel.

1 kings 6:6 for without in the wall of the house he made narrow rests round about, that the beams should not be fastened in the walls of the house.

This method of construction with the beams of each floor on a shelf offers some protection for earthquakes

Building a church like this today would be a higher quality structure.

History records two earthquakes in the area of Jerusalem before the temple was destroyed. 759BC magnitude 8.2 and in 751-740BC These two earthquakes toppled many surrounding buildings but not the temple.

An added bonus is the extra soundproofing in the worship space, in the Holy of Holies and in the chambers. Much of the temple design is about removing distractions.

Holy of Holies

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Length 90 feet
Cubic being about 18 inches and
3 score is 3 x 20 cubits or 3 x 30 feet.

Holy of Holies 20 x 20 x 20 cubits - or 30 x 30 x 30 feet
House of the Ark of the Covenant. It was a cube in shape.
Behind the Holy of Holies were storage rooms

The Holy of Holies Floor area is 900 Sq. feet

The Holy of Holies was of stone. The floor was covered with Fir Wood. The walls were covered with planks of cedar from Lebanon and the ceiling was made of beams and planks of cedar. Gold covered the walls and floor.
1 Kings 6:29 says there were also carvings of Cherubims, open flowers, and palm trees on all of the walls which were covered in Gold. The two Cherubims were 15 feet tall with wings totaling 15 feet wide.

Holy of Holies contained the Ark of the Covenant, the two Cherubs with wings that went end to end touching the walls.

The veil, which was 45 feet tall and 30 feet wide was in front of the Holy place, not inside of the Holy of Holies. Exodus 26 describes a curtain 10 layers thick and more layers on top of them. Some types of linen are very thick. According to some historians, the veil was believed to be 4 to 6 inches thick.

In the Holy of Holies, the only concern was for speech as music was never performed in this room.

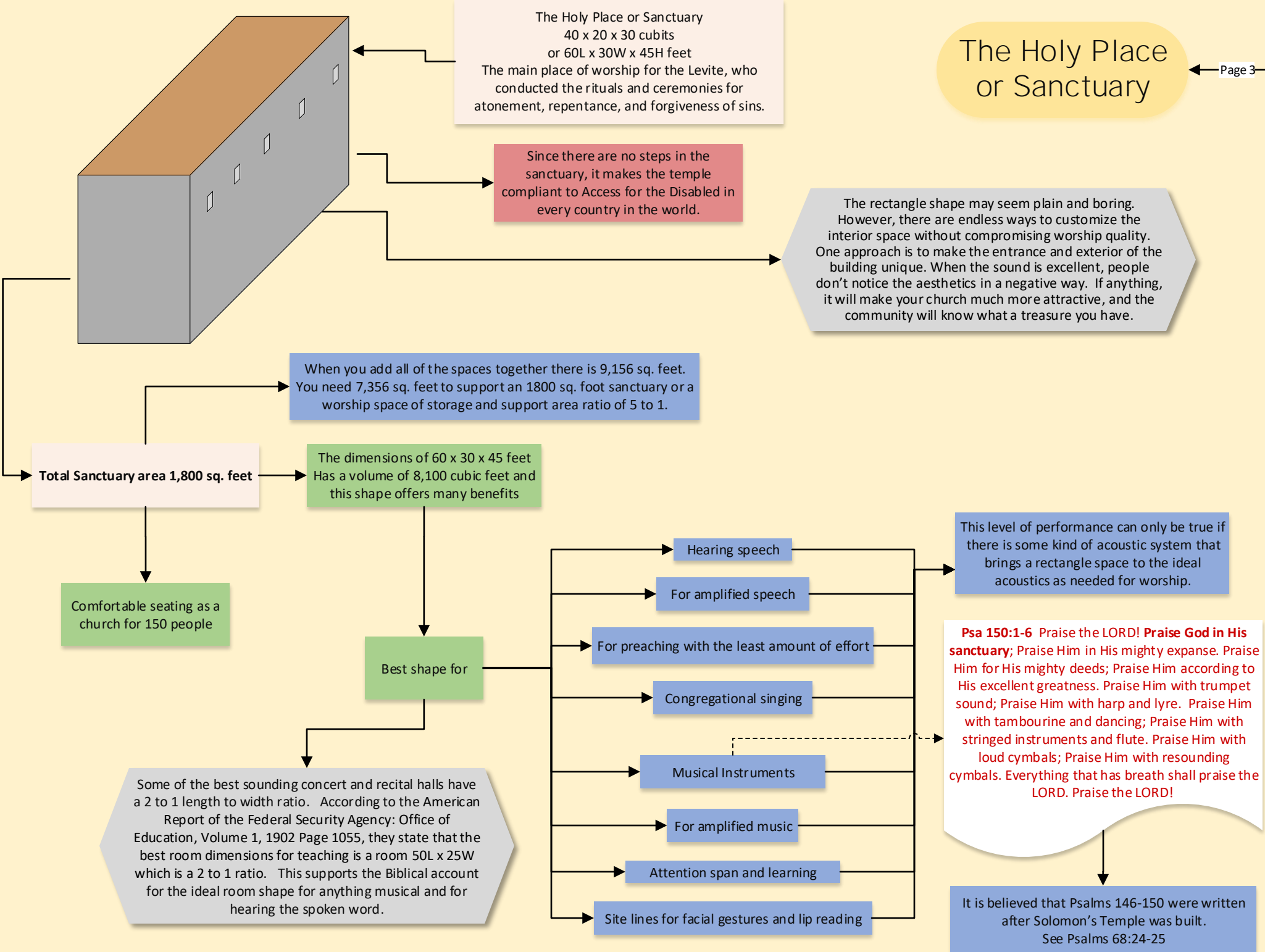
Moses went into the Tabernacle (before it was called that.) and heard God speaking to him from the mercy seat on top of the Ark of the Covenant.
Num 7:89 "Now when Moses went into the tent of meeting to speak with Him, he heard the voice speaking to him from above the mercy seat that was on the ark of the testimony, from between the two cherubim, so He spoke to him."
Moses heard an audible voice. He did not hear a telepathic voice in his head or see a vision. He could tell that the voice he heard came from the mercy seat.

This event established the frame work to hear clear speech in the holy of holies at a distance.

Without some sort of acoustic treatment in the Holy of Holies, there would have been no way to understand any audible words from the Ark of the Covenant greater than 4 feet from the Ark. In 2 Samuel 6:6-7, when a person touched the Ark, he died. How close a priest could get to the Ark safely is not known but it may have been close enough to cast the blood of the sin offering, but not any closer.

The items that most likely offered acoustical help would have been the two cherub statues with their massive open wings and the carvings on the walls using diffusion as the principal method of managing sound in a highly reflective room. Additional help would have come from the veil when the door to the Holy of Holies is open. There is no agreement if there was a door to the Holy of Holies.

The Holy Place or Sanctuary



Building Materials Part 1



Linen and cloth

For the Veil which was 45H x 30W feet
and 4 to 6 inches thick
See Exodus 26 for details.

One possible source of the materials used for the veil could have been from the linen that was for the court yard which was made up of 450L x 8W feet. A total of 3600 sq. feet. This could make up 3 layers of the veil.

The finished veil was believed to be 4 inches thick or thicker. The veil provided enough absorption to hear speech and the type of music performed in the temple 3500 years ago.

Trivia. The veil at 2 inches would have weighed 11 tons. At 4 inches thick would have weighed about 22 tons or 45,230 pounds. At 6 inches thick, the weight would have been around 33 tons, or 67,840 pounds.

If you were to divide any of the thicknesses of the veil into two equal layers, it would provide the acoustical signature of a room being half full when it is empty. That is the ideal condition for any modern church in terms of absorption.

Quarry Stone

Stones were cut, shaped,
assembled at the quarry, then
shipped to the temple site.

1Ki 6:7 And the house, when it was in building,
was built of stone made ready before it was
brought thither: so that there was neither
hammer nor axe nor any tool of iron heard in the
house, while it was in building.

This was a prefabricated structure
assembled like Lego Blocks.

The idea of not making sound with tools on
the site is perhaps the first time safety was
part of the construction. With tools making
noise, it would make communication
difficult for everyone to hear.

Could the limited tools have been to prevent
blemishes to the stone? Any on site deaths or
injuries would have stained the stone
permanently. Would the spilling blood on the
site of the temple been an issue? Could this
have been a declaration of what is a Holy
Place or Holy Ground?

1Ki 6:4 And for the house he
made windows of narrow lights.

These windows were
above the chamber levels
or about 30 to 35 feet high

The high windows would have provided
convection cooling without creating too
many wind currents to keep the oil
lamps burning without creating soot.

With the windows being so high, this
made the Holy Place a room where no
outside distraction could interfere with
whatever was happening.

Metal
Gold, Bronze, Brass and Silver

Bronze or Brass

Gold

Two bronze Pillars at the entrance to the temple. 1 kings 7:15

Walls and floors are covered in gold.
Most likely all in gold leaf. Thicker
on the floor than the walls.

The pillars were 27 feet tall with a circumference of 18 feet or
a diameter of 6 feet.
(Many drawings of the temple show the pillars as being taller,
but there are no scriptures to support that.)

Gold Floor

If you were to standing in the right place between the two pillars, it would have
been easy to broadcast your voice to over 2000 people. For the annual day of
atonement, there would have been 1200 people present. This was a basic form
of amplification but effective, and it was included in the design of a building.

Gold cover the Fir wood.

As part of the temple rituals, blood was sprinkled onto the floor in many places.
When in the desert, the sand would have absorbed the blood, and for any blood
left visible, all you needed to do was kick sand on it. Organisms such as bacteria
and sand creatures would consume the blood and sanitize the sand.

Fir was used to support the weight of the lamp stands,
the shewbread tables, the altar and the many times the
Levites would be walking back and forth every day.

Gold Walls

A different method to clean the temple of blood was needed.
Gold is the only surface at the time of Solomon that would not
permanently stain when blood is splattered on it.

Fir is less likely to warp or cause the gold to flake
off when exposed to water or humidity.

Gold covered cedar

The gold covered floor was easy to clean with a wet cloth from
the daily blood sacrifices sprinkled in the main sanctuary.

Although there is no specific reference for the
footwear for the Levities serving or working in the
temple, they would have needed to wear something to
protect the gold-covered floor. Cloth or soft leather
soles would have been needed to prevent bare feet
from shedding oil and sweat that could get at the
wood if there were any cracks in the gold covering.

Gold is highly reflective which allowed
for lots of light to illuminate the
sanctuary down to the floor.

The gold was a way to keep the place
sanitary to prevent illnesses.

Any soot from the burning olive oil lamps
is easy to clean with just a damp cloth.

There is no mention in the Bible of the
walls being cleaned in the temple.

Could this be an early reference to Baptism?
The Shedding of the blood sacrifice was the action of removing sin.
The water would be to wash or carry the sins away.

The floors were covered in Gold last.
1 Kings 6:30

Building Materials Part 2b

Metal
Gold, Bronze,
Brass and Silver

Gold

There were 10 gold tables
for the shewbread

Gold Altar

Gold covered Cherubs
over olive wood which
is very dense and stable
for the Holy of Holies.

Used for lighting as lamp
stand holders

There were 10 lamp stands
with 7 lamps on each holder.
Total of 70 lamps.

Five Of the Lampstands per side were close to the
outside walls along the length of the room.

It seems that candles as we know
them in modern times did not appear
in the middle east until after
Solomon's Temple was built.
Therefore the translation of the word
menôrâh could not refer to as candles
but as lampstands as detailed in
Exodus 27:20

Each olive oil lamp could put out around 70 to 100 lumen
depending on configuration. Therefore with 70 lamps, you
could get from 4,900 to 7000 lumen. Adding golden
flower shaped reflectors around each lamp wick and you
can increase the illumination 35 to 50%. With the lamp
stands close to the gold covered walls, the light is
amplified more.

Olive oil does not produce soot if pure.
Burning olive oil is environmentally friendly.

From 1830's to 1920's many churches used natural gas to light up
their buildings. A poorly adjusted gas lamp creates soot. There are
many older churches in large cities where you can see abandoned gas
pipes poking out in remote places in sanctuaries.



Building Materials Part 3

Wood
Cedar, Fir, and olive

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The wood on the floor and walls would have been cut into planks about 6 inches thick.



Cedar was used on the walls

Cedar is a soft, light weight wood which makes it ideal for lining tall 45 high interior walls. Easy to carve. In ancient times, cedar wood was especially desirable for its aromatic qualities as well as its resistance to decay and bugs.

Fir Or Juniper was used on the floors

1Ki 6:29 And he carved all the walls of the house round about with carved figures of cherubims and palm trees and open flowers, within and without.

How does such trivial knowledge about wall carvings survive unless it had a future purpose?

Fir Or Juniper wood is medium-weight and harder than cedar. It is low in shrinkage and stable. It is strong and elastic. Resistant against fungal and insect infestation. Good natural durability.

Various Biblical scholars suggest that the Cherubims may refer to guardians of the faith. Open flowers may refer to new life. No Biblical scholars can link anything spiritual to the Palm tree at the time the temple was built.

Carvings of Cherubims, Open Flowers and Palm Trees then covered in gold.

Cedar covered in gold is very stable to support the gold over time.

These carvings were completed after the installation of the two cherubs in the Holy of Holies.

These carvings were applied to all of the walls in the Holy of Holies and the Holy Place or sanctuary. They were also carved on all of the doors on both sides.

Why are there Palm Trees in Solomon's Temple?

It has been suggested that the shape of the palm tree has tremendous acoustical properties that manages the acoustics of the temple along with the Veil. Without these items, the reverberation would have been too long to understand speech beyond 5 feet.

- To test the idea, get enough half-round tubes to line the inside of a 300 seat rectangle shape church that already has carpeted floors and padded seating in a room that was 45W x 80L x 30H feet.
- Have enough 12 foot long tubes spaced 5-15 inches apart, leaned against all of the walls.
- Since the wood walls in Solomon's Temple are about 6 inches thick, the deepest carving without compromising the structure of the wood planks, the depth of the half-round shape can only be 4 inches or equivalent to an 8 inch half round.

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Building Materials Part 3a

Wood
Cedar, Fir, and olive

Olive Wood

Olive wood was for the two Cherubs in the Holy of Holies and all of the doors in the temple.

Cherubs

The two Cherubs were 15 feet tall and with wing spans of 15 feet. The wing tips touched the inside walls from end to end.

The two cherubs were covered in gold after they were installed in the Holy of Holies

Doors

The doors had carvings of palm trees, open flowers and cherubs on both sides and then covered in gold leaf.
1 King 6:32, 35.

Olive wood, in this case being heavy, durable, and dense, is ideally suited for Gold to adhere to, in covering both sides of the doors.
The hinges were made of Gold. This does seem out of place, considering the weight of the doors, but it seems that olive oil is a great lubricant for Gold.



Under the Magnifying Glass

SOLOMON'S TEMPLE

Part 2

Most existing churches have good management for health, environmental controls, sanitation, lighting, and access. Where most churches fail the highest, is in acoustics and sound. The impact sound and acoustics has on churches is huge. It has influenced and shaped how churches have been able to worship ever since Christians first took over pagan temples after Christianity became the religion of the Roman Empire 313AD.

In the last 100 years, technology was thought to be the promise to solve all the sound problems previous churches had been struggling with. Apart from getting better speech, the second most demanded solution was and is, is for better congregational singing. Technology, even with electronic reverberation systems, has not been able to give churches the required level of the congregational singing they need. The acoustical plan found in Solomon's Temple does solve that problem every time it is implemented properly, it improves speech, and it increases the performance levels of all sound systems.

The following is an example of what happens when the acoustical portion of Solomon's Temple is applied to an existing church. It follows the before and after of a church that was designed and built with good intentions.

Part 2

Flow Chart Format

For church boards, church leaders,
audio teams, and acoustical experts



Example 1 of a Church without acoustic sound management



Worship space 53 x 53.
Square room with pulpit in the corner.
Seating capacity 250
Carpet covered concrete floor, padded seating
14 ft wood framed insulated drywall walls
22 ft to peak of ceiling

Church With **NO** Diffusers
on the walls

A way to define a church without an acoustical
management system for the worship space is
as an incomplete or a broken worship space.

Here is an example of the of a church before upgrading their acoustics as recommended in the Bible. The sound system was not upgraded.

Documented were the results with and without the
tubes, and sound system being used.

The recipe of the palm tree shape, combined with the veil would have
allowed for both speech and music to be performed at the highest
level, even for modern churches today.

The ideal acoustic signature of a church is a room that sounds like it is 50%
occupied when empty with a flat frequency response from 50 to 6,000 Hertz.

Example of a Church without acoustic sound management

The sound system in any design or configuration could not eliminate or fill in the hotspots and deadspots.

Many deadspots and hotspots

The sound system offered 28 feet of distance for clear speech.

Speech clarity of two people talking was impossible for many people beyond 20 feet

The sound system could not do anything to improve congregational singing.

Congregational singing was never good. It was rare to get more than 30% of the congregation singing on any Sunday.

The sound system could do nothing to improve clear sound beyond 28 feet

There were side to side and front to back standing waves and excess bass in the corners which muddies speech intelligibility beyond 20 feet.

Some of the churches of other shapes and size had replaced their sound systems more than 4 times without making any meaningful improvements.

The piano and organ never sounded good and they always drowned out congregational singing.

Most modern churches have a signal to noise ratio between 6 to 15dB. Churches need 20dB. The sound system can not change the signal to noise ratio of any room.

The signal to noise ratio of the room was 12dB

Any sound system in such a room can do little to improve anything significantly other than making everything louder. Speech does improve by 6% compared to the sound system being off, but not enough for the average person hearing enough to meet minimum speech intelligibility requirements.

The frequency response of the room had too much energy below 1000 Hertz and it was worse in the 300 to 800 Hertz range.

The room reverberation interfered with speech at all times regardless if it was amplified or not.

People will feel like they are singing alone. They could not hear any of the other people around when singing. Whenever a person stops singing, they could only hear one to three others.

To get that slight sound system improvement, everyone had to have a microphone within 8 inches of their mouth at all times or they were not heard without sound system feedback.

People cleared out of the sanctuary with 10 minutes after worship. Conversations in the foyer and parking lot lasted longer.

Church With **NO** Diffusers on the walls

Example 1 of a Church with Biblical sound management



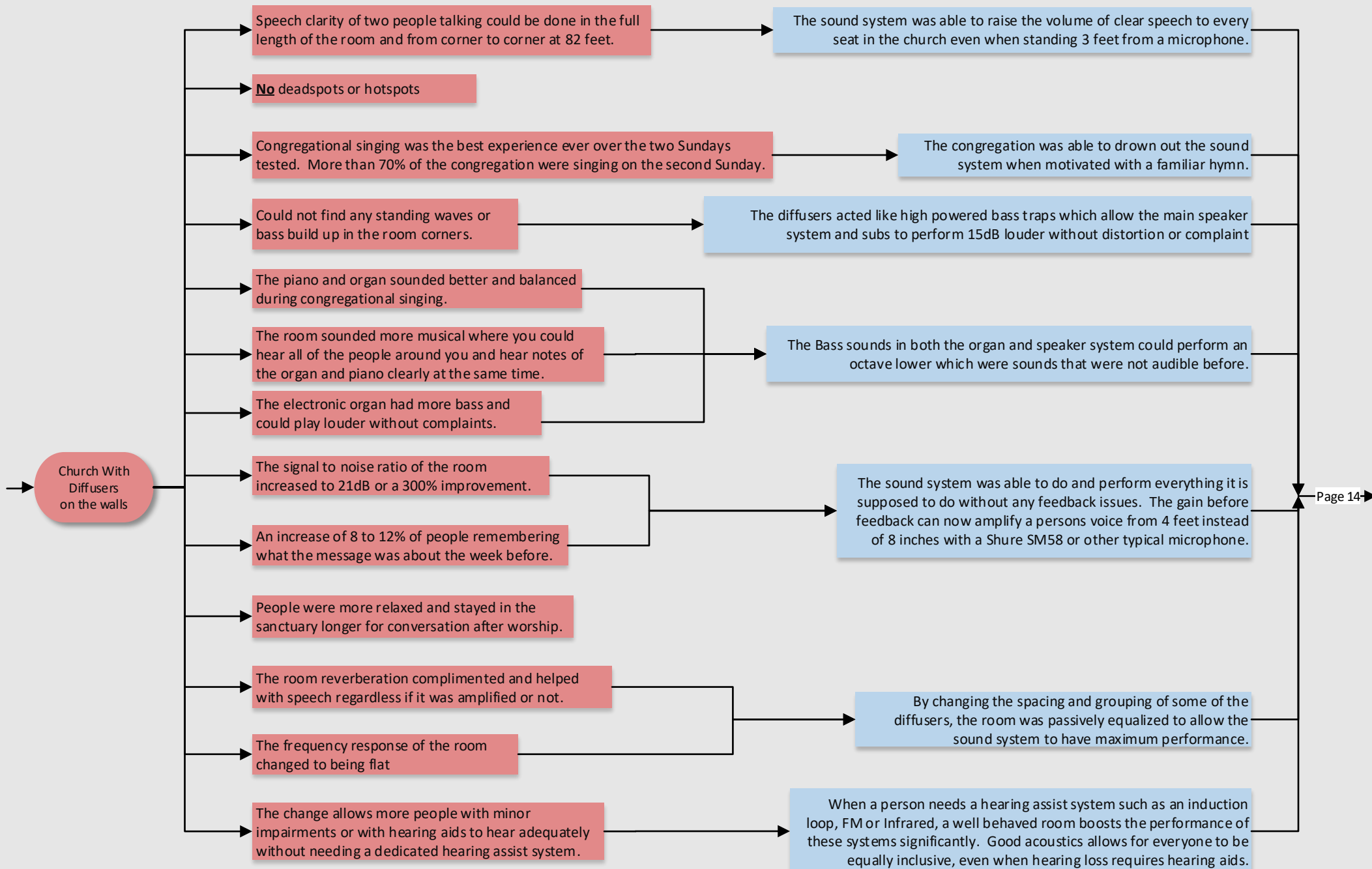
The Same Church

Worship space 53 x 53.
Square room with pulpit in the corner.
Seating capacity 250
Carpet covered concrete floor, padded seating
14 ft wood framed insulated drywall walls
22 ft to peak of ceiling

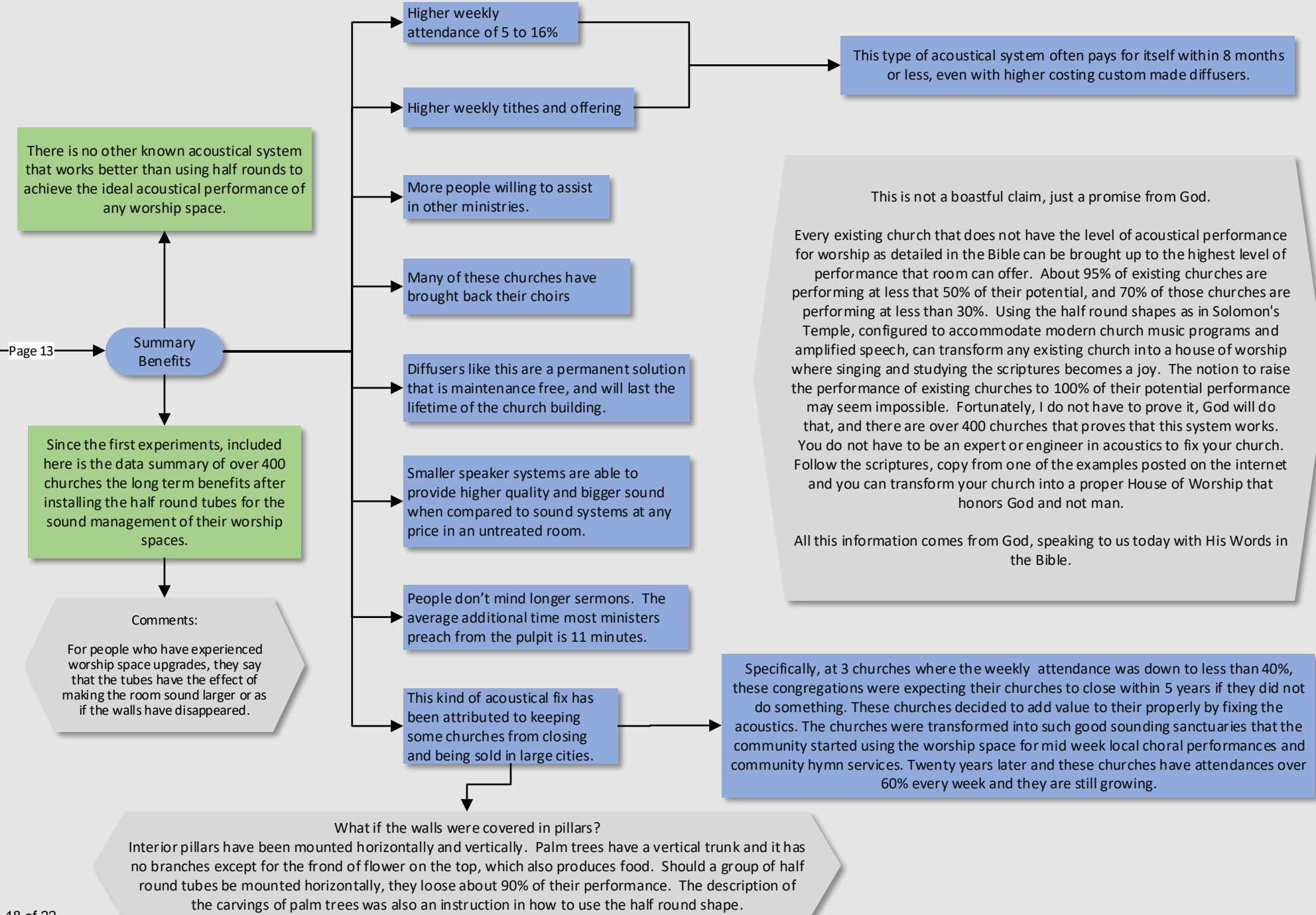
**Church With Palm Tree
like diffusers on the walls**

This was a DIY project
The Acoustics solution for this church was to add 8 inch half rounds purchased from a local construction supply box store.
The church purchased 50 cardboard tubes without the interior wax coating to comply with fire code.
The total installation was 100 units of 8 foot half round tubes.
The installation was completed by 3 people in 30 hours.
Cost of the completed installation was less than \$1,600.00

Example 1 of a Church with Biblical sound management



Example of a Church with proper acoustic sound management Part 2



Summary of Solomon's Temple Benefits

- It seems that the overall design of the temple is to create the ultimate learning and worship conditions for the servants of God, and later the followers of Christ.
- The design seems to be purposely planned for the least amount of distractions to help people to be more focused on God and Jesus while everyone is gathered in the sanctuary.
- These dimension ratio's with the wall carvings create the best space for teaching, learning, hearing, and preaching of the gospel.
- These same details make the sanctuary compatible with hearing aids, people with early stages of hearing loss and for lip-reading.
- The dimensions with wall carvings also create the ideal space for congregational or communal singing.
- These dimensions with wall carvings are ideal for professional quality performances for music and speech.
- The overall building design includes the right balance for additional space for storage, offices, and other rooms.
- The design of the building included economical heating and cooling, soundproofing, and safety.
- It seems that the main purpose of the gold contributed towards lighting, sanitation, health and low maintenance.
- The method of construction was about creating a higher quality building, added structural stability, and ease of construction.
- Safety measures were used to prevent deaths by keeping onsite noise down.
- The use of olive oil lamps was a statement of being environmentally responsible.
- The sanctuary had no steps, making the area wheelchair accessible.

These are the standards which are lacking in most of today's new and existing churches.

Researched by Joseph De Buglio 1995-2021

Comments:

All of the information presented here is based on the Bible, facts, evidence, and research. What you or I believe is irrelevant. Many times, in my Christian walk, I have been taught to obey the word of God and do what God asks of us. God guides King David's hand in the temple's design, and included in the details, the instructions are for Solomon to carve out palm trees on all of the walls. I tried it, and it worked. The results keep amazing everyone else who tries it. When applying the palm tree shapes to existing churches with similar dimensions as Solomon's Temple, the transformations are always superb. Every other room shape is improved substantially as well. After 25 years of studying the temple and the acoustics, every part other of the temple becomes relevant to the church community today.

Everything about Solomon's Temple points to a building that supports the example of how Jesus changed the world. The building design and aesthetics points to church worship. It begins with:

- placing the highest importance to the reading of Scriptures, **Luke 4:16**
- Giving sermons, teachings and parables to the multitude. **Luke 6:17-20, Matthew 7:28, 13:34**
- the explanation of the scriptures in sermons and teaching, (Q & A) **Mark 4:10, Matthew 5:1, 13:10, 13:26**
- the focus on hearing God's Word and message, **Matthew 13:2, Luke 6:17-18**
- and the praises to God through congregational singing to celebrate God's teaching. **Matthew 17:26-30, Mark 14:22-26**

These are some of the examples of what the followers of Jesus saw Him do, and recorded by eye witnesses of Jesus and His disciples.

It was the custom of Jesus to read the scriptures every Sabbath day. Following the reading of scripture came the sermon, or teaching of what was read. After Jesus finished His teachings, the Pharisees, his disciples, and ordinary people came to Jesus with questions almost every time. When the crowds were large, Jesus would place himself in a location where everyone could hear him. Jesus used the natural geography to make His voice heard by everyone. The only time when it was recorded when Jesus sung a hymn was after the last supper. Until the 1820s, this was the order of worship. If we are to be followers of Christ and He is our example, why did Christians allow this order of worship to change in the 1820s?

Solomon's Temple allows all these parts of worship to be done in the most optimized way possible in the order of worship as described above. No other building can perform better than a worship space that copies the method for sound management as in the Temple Jesus designed for us.

God knew that in the future, applying modern techniques to His design, would make a church building more accessible by being affordable to more congregations because of the lower construction costs. Instead, building churches with random shapes and using secular methods of managing sound has been a failure at every level. Over time, these failed buildings have caused us to compromise worship so much that the "Biblical worship" described in the Bible is ignored, because too many people believe in this myth that it is not possible to have the right type of sound any room shape and design for worship. The carvings on the walls had a purpose, and leaving such details out causes a failed worship space. God kept those details in the Bible for a reason. When you apply modern science to Solomon's Temple, you get an amazing-sounding space.

There are many great sounding concert halls around the world. They use some of the same elements as found in the Bible, but those spaces have a different purpose. The secular community gets it. They understand how sound quality equals profitability. Likewise, why doesn't the Christian community get the connection between sound quality, quality of worship, making disciples, and higher attendance of sheep and not a place for goats?

The Recipe

The following is a recipe for new and existing churches. It is a detailed guide to knowing how much absorption, diffusion, and refection a proper worship space should have regardless of denomination and style of worship. These recommendations are based on human anatomy and science, not on symbolism, spirituality, emotionalism, or miracles. Everything a Christian church needs for the best worship experience possible is found in Solomon's Temple.

Following this recipe will allow any existing church to complete an acoustical upgrade as a "Do It Yourself (DIY)" project, without the need for professional help. In case there is a need to overcome any obstacles, there is plenty of information at the "www.churchsoundandacoustics.com" blog to assist you. Help with windows, hall ways, entrances, dormers, unusual roof details and more is all there.

For new churches, this recipe should include non distracting windows for natural lighting where people cannot see anything outside except the sky. Solomon's Temple was designed to avoid any distractions. Artwork, statues, murals, and abstract architectural features should not be in the sanctuary. Such features should be applied to the foyers or for other parts of the church building. A house of worship is not supposed to be a monument, a tourist attraction or an entertainment center. The purpose of a worship space is to disciple Christians. **Mathews 28:19, Mark 16:15, John 21:15-19.**

For the last 1700 years, church communities worldwide have been building worship spaces outside of God's plan. None of those churches have the kind of acoustics as found in Solomon's Temple, otherwise they would have been copied by others. Man has been unsuccessful in designing worship spaces that are as good as what God has already designed for us. When are we going to follow the Bible in this matter?

Absorption Ratio

- 30% of the total surface area of the room needs to be absorptive.
- For most churches, the carpet and padded seating are enough.
- For taller spaces, additional absorption high on the side walls will be needed to meet that 30% rule.
- The added absorption will be 3 to 8% of the total available wall space.

Reflection Ratio

- The amount of reflective untreated surfaces will be 52-55%
- There are to be no bare wall areas perpendicular to the stage/altar area greater than 49 sq feet where the length to width area of less than a 3:1 ratio including windows.
- Reflective areas can be combined with diffusive surfaces to maintain a balanced space.

Diffusion Ratio

- The average amount of diffusion from half rounds is 15 to 18% of the total wall space.
- The length of the tubes needs to be 2/3rds of the wall height.
- The ideal tube sizes needed are 8-, 12-, and 16-inch half rounds.
- The tube spacing, groupings, and sizes can be combined to give the room the flat frequency response it is supposed to have and to correct any acoustical irregularities of improper worship space building practices in existing spaces.
- Tube spacing centers should never be more than 23 inches apart.
- All the walls need diffusion, no exceptions.
- All side walls of the seating area needs to have diffusers at ear height when sitting down.
- The half-round tubes don't work if they are mounted horizontally.

The Ideal Reverberation Time

- Reverberation for Church Worship should never be greater than 1.6 seconds between 300 – 3000 Hertz regardless of the size of the room.
- Reverberation from 50 to 300 Hertz should never be greater than 1.4 seconds.

Frequency Response of Worship Space

- The frequency response of the room should be:
- +/- 3dB from 20 to 100 Hertz and
- +/- 5dB from 100 to 4000 Hertz and
- +/- 3dB from 4000 to 8000 Hertz and
- 6dB per octave roll-off from 8000-20000.

Under the Magnifying Glass

SOLOMON'S TEMPLE

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For references and additional Resources

www.jdbsound.com

www.churchacousticsandsoundsystems.com

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Printed by

JdB Sound Enterprises 2021
Delhi, Ontario Canada N4B 2H1

