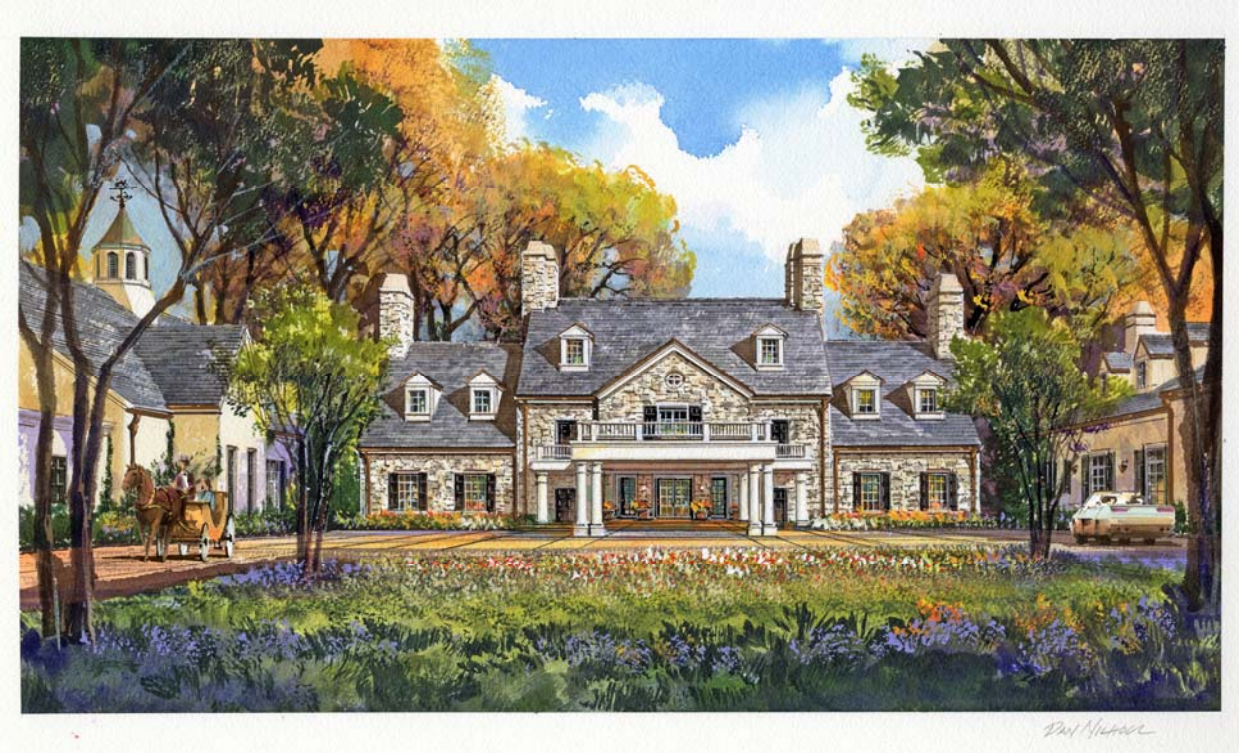
AE 481W: Penn State Architectural Engineering Senior Thesis

Salamander Hospitality Resort and Spa



Luke Renwick – Lighting/Electrical Option
AE Faculty Consultant – Dr. Kevin Houser

Technical Report 1: Lighting Existing Conditions and Design Criteria Report
October 5, 2009

Executive Summary

The following report is a graphical and detailed analysis of the existing lighting design within four spaces of the Salamander Hospitality Resort and Spa. This highly decorated building, filled with decorative and custom designed luminaires, provides guests with an overall feeling of relaxation. Of the 230,000 square feet of spa, lodging, and hospitality, this analysis focuses on four different types of spaces: an outdoor space (the main entry courtyard), a circulation space (the Living Room), a special purpose space (the Wine Bar), and a large work space (the Grand Ballroom). Within each of these spaces is an overview of the space itself, including plans, elevations, and sections; the materials and finishes used; the lighting equipment specified; design criteria and considerations; and finally an evaluation of the lighting design in each space.

Overall, as noted already, the lighting design is highly decorative and designed to achieve the feeling of relaxation. Most light sources utilize warm color temperatures to enhance this feeling. Generally, the design seems to be successful in providing lighting that enhances the interior design as well as allow specific room tasks and functions to be performed.

The IESNA recommendations for illuminance levels and lighting power density in the four spaces are exceeded for the most part, even with additional allowances for decorative lighting. However, the building has very thorough dimming plans and the numbers listed in this report demonstrate the existing lighting at full output.

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Building Information and Statistics

Located on a 340-acre site in the heart of Virginia horse and wine country, the five star, five diamond Salamander Hospitality Resort and Spa will be a luxurious and relaxing retreat for all visitors, especially those in the Washington, DC region. The exterior of the resort resembles historical Virginian horse country architecture, with a mixture of stucco and ruble stone veneer and is surrounded by rural landscaping. The interior of the resort is full of elegant spaces, such as the 30,000 square foot spa area, equestrian-themed restaurant, ballroom, wine bar, cooking studio, indoor pools, and 168 luxury guest rooms, including a 2,000 square foot Presidential Suite. All interior spaces are provided with great views out to the countryside and access to outdoor function spaces including the Stallion Barn, Pavilion at the Pond, Grand Lawn, poolside settings, and Herb Garden. Salamander Hospitality owner Sheila Johnson has been dedicated to make the Salamander Resort and Spa the pinnacle of her luxury resort and hotel enterprise.

Building Name: Salamander Hospitality Resort and Spa

Location and Site: Middleburg, VA

Building Occupant: Salamander Hospitality and resort guests

Occupancy Type: Mixed Use – Hospitality: Resort, Spa, Restaurant

Size: 230,000 sq. ft.

Stories Above Grade:
- Main Lobby, Spa Wing, Ballroom Wing – 1
- Guest Room Wing – 4 + Mechanical Equipment Penthouse

Primary Project Team:
- Owner: Salamander Hospitality – Middleburg, VA
- General Contractor: Turner Construction – New York, NY
- Architect: Architecture Inc. – Reston, VA
- Design Architect: Wimberly Allison Tong and Goo – Irvine, CA
- MEP Engineer: Vanderweil Engineers, Inc. – Alexandria, VA
- Interior Designer: Forrest Perkins – Washington, DC
- Structural Engineer: Rathgeber/Goss Associates – Rockville, MD
- Landscape Architect: Oculus – Washington, DC

Dates of Construction:
- Spring 2004 – 2007 (Davis Construction)
- October 2007 – Spring 2011 (Turner Construction)

Cost: Total building cost ≈$93,000,000

Project Delivery Method: Guaranteed Maximum Price

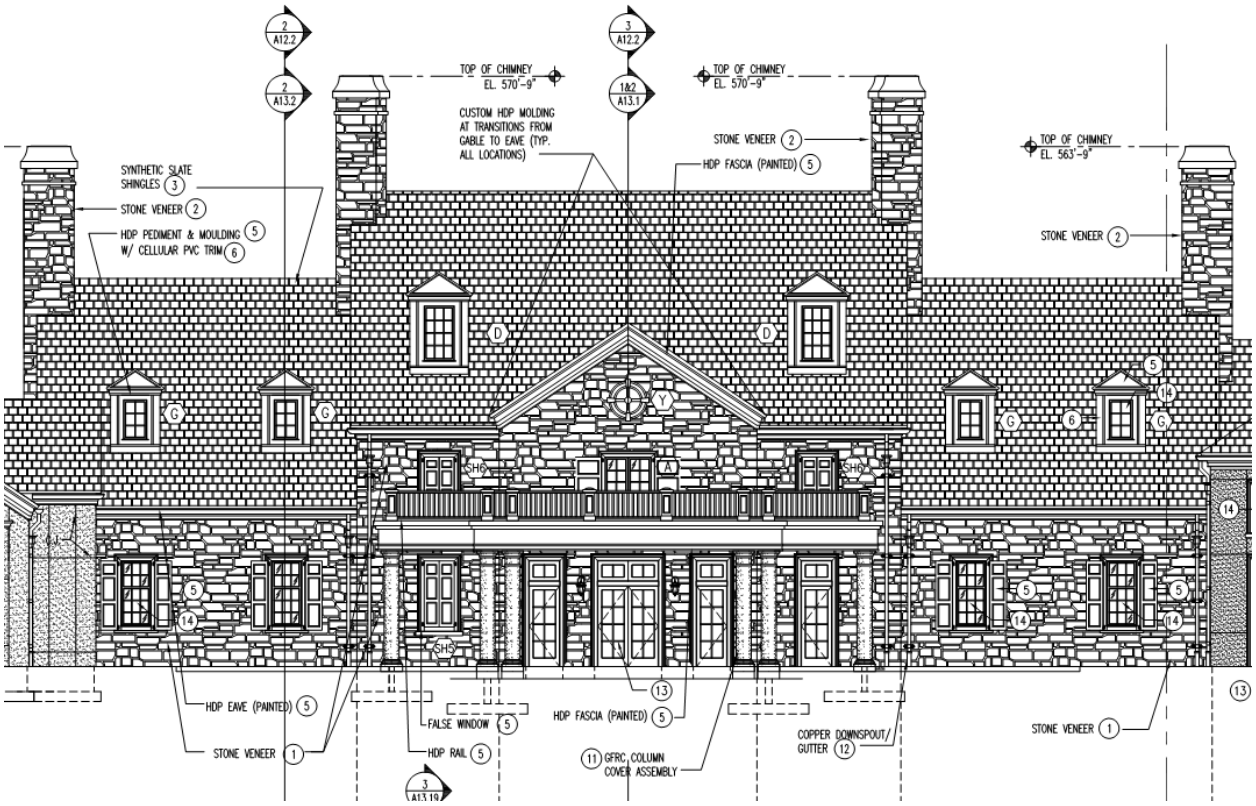
I. Main Courtyard Entrance

a. Existing Conditions:

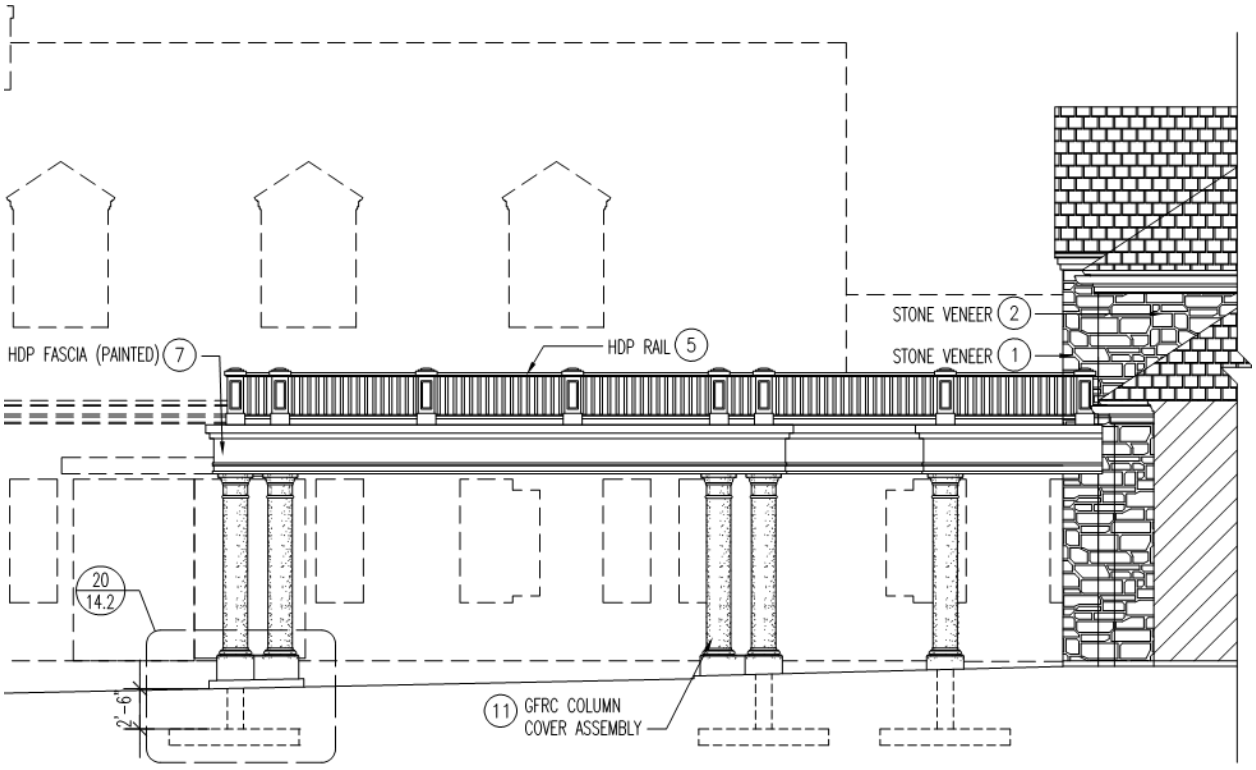
Description –
Guests of the Salamander Resort and Spa will enter the building through this main courtyard, which is bordered by the spa wing and ballroom/restaurant wing. The entrance façade is a mixture of stucco and rubble stone veneer. The stone is a mosaic pattern building stone ranging from 6 x 6 inches to 18 x 18 inches and an average thickness of 4 to 6 inches. The spa, ballroom/restaurant, and tenant room wings of the building have an exterior façade of stucco. Chimneys and dormers project out of the sloped, composite slate roof. Aluminum clad windows of double pane, clear, Low-E insulating glazing (3/4" thick) line the exterior. A main feature to this entrance is the porte cochere where guests will meet a valet to park their vehicles. The landscaping is made up of a central courtyard with bordering planter beds, benches, and three fountain features.

- **Space Category** –
  An outdoor space/building façade
- **Materials –** Stone veneer; Synthetic slate shingles; Painted HDP Mouldings; Smooth stucco

Elevation -



Porte Cochere Elevation –

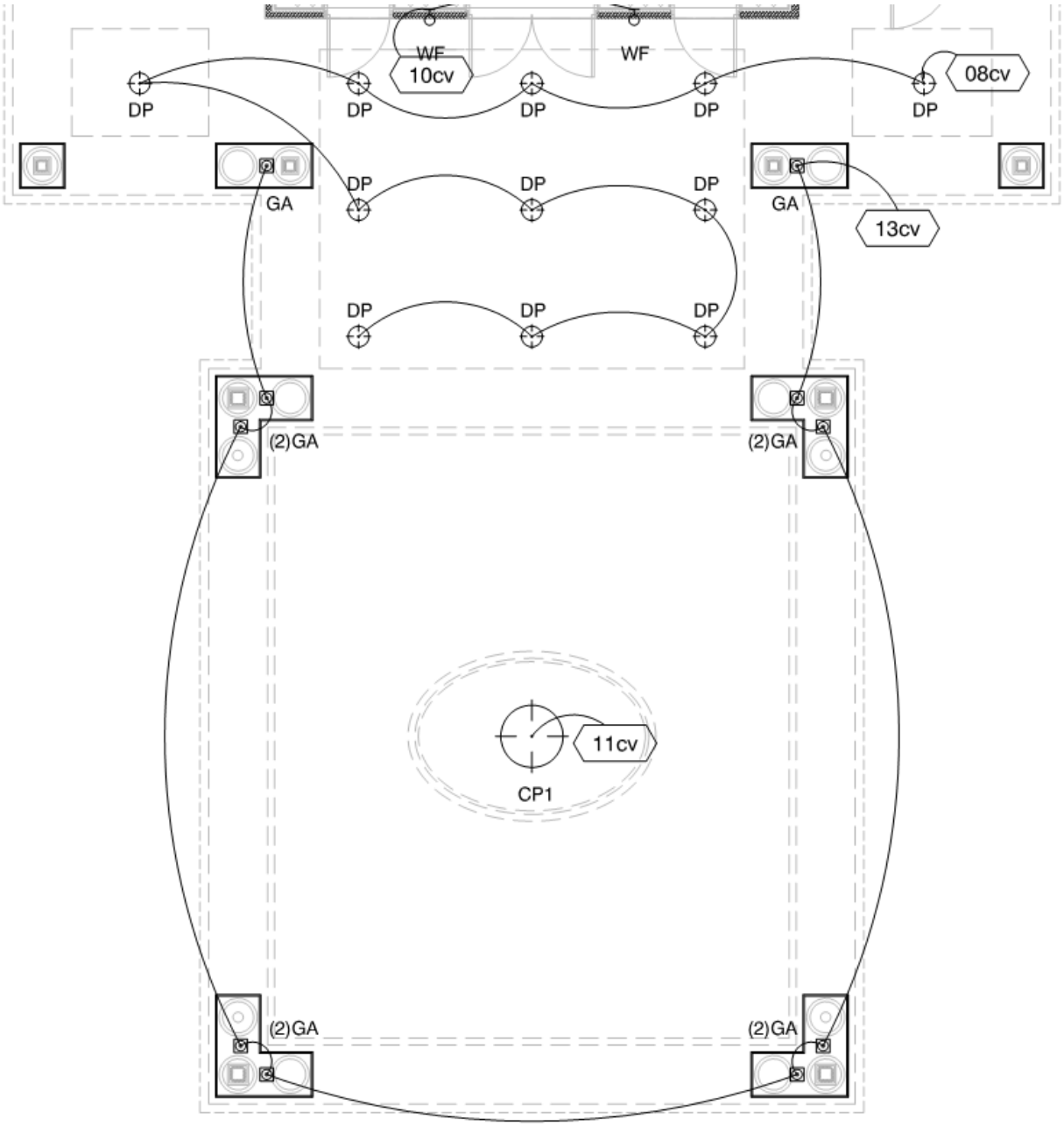


Photographs –

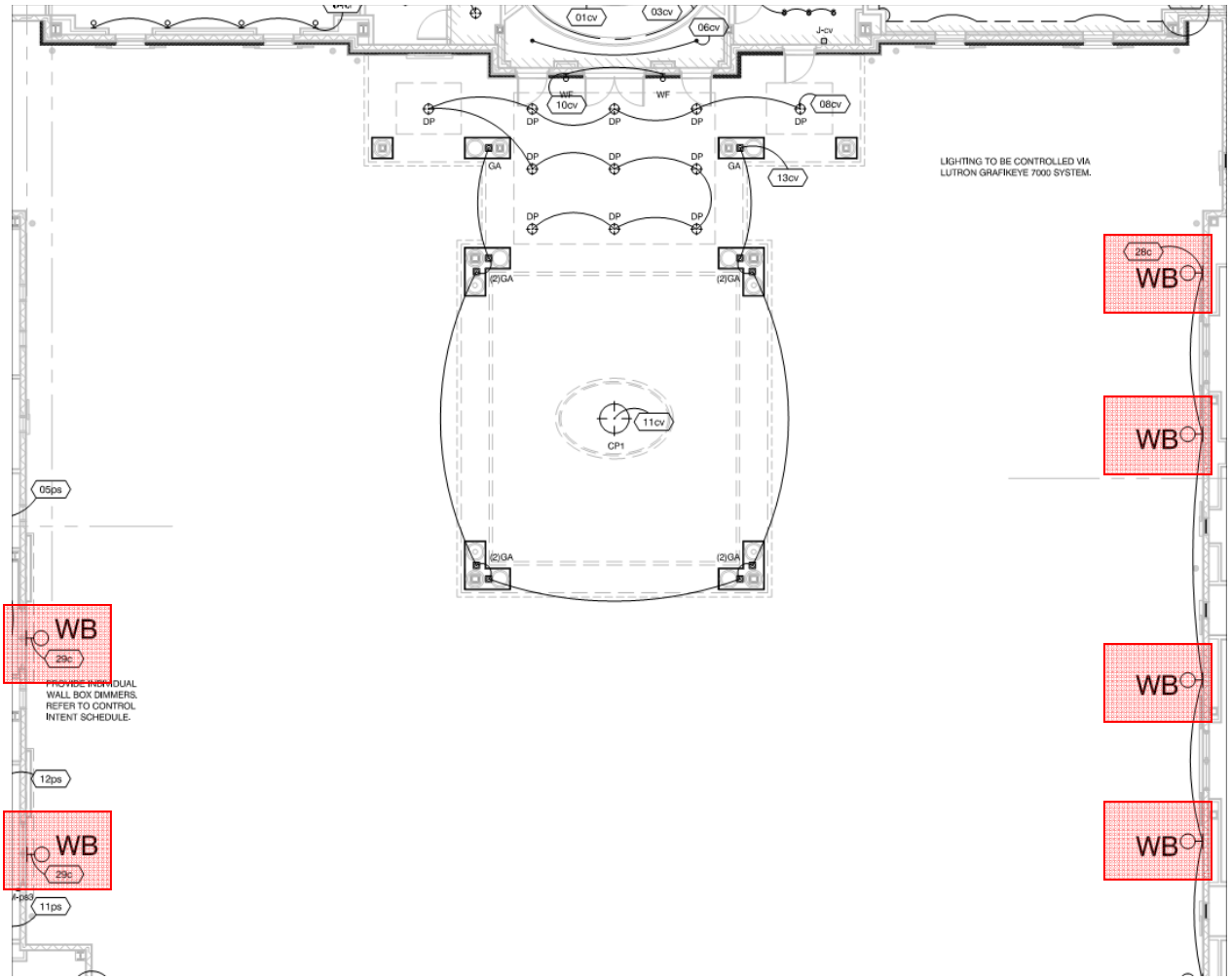

View into the entry courtyard.


Stone veneer construction.

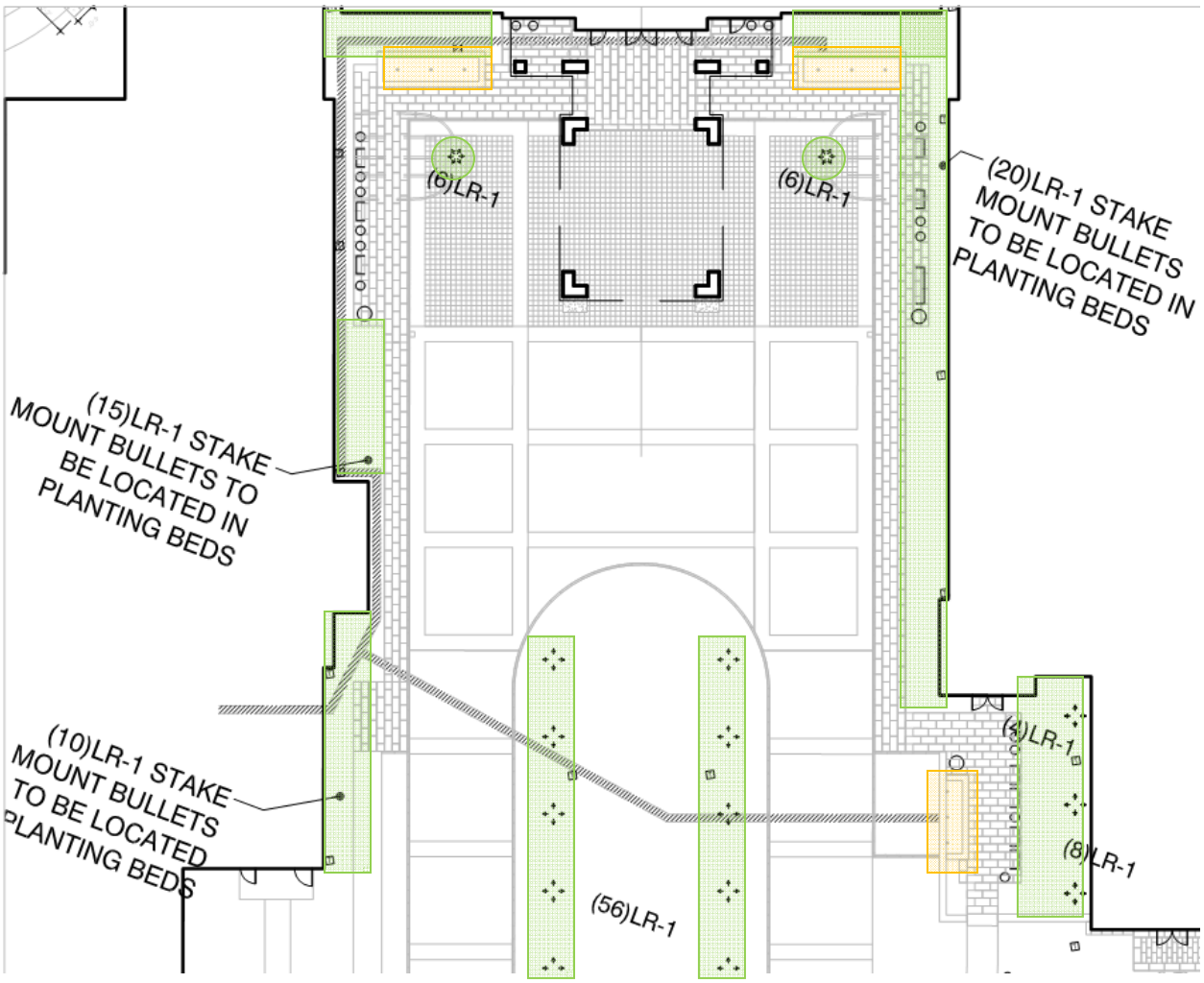
Exterior Lighting Plans:



Lighting plan of outdoor entry (under the porte cochere).



Courtyard exterior building lighting plan – wall-mounted luminaires in red areas.



Courtyard landscape lighting plan – LR-1 luminaires in green areas. Fountains with wall recessed luminaires in orange areas.

i. Lighting Equipment:

The exterior lighting for the entry courtyard consists of lighting under the porte cochere, along the walls, lining the windows of the dormers, and within the landscape. Under the porte cochere, a large decorative pendant (Type CP-1) welcomes visitors, as well as several decorative ceiling mounted luminaires (Type DP). In-ground recessed luminaires (Type GA) uplight the columns of the porte cochere. Wet-listed wall sconces with incandescent lamps line the surrounding spa and ballroom wings (Type WB) as well as on either side of the main entry doors (Type WF). An interesting feature is the use of fiber optics that outline the dormer windows (Type V11). Use of color gels is also listed. Finally, trees and other landscaping within planting beds are lighted by stake-mounted landscape luminaires (Type LR-1) while decorative water fountains are lighted underwater by wall recessed luminaires (Type XX).

Existing Lighting Equipment:

EXISTING LIGHTING IN ENTRY COURTYARD					
TYPE/SPEC #	LOCATION	MOUNTING	MANUFACTURER/CATALOG #	LAMP TYPE/WATTAGE	NOTES
CP-1	Porte cochere	Ceiling pendant	Troy Lighting		Ceiling mounted custom decorative exterior rated luminaire
DP	Porte cochere	Ceiling Surface	Custom		Ceiling mounted decorative luminaire within center of porte cochere ceiling
GA	Porte cochere	Plinth Recessed	Lumascape: LS393 293 XL*XK 23*8 HumanTouch	(1) 37MR16/IR/SP10 Tru-Aim IR by Osram Sylvania	Direct burial low voltage MR16 uplight. Lightly frosted accessory lens. Hex cell louver accessory. Double lens for "cool touch" surface. Preinstallation kit for use in concrete.
LR-1	Courtyard landscaping	Ground Semi-recessed	HeviLite: HL-360-2 LA-2 LA-1 GM-2 GL-10	(1) 37MR16/IR/SP10 Tru-Aim IR by Osram Sylvania	Stake mount low voltage MR16 bullet light. Prismatic overall spread accessory lens. Hex cell louver accessory. Angled glare shield. Conceal remote transformer(s) in adjacent landscaping. Provide in-grade, wet-listed transformer boxes.

Existing Lighting Equipment (continued):

V11	Dormers	Surface mounted to dormer windows	Super Vision SV1500-30BA-277	(1) 1500W MH	Fiber optic system for 2'W x 5'-6"H dormer window. Provide fiber optic light system length as required with SV1500 series illuminator.
WB	Spa and Ballroom wing exterior	Wall surface	Troy Lighting: B9442NB "Bristol"	(3) 60BA9C/4M by Philips. 4,000 hr lamp life	Incandescent traditional style wet listed sconce.
WF	Entry exterior	Wall surface	Steven Handelman: OL17.10WB "English Coach"	(1) 60BA9C/4M by Philips 4,000 hr lamp life	Incandescent traditional style wet listed sconce.
XX	Entry fountains	Wall recessed	BU6001	(1) 116W A21	Flush wall mounted luminaire center alligned with either jets or scuppers.

b. Lighting Design Criteria and Consideration:

- **Psychological Impression**
  - The lighting design for the exterior of the building should be welcoming. It should make those entering the resort feel welcome and comforted to enter the building and begin their stay.

- **Reinforce Architecture, Landscape, and Materials**
  - Lighting should enhance the texture of the stone veneer façade
  - The materials of Virginia horse and wine country architecture should be enhanced, even at night
  - Landscaping should be emphasized in the courtyard space

- **Visual Environment**
  - Attract guests to the main entrance of the building
  - Lead travel from roadside lighting to courtyard landscaping and to the porte cochere entrance
  - Mask the elegance of interiors to landscape and fountain features outside the building

- **Quantitative Visual Performance** (IESNA Lighting Design Guide)
  - Building Exteriors
    - Entrances – Active – Horizontal: **5 fc** on the ground; Vertical: **3 fc** on vertical surfaces
    - Prominent Structures –Horizontal: **5 fc** on the ground; Vertical: **3 fc** on vertical surfaces
  - Gardens
    - General lighting – Horizontal: 5:1 ratio; Vertical: 2:1 ratio
    - Paths– Horizontal: 10:1 ratio; Vertical: 3:1 ratio
    - Trees or Shrubbery Emphasized - Horizontal: 3 **fc** ; Vertical: **3 fc**
    - Decorative structures – Horizontal: **5 fc** ; Vertical: **3 fc**

- **Glare Issues**
  - Pedestrian walkways and seating are throughout the courtyard. The lighting must be oriented as to reduce glare for those in the courtyard – for comfort and for safety with vehicular traffic.
  - Guests driving to the porte cochere must not experience glare to ensure safety of drivers and pedestrians.
  - Windows into the entry, retail area, and adjacent wings of the building must not see direct light.

- **Controls**
  - Exterior lighting must be on a programmable timer switch or daylight sensor.

- **Power Density Allowance**
  - Energy Code Requirements - ASHRAE 90.1-2007
    - Tradable Surfaces-Building entrances and exits-Main entries: **30W/linear ft.** of door width.
    - Tradable Surfaces-Canopies and Overhangs: **1.25w/sq ft.** for attached canopies and overhangs
    - Nontradable Surfaces-Building facades: **0.2 W/sq. ft.** for each illuminated wall or suface OR **5 W/linear ft.** for each illuminated wall or surface length
  - Exterior Building Grounds Lighting - All exterior building grounds luminaires that operate at greater than 100watts shall contain lamps having minimum efficacy of 60 lm/w unless the luminaire is controlled by a motion sensor.

- **Security**
  - Provide adequate lighting for visual surveillance at front entrance.

- **Light Pollution/Sky Glow**
  - Resort is alone on a 340 acre site. Light pollution could affect those sleeping in the lodging wing.
  - Minimize non-target illumination, limit flux above horizontal.

c. Evaluation and Critique

The Salamander Resort and Spa is filled with decorative elements, and the exterior lighting is much of the same. The decorative luminaires put on display under the porte cochere are successful in setting the stage for the environment guests are about to experience inside. The lighting design is successful in creating an interest and focal point at the porte cochere. Guests are able to identify where the main entrance is within the courtyard when comparing the uplighting of the porte cochere columns and downlight from decorative luminaires at the entrance to the lower light levels from landscape lighting and distantly-space exterior wall sconces.

The landscape lighting has been specified to be flexible according to the actual plant structure within the planting beds. Uniformity of the main entry façade is mirrored in the landscape design. The landscape lighting has been applied to sustain that uniformity by highlighting trees within the courtyard. The decorative water fountains are dimly lighted underwater so as to enhance these elegant features of the courtyard.

The choice to add colored light through the fiber optics in the dormer windows seems questionable. The possibility of mixing saturated colors with the elegant decorative feeling within the courtyard expressed by white light may show inconsistency. Also, no attempt was made to display the fine stone finish of Virginian equestrian country architecture. The stucco facades of the adjacent spa and ballroom wings are lined with wall sconces; however, the vertical illuminance on the main entry façade comes only from overspill light of other features.

II. The Living Room

a. Existing Conditions

Description:
Guests enter the Salamander Resort and Spa through the main entry courtyard, pass through the entry foyer, and are welcomed into the resort by the lobby-like space, called the Living Room. The Living Room is equipped for relaxation. With fine furniture, two fireplaces, decorative chandeliers and wall sconces, and access out to an outdoor terrace, this space sets the tone for the entire resort experience. The hardwood floor is made of stained French oak, which is contrasted in its dark color to the painted "Palace White" and "Putnam Ivory" trim work as well as the white travertine stone of the two fireplaces in the room. Different pieces of furniture sit on two patterned rugs that cover about half of the floor space. The ceiling is painted Putnam ivory on the lower, curved and vaulted ceiling, while the upper rectangular ceiling is a semi-gloss latex Palace white. The walls are painted with a pale blue-green "Rhine River" color.

Area: 1938 Sq. ft.

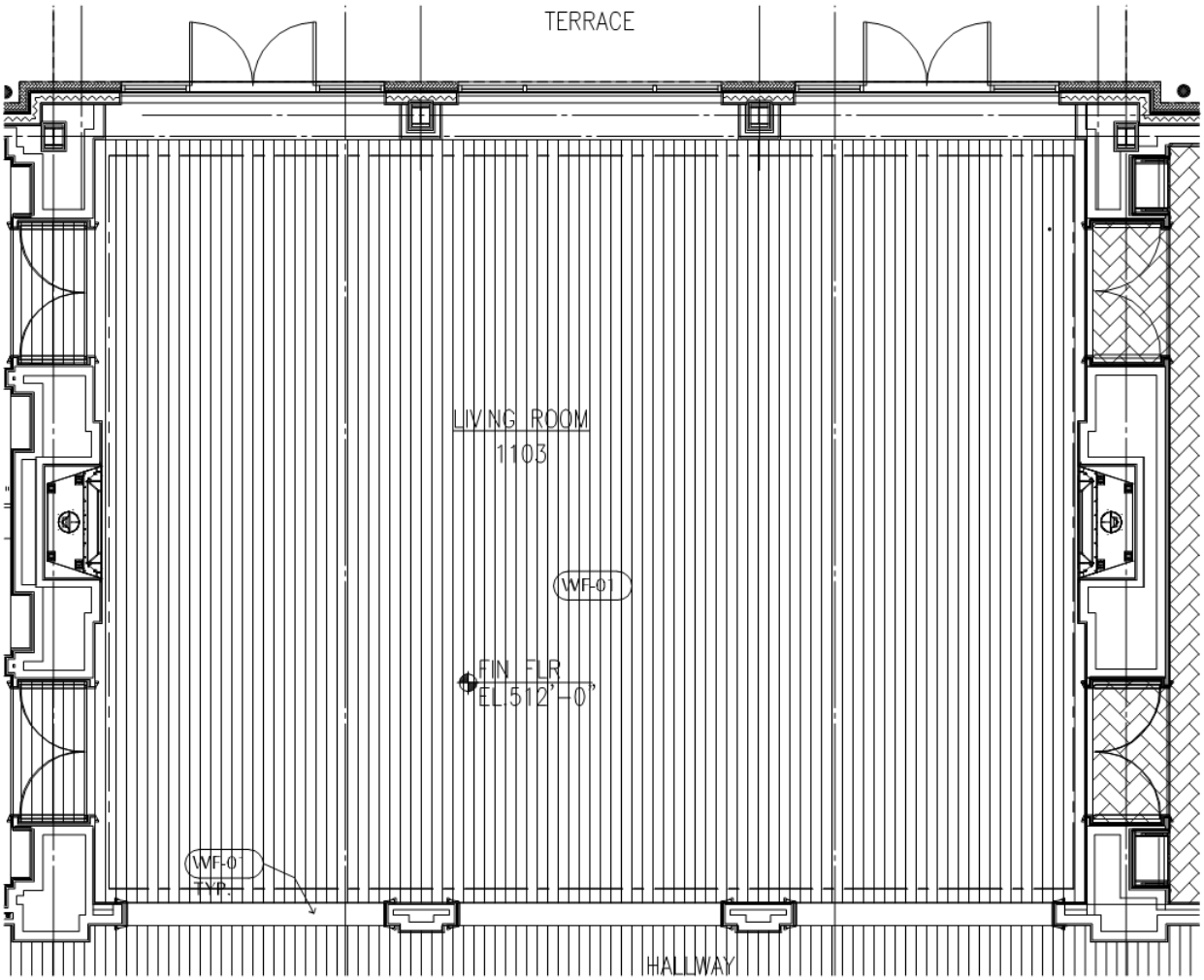
Dimension: Approximately 51'-0" x 38'-0"

Space Category:
A circulation space (lobby)

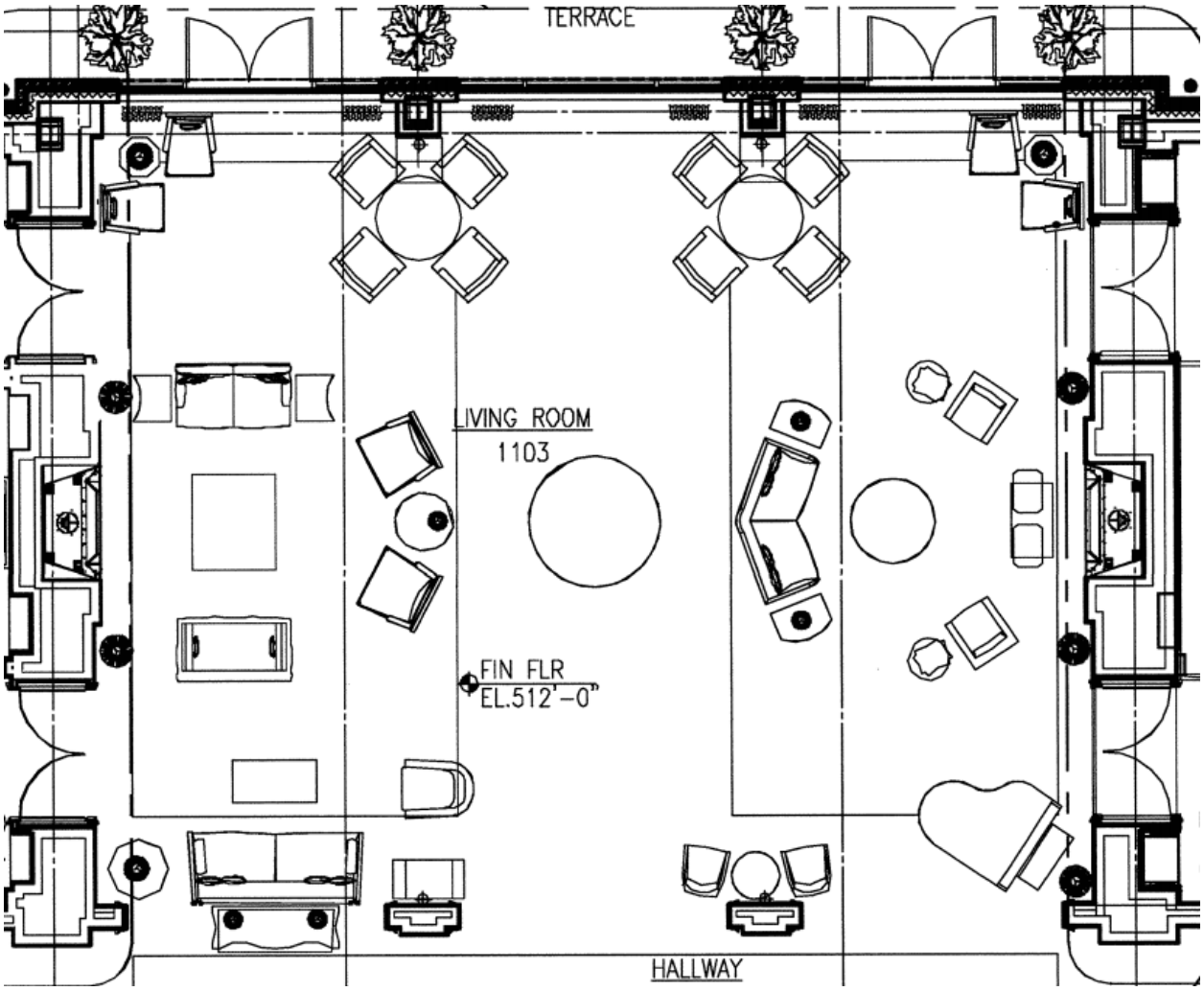
Materials:

MATERIAL/FINISH	LOCATION	OBJECT	COLOR	REFLECTANCE
French oak	Living Room	Wood floor	Bordeaux	0.3
Semi-gloss Latex Paint	Living Room	Baseboards, Door Casings, Crown Molding	Palace White	0.86
Flat Latex Paint	Living Room	Lower ceiling	Putnam Ivory	0.7
Semi-gloss Latex Paint	Living Room	Cove molding	Palace White	0.86
Eggshell Latex Paint	Living Room	Walls	Rhine River	0.7
White oak	Living Room	Doors		0.5
Flat Latex Paint	Living Room	Ceiling Coffer	Palace White	0.86

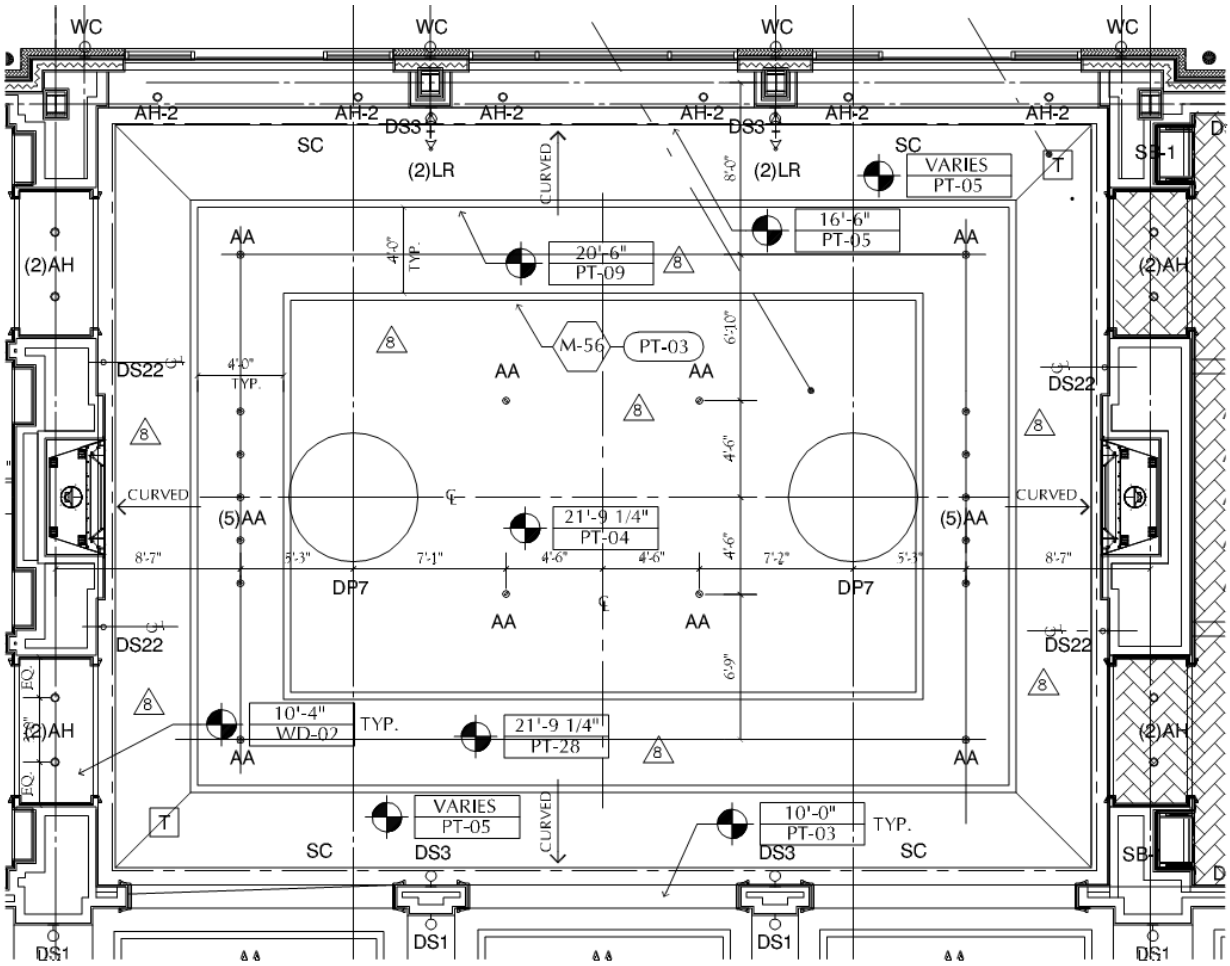
Living Room Plans –



Living Room Floor Finish Plan. The hardwood floor is Distressed French Oak.

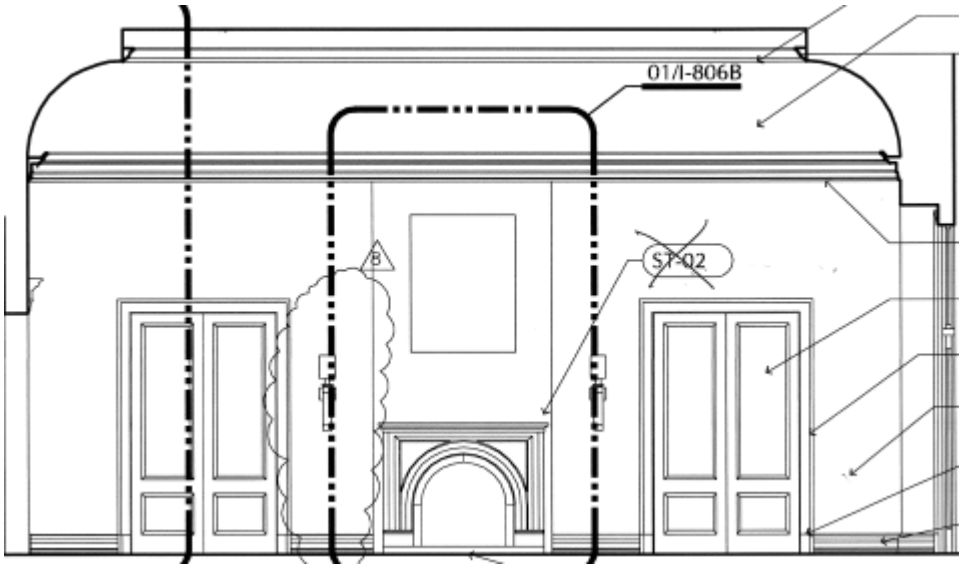


Living Room Furnishing Plan.



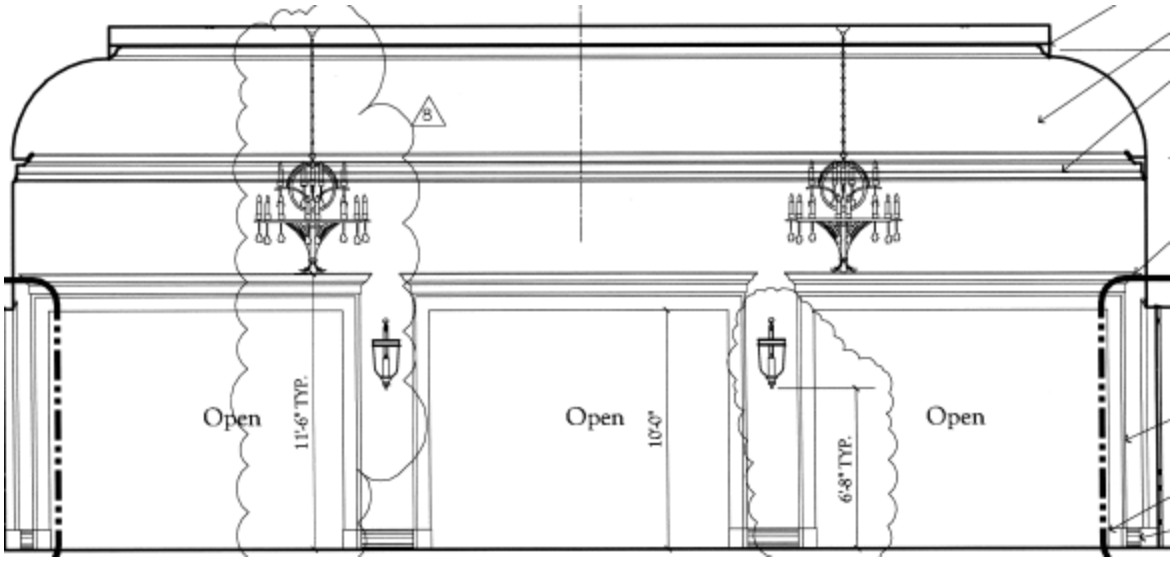
Living Room Reflected Ceiling Plan.

Living Room Interior Elevations –

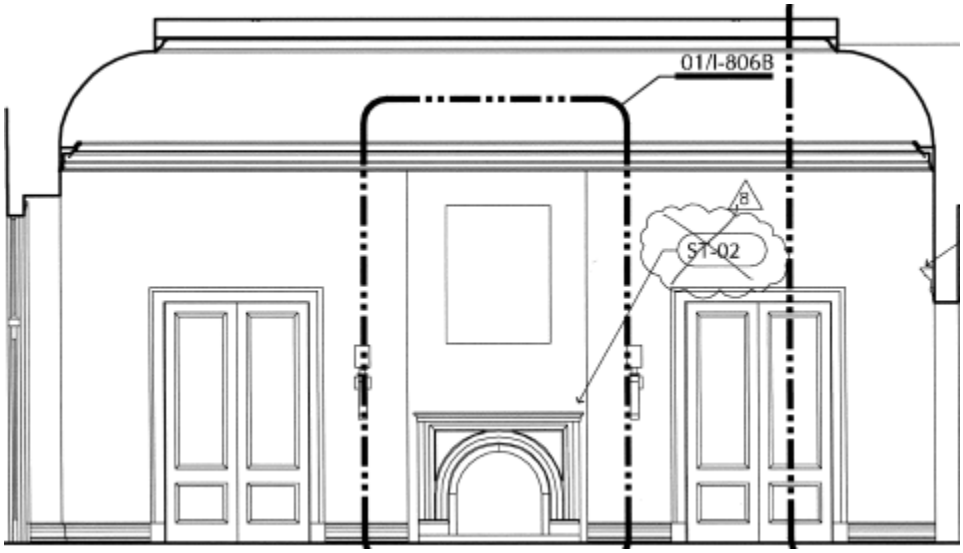


Living Room West Elevation.

Living Room North elevation. Doors lead out to an outdoor terrace.



Living Room South elevation.



Living Room East elevation.

Architectural sketch of Living Room.

i. Lighting Equipment

The existing lighting within the Living Room consists of two decorative custom designed chandeliers pendant mounted to the central ceiling, decorative custom wall sconces that line the walls and beside the fireplaces, recessed downlights that provide general lighting from the upper ceiling coffer, and cove lighting on the lower curved portion of the ceiling. Refer to the existing luminaire schedule for more details and the Reflected Ceiling Plan for specific locations of luminaires.

Existing Luminaire Schedule:

EXISTING LIGHTING IN LIVING ROOM					
TYPE/SPEC #	LOCATION	MOUNTING	MANUFACTURER/CATALOG #	LAMP TYPE/WATTAGE	NOTES
AA	Living Room - ceiling downlights	Ceiling recessed	RSA: QCT-1775WH QCT-900 LN22; MOD: 37W max. UL label	(1) 37MR16/IR/SP10 Tru-Aim IR by Osram Sylvania	Low voltage MR16 adjustable pinhole downlight. Flush ceiling trim with mud ring on housing. Locking pan and tilt. Prismatic overall spread accessory lens. Remove trim and paint to match surrounding ceiling surface.
AH-2	Living Room - ceiling	Ceiling recessed	RSA: QCT-1975WH QCT-900 frost; MOD: 37W max. UL label	(1) 37MR16/IR/SP10 Tru-Aim IR by Osram Sylvania	4" aperture low voltage MR16 open downlight. Self-flanged diffuse Alzak reflector. Lightly frosted accesory lens.
DP-7	Living Room - Decorative chandelier from ceiling	Pendant mounted	Murray's Ironworks: LF-118 Nottingham (Custom)	12x25W = 300W MAX Incandescent Candelabra (Candelabra base)	Approximate weight = 43 lbs. Supplied by OSCI. FF&E Spec. #: 100-LT-0100
DS-3	Living Room - Wall sconce	Wall mounted	Visual Comfort: CHD 2103AB - Georgian Hurricane Sconce (Custom)	1x60W MAX B-10 (Candelabra base)	Approximate weight = 20 lbs. Supplied by OSCI. FF&E Spec. #: 100-LT-0200

Existing Luminaire Schedule (continued):

DS-22	Living Room - Wall sconce at fire place	Wall mounted	Fine Art Lamps: 420550ST	1x60W MAX B-10 (Candelabra base)	Approximate weight = 10 lbs. Supplied by OSCI. FF&E Spec. #: 100-LT-0800
LR	Living Rome - plant accent luminaire	Pot semi-recessed	Hevi Lite: HL-360 BK LA-2 LA-1 GM-2 GL-10	(1) 37MR16/IR/SP10 Tru-Aim IR by Osram Sylvania	Stake mount low voltage MR16 bullet light. Prismatic overall spread accessory lens. Hex cell louver accessory. Angled glare shield. Provide 100W transformer with cord and plug to be used with adjacent outlet. Twist-lock plug.
SC	Living Room - cove	Cove surface	NSI: NL DB 2 D 2400K	Neon: Tecnolux #31 2400K "incandescent" Triphosphor tubing	Dimmable neon. Install in continuous lenghts, end-to-end, as shown in plan.

b. Lighting Design Criteria and Consideration

(*IESNA Handbook*: Interior-Hotels-Lobby-General Lighting)

- **Psychological Impressions**
  - There is no specific task for the Living Room other than a space to sit down and relax. Therefore, the impression the lighting design should strive for is relaxation.

- **Appearance of Space and Luminaires** (Important)
  - Once guests enter the resort, they pass through the entrance foyer and see the Living Room open before them. This is the first complete space they will see. The fine finishes and materials should be masked by the luminaires and enhanced by their lighting. This room sets the tone for the entire resort and spa.

- **Color Appearance (and Color Contrast)** (Important)
  - The light sources in this space should be warmer in CCT to promote relaxation. Also, the "white" painted finishes of the trim-work and ceiling are an ivory and cream-like color. The warmer color of light would complement these finishes well.
  - A use of lighting with high CRI would do justice to the high-end finishes and colors. There are dark browns in this space from the wood floor, a pale blue-green on the walls, and ivory/off-white trimming and surfaces which need to be appropriately conveyed to guests.

- **Daylighting Integration and Control** (Important)
  - Access to the outdoor terrace is made through the glass doors in the Living Room. The two doors and the equally large window between the doors will enable daylight to enter the space. The electric lighting must flexible to accommodate for this. Dimmable luminaires will be necessary.

- **Direct & Reflected Glare** (Important)
  - In order to maintain relaxation in the Living Room space, direct glare from light sources and luminaires must be prevented. Any reading that may take place in this space will require that reflected disability glare is also prevented.

- **Light Distribution on Surfaces** (Important)
  - Vertically, the lighting should be non-uniform to showcase some of the finishes and crown molding. The lower ceiling, which is curved and vaulted up and into the center of the room, could be lighted with a gradient from the cove. Horizontally, the room is divided into two halves of seating areas. The two areas may be uniformly lighted at the furniture surface level.

- **Luminances of Room Surfaces** (Important)
  - The interior design of the Living Room boasts high-end finishes that must be enhanced by lighting. The texture of the decorative trim-work and colors of the ceiling and walls must be visible to those visiting or staying at the Salamander

Resort and Spa. The lighting must facilitate visual pleasure to those in the Living Room.

- **Points of Interest** (Important)
  - The seated areas on either side of the room are the main points of interest within the space and must have adequate lighting. Light may also guide those who wish to gain access to the outdoor terrace to the glass doors. Architecturally, the lower ceiling and cove will need to be lighted and act as a point of interest.

- **Horizontal Illuminance** (Important)
  - General lighting within the Living Room requires **10 fc** for simple visual tasks.

- **Vertical Illuminance** (Not applicable)

- **Power Density Allowance:** ASHRAE 90.1 2007
  - For a Lobby in a Hotel: 1.1 W/sq. ft.
  - For a Lounge/Recreational space: 1.2 W/ft.
  - Additional interior lighting power density allowance for spaces in which lighting is specified to be installed in addition to the general lighting of the purpose of decorative appearance (chandeliers and sconces):
    - Additional lighting power shall not exceed 1.0 W/sq.ft.

c. Evaluation and Critique

The lighting within the Living Room seems to serve its purpose of setting the standard of decorative elements, elegant materials and finishes, and a mood of relaxation. The obvious choice for portraying decoration would be the two custom chandeliers and bordering decorative wall sconces. The pinhole downlights in the upper coffer ceiling add general lighting and sparkle to the ceiling.

The use of color temperature is appropriate with the downlighting and candelabra lamping of the decorative luminaires. Also, the “white” neon cove lighting luminaires utilize a CCT of 2400K. This warm feeling will create a suitable psychological effect of relaxation within the room. High CRI within the space was a very important design consideration. The use of incandescent sources will do the surfaces and material colors justice.

The placement of luminaires seems to be successful as well. The two sides of the room that have mirrored furniture plans and fireplaces are also mirrored with the lighting design. The two chandeliers seem to point out the division between the two sides, depicting the points of interest in the space.

With the potential of an extra 1.0W/sq. ft. for the entire area of the room (2.2W/sq. ft. allowable), the lighting design passes the lighting power density requirements of ASHRAE 90.1.

Lighting Power Density Data:

LIVING ROOM LPD				
TYPE/SPEC #	QUANTITY	W/LUMINAIRE	W/LINEAR FT.	TOTAL WATTS
AA	18	37	NA	666
AH-2	6	37	NA	222
DP-7	2	300	NA	600
DS-3	4	60	NA	240
DS-22	4	60	NA	240
LR	4	37	NA	148
SC	146 FT.	NA	6.5	949
			TOTAL WATTS	3065
			TOTAL SQ. FT.	1938
			LPD	1.5815 W/SQ. FT.

III. The Wine Bar

a. Existing Conditions

Description: The wine bar serves an extensive menu of small plates throughout the day and features a list of world-class wines, with an emphasis on those from Virginia's local wineries. This special space features a mixture of fine finishes, reclaimed materials, custom designed luminaires, a painted mural, and an overall relaxing experience. The floor is made of reclaimed bricks while the bar surface is reclaimed wood from a barn with imbedded artifacts. The ceiling consists of stained white oak millwork running in both directions and painted coffers (about 13'x13').

Area: 1153 Sq. ft.

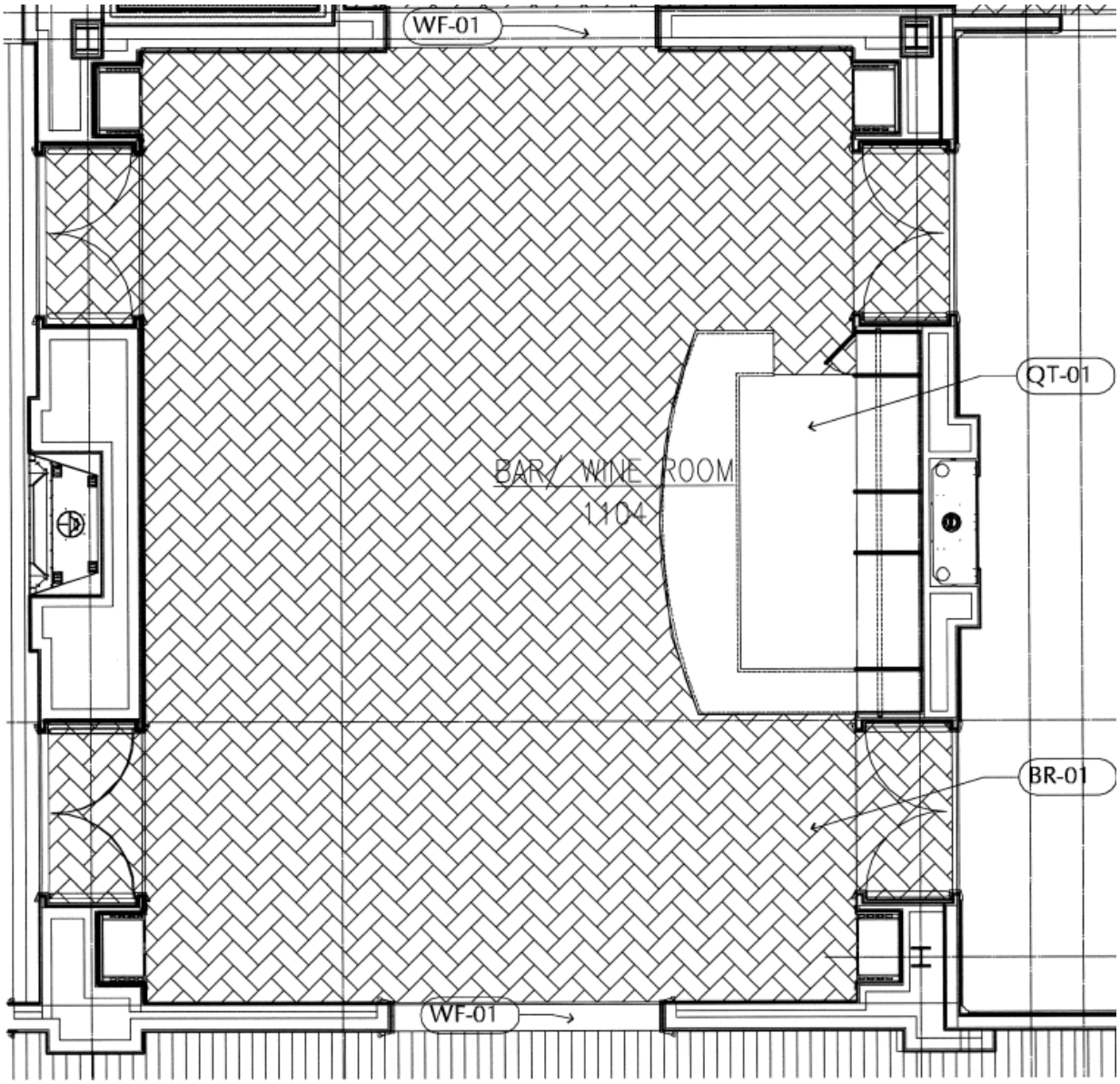
Dimension: Approximately 37'-0" x 31'-2"

Space Category:
Special Purpose Space

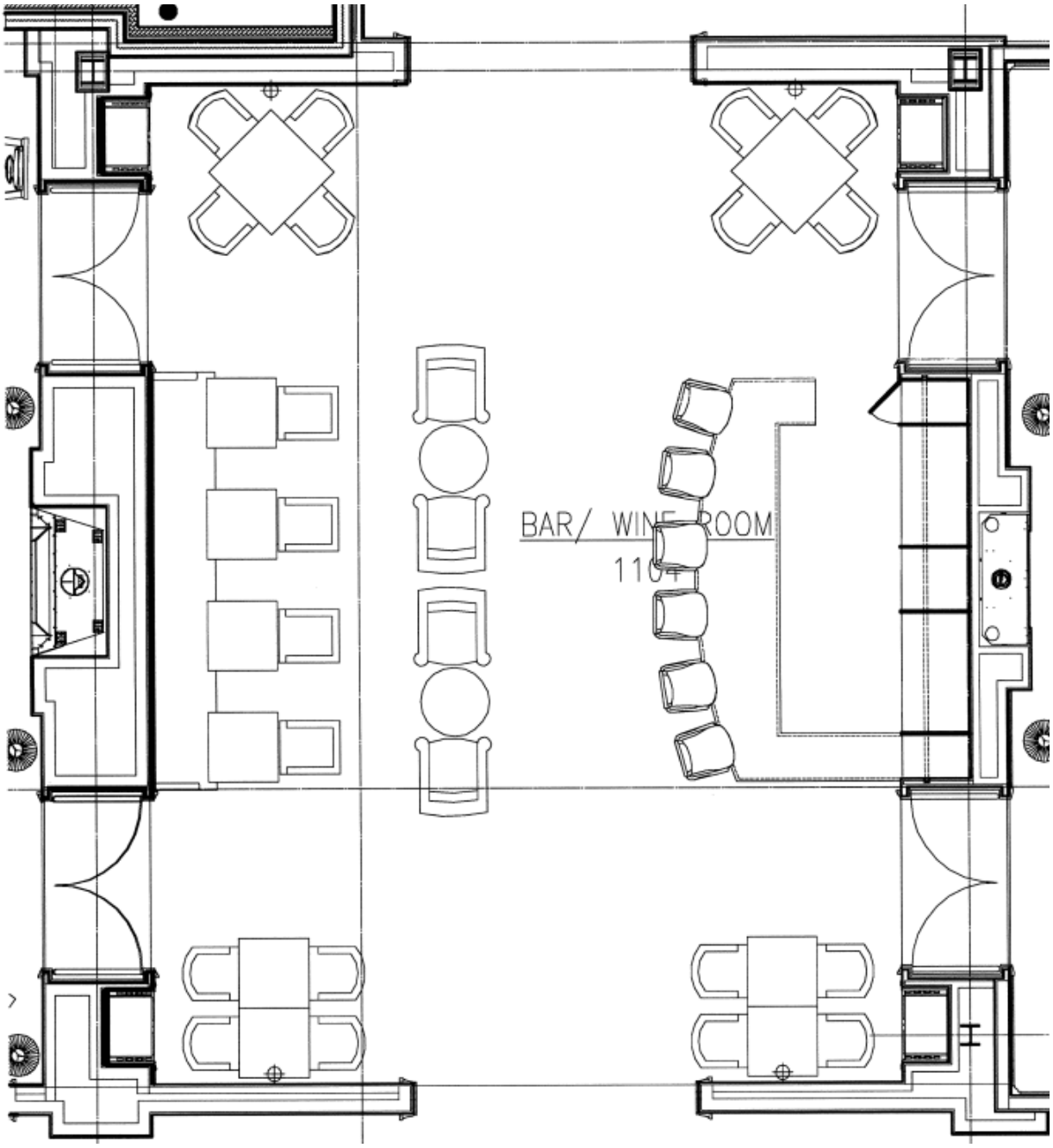
Materials:

MATERIAL/FINISH	OBJECT	COLOR	REFLECTANCE
Quarry Tile	Back bar floor	Golden Flash	0.4
Reclaimed Brick Flooring	Floor	Brick Red	0.1
Flat Latex Paint	Ceiling	Papaya	0.8
Clear Tempered Glass	Cabinet glass	(Clear)	0.86
Eggshell Latex Paint	Walls	NA (Custom Mural by Artist)	0.7
White oak	Doors, baseboards, door trim, cabinets		0.35
Reclaimed barn wood	Bar	NA	0.35

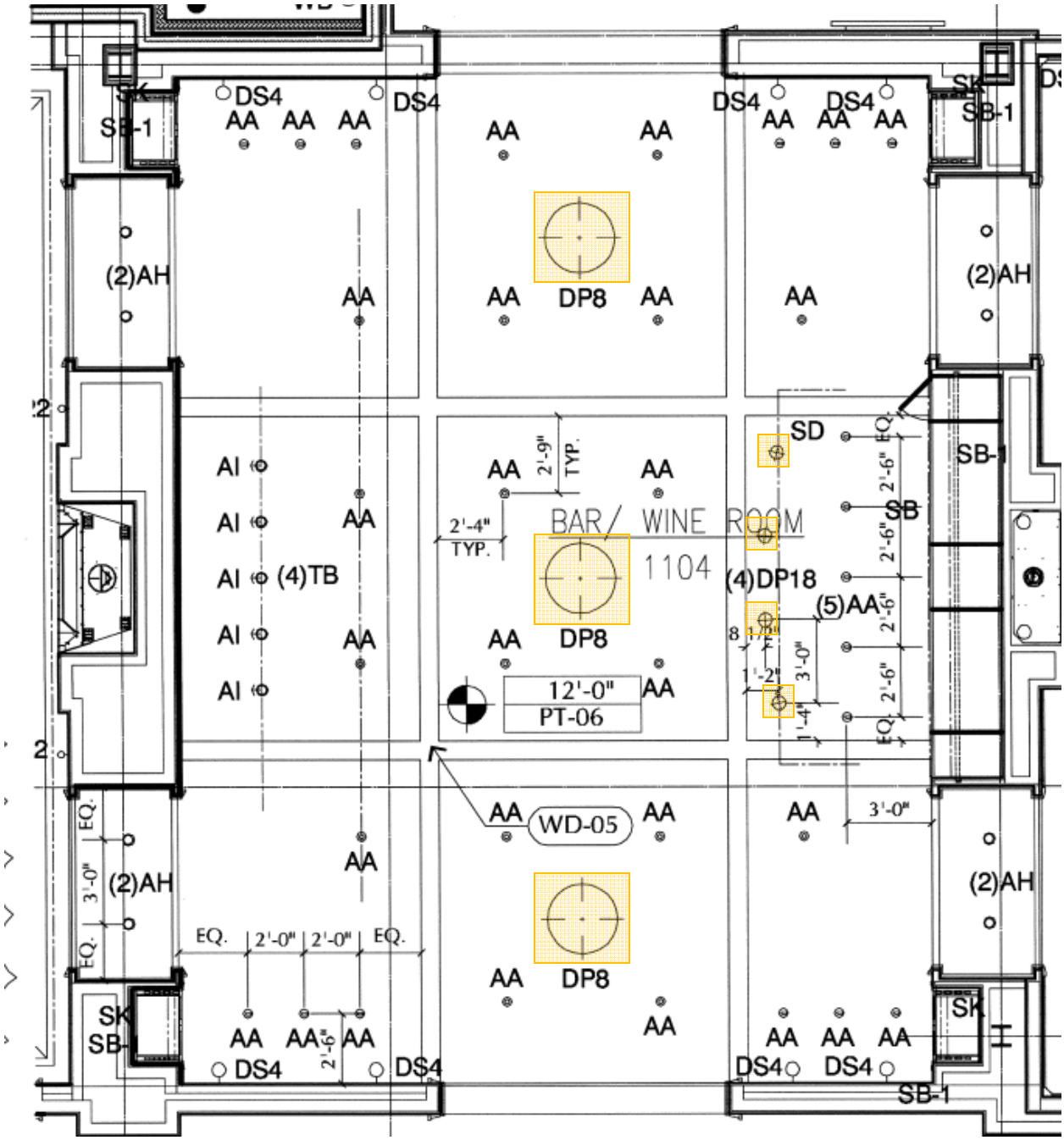
Wine Bar Plans –



Wine bar floor finish plan. The main floor material is made of reclaimed bricks.

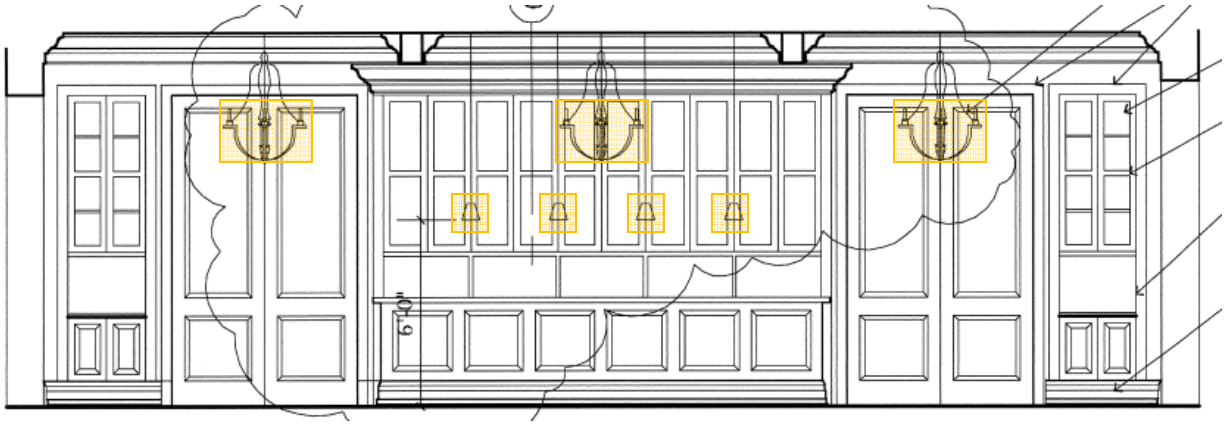


Wine bar furnishing plan.

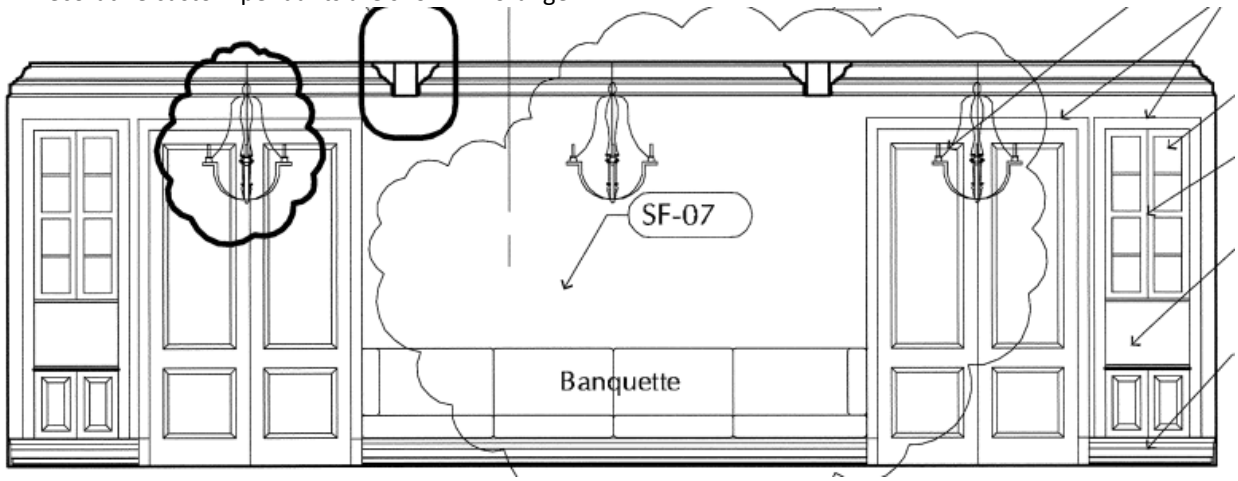


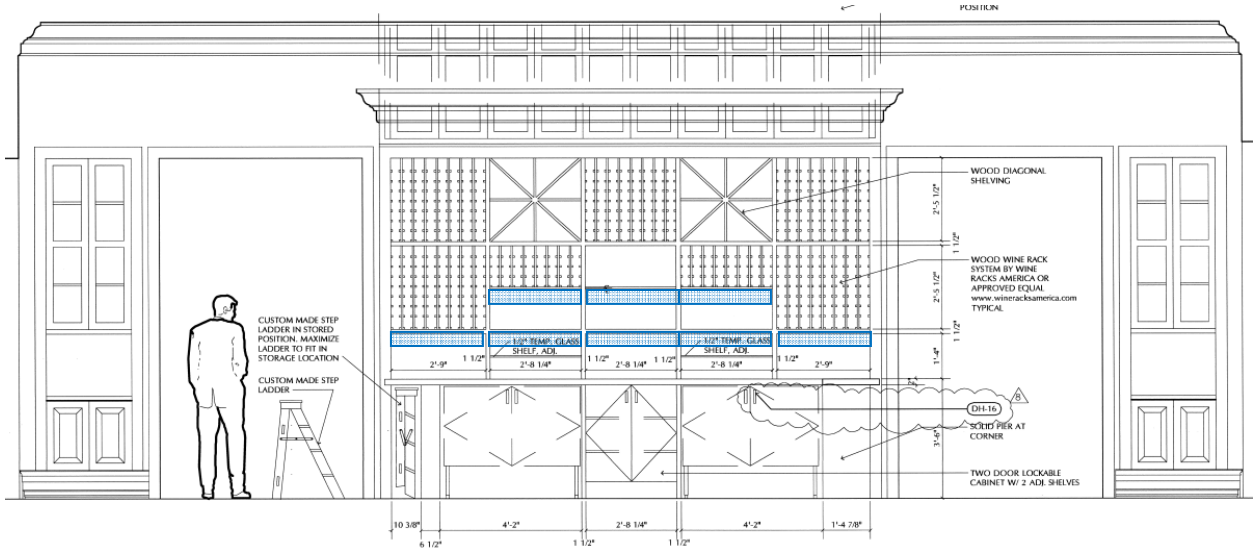
Wine bar reflected ceiling plan. Decorative custom pendants are shown in orange.

Wine Bar Elevations –

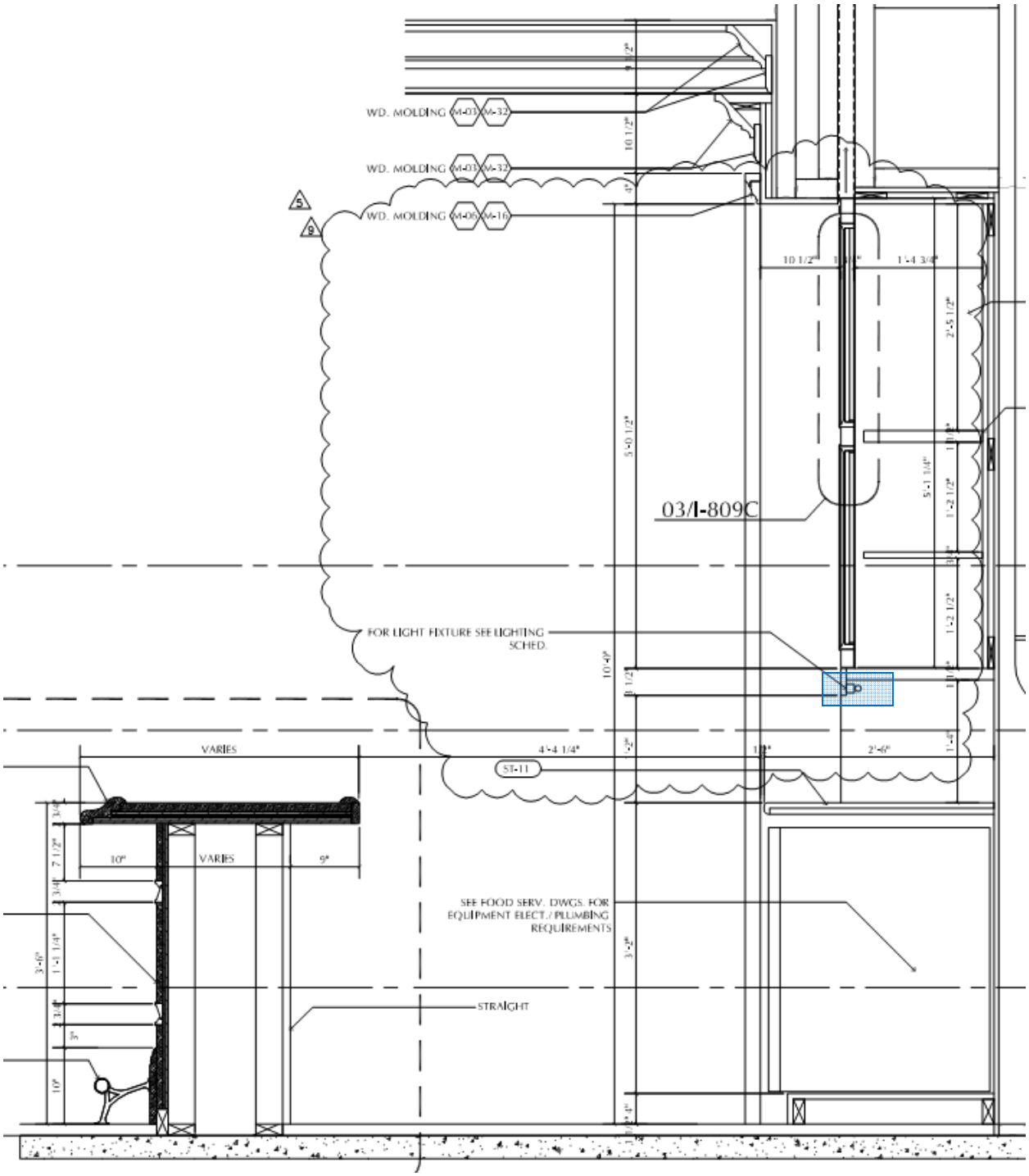


Decorative custom pendants are shown in orange.





Wine bar elevation with drop down panel raised. Under cabinet lighting shown in blue.



Wine bar section. Under cabinet lighting shown in blue.

Wine bar architectural sketch.

i. Lighting Equipment

The lighting equipment in the wine bar space is highly decorative, specifically with custom chandeliers and wall sconces. Custom pendants hang over the bar itself, while track-mounted accent lighting is used to draw attention to the wall murals. For general ceiling lighting, pin-hole recessed downlights are utilized. Within the casework where wine bottles are stored, strip light luminaires are used to create attention to the wine itself. LED-tape strip lights are used to light the cove under the bar's top molding. The majority of the luminaires are lamped with incandescent caldelabra or A-lamps.

Existing Lighting Equipment:

EXISTING LIGHTING IN WINE BAR					
TYPE/SPEC #	LOCATION	MOUNTING	MANUFACTURER/CATALOG #	LAMP TYPE/WATTAGE	NOTES
AA	Wine Bar - ceiling downlights	Ceiling recessed	RSA: QCT-1775WH QCT-900 LN22; MOD: 37W max. UL label	(1) 37MR16/IR/SP10 Tru-Aim IR by Osram Sylvania	Low voltage MR16 adjustable pinhole downlight. Flush ceiling trim with mud ring on housing. Locking pan and tilt. Prismatic overall spread accessory lens. Remove trim and paint to match surrounding ceiling surface.
AI	Wine Bar - ceiling	Ceiling recessed	RSA: QCT-1975WH QCT-900 LN22; MOD: 37W max. UL label	(1) 37MR16/IR/SP10 Tru-Aim IR by Osram Sylvania	4" aperture low voltage MR16 adjustable open downlight. Self-flanged diffuse Alzak reflector. Prismatic overall spread accessory lens.
DP-8	Wine Bar - Decorative chandelier from ceiling	Pendant mounted	Provence Hardware Corp. (Custom)	5x25W = 300W MAX Incandescent Candelabra (Candelabra base)	Approximate weight = 100 lbs. Supplied by OSCI. FF&E Spec. #: 330-LT-0100
DP-18	Wine Bar - Ceiling Pendant	Pendant mounted	Ironware International: 8077 - BIJIOU	1x25W MAX Incandescent A Lamp (Medium base)	Approximate weight = 15 lbs. Supplied by OSCI. FF&E Spec. #: 330-LT-0300
DS-4	Wine Bar - Wall sconce	Wall mounted	Paul Ferrante, Inc.: 1073 - COSMOPOLITAN	1x25W MAX Icandescent Candelabra (Candelabra base)	Approximate weight = 10 lbs. Supplied by OSCI. FF&E Spec. #: 330-LT-0200

Existing Lighting Equipment (continued):

SB	Wine Bar - niche	Niche surface	Tokistar: AV 3 101	4 FT. AV-101: frosted rigid-loop xenon lamp	Low voltage festoon lamp strip light. Conceal remote transformer(s) in accessible location(s). Provide all necessary connections, accessories, mounting hardware, and transformers.
SB-1	Wine Bar - millwork	Millwork surface	Tokistar: AV 3 101 LNS	4 FT. AV-101: frosted rigid-loop xenon lamp	Low voltage festoon lamp strip light. Conceal remote transformer(s) in accessible location(s). Provide all necessary connections, accessories, mounting hardware, and transformers.
SK	Wine Bar - casework	Casework surface	io Lighting: O 03 5kHO 90	NA	Surface mounted LED display case light. 45 degree orientation. Dimmable remote power supply. Provide fixture lengths to fill run as shown in plan to nearest 6". Conceal remote power supply in accessible, ventilated location.
SD	Wine Bar - millwork	Millwork surface	Tokistar: TLP 30 101	10 FT. TL-101: frosted rigid-loop xenon lamp	Low voltage tape light strip light. Conceal remote transformer(s) in accessible location(s). Provide all necessary connections, accessories, mounting hardware, and transformers.
TB	Wine Bar - wall accent lighting	Track mounted	Translite: THW 1 SW RB H35 BTC	(1) 35W bi-pin	Track mounted low voltage decorative pendant. Rubbed bronze finish.

b. Lighting Design Criteria and Consideration

(*IESNA Handbook*: Interior-Food Service Facilities-Dining)

- **Psychological Impressions**
  - The purpose of the Wine Bar is a special space for guest to come eat great snack food, have some world-class wine and relax. Therefore, the impression the lighting design should strive for is relaxation.

- **Appearance of Space and Luminaires** (Important)
  - This room is a special feature within the resort. Guests will expect the lighting to reflect the high-class food and wine being served within the space. With fine wood finishes and furniture, a painted mural, bottles of wine on display, and the bar feature with reclaimed barn wood and artifacts, the appearance of Wine Bar is very important in this case. The luminaires must be decorative in nature to fit within the interior design.

- **Color Appearance (and Color Contrast)** (Very Important)
  - The light sources in this space should be warmer in CCT to promote relaxation. The warmer light also fits better with the wood finishes and red brick flooring.
  - A use of lighting with high CRI is key to the task of eating food. Guests will want their food to look the way the chef meant it to look.

- **Direct & Reflected Glare** (Important)
  - In order to maintain relaxation in the Living Room space, direct glare from light sources and luminaires must be prevented. Menus listing appetizers and wine choices will require that reflected disability glare is also prevented.

- **Points of Interest** (Important)
  - There are several points of interest in the Wine Bar space. Lighting must accent the mural painted on the walls as well as the bar itself. The bar has been detailed with elegant wood trim work, and the casework holding the wine combines this high-end wood finish with clear tempered glass. Lighting will guide guests' vision to these points of interest.

- **Horizontal Illuminance** (Somewhat Important)
  - General lighting within the Living Room requires **10 fc** for simple visual tasks.

- **Vertical Illuminance** (Somewhat Important)
  - Vertical surfaces require **3 fc.**

- **Power Density Allowance:** ASHRAE 90.1 2007
  - Dining area-Bar Lounge/Leisure Dining: 1.4 W/sq. ft.
  - Additional interior lighting power density allowance for spaces in which lighting is specified to be installed in addition to the general lighting of the purpose of decorative appearance (chandeliers and sconces):
    - Additional lighting power shall not exceed 1.0 W/sq.ft.
  - Total allowable = **2.4 W/SQ. FT.**

c. Evaluation and Critique

The wine bar, a special purpose space within the Salamander Resort and Spa, is equipped with special interior design. The existing lighting design, for the most part, has highlighted and accentuated that interior design. It is also part of the decorative interior design, with the same custom decorative chandeliers and wall sconces put on display. The use of incandescent and halogen light sources is appropriate for wine bar relaxed feel and also the theme of relaxation throughout the whole resort and spa.

When comparing the furniture plan to the reflected ceiling plan, the lighting design obviously suits the location of tables in the space. Shown in the AGI32 pseudo color rendering below, the higher illuminance areas are located appropriately over table locations, as well as on the bar. The design has also emphasized the display of wine bottles stored in glass casework and behind the bar with under cabinet lighting.

Illuminance data for the space is shown in tabular form below as well as graphically in the pseudo color renderings. The total lighting power density, when compared to the allowable 2.4 W/SQ. FT., is slightly over in this space. This calculation does not factor in dimming of the incandescent and halogen light sources, which will likely occur to increase the sensation of relaxation and comfort in the wine bar space.

Light Loss Factors Used in calculations: (Using the IESNA Lighting Handbook – Ch.9)

Type AA: (calculation typical for remainder of luminaires)

- **LDD –** Category IV; Very Clean; 12 mo.
  - **LDD = 0.932**
- **RSDD –** RCR = 3.0; 10% Expected dirt depreciation
  - **RSDD = 0.98**
- **LLD** – Assumed 0.9
  - **TOTAL LLF = 0.9*0.98*0.932**

Type AI: LLF = 0.822
Type AH: LLF = 0.822
Type DP and **DS**: LLF = 0.3 (Conversion from bare 100W A-lamp to 40W candelabra included)
Type SB: LLF = 0.727
Type SB-1: LLF = 0.727
Type SK: LLF = 0.727
Type SD: LLF = 0.727
Type TB: LLF = 0.3

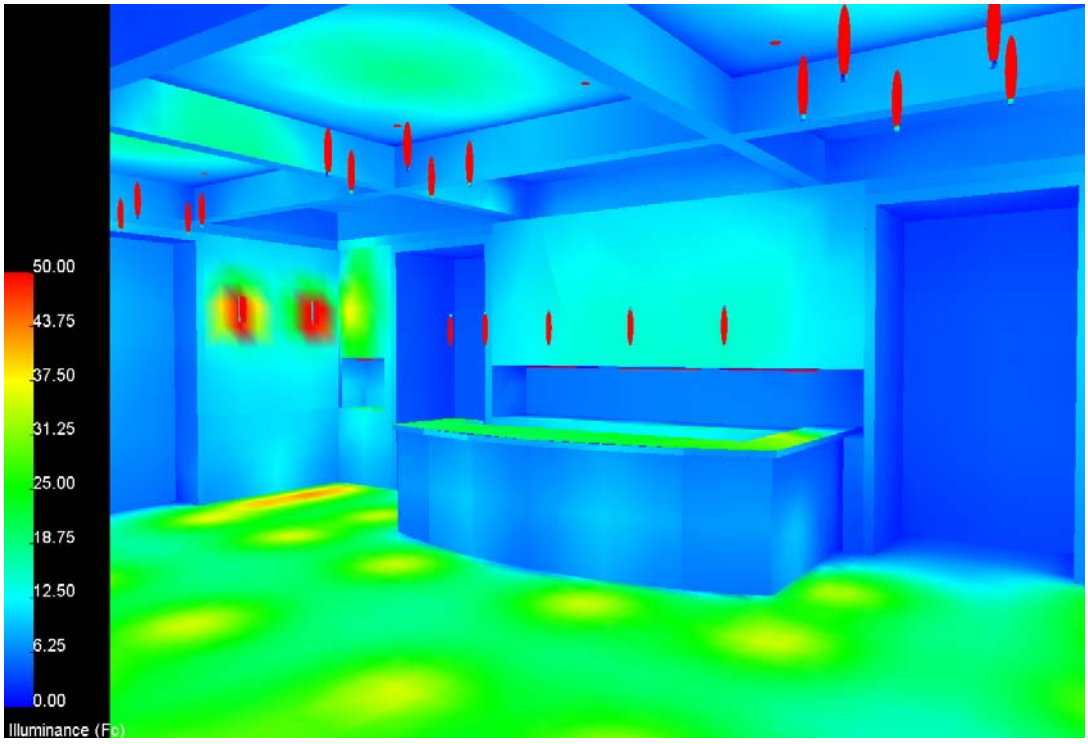
Illuminance Data from AGI32:

	HORIZONTAL ILLUMINANCE
Average	33.17 fc
Max/Min	13.16

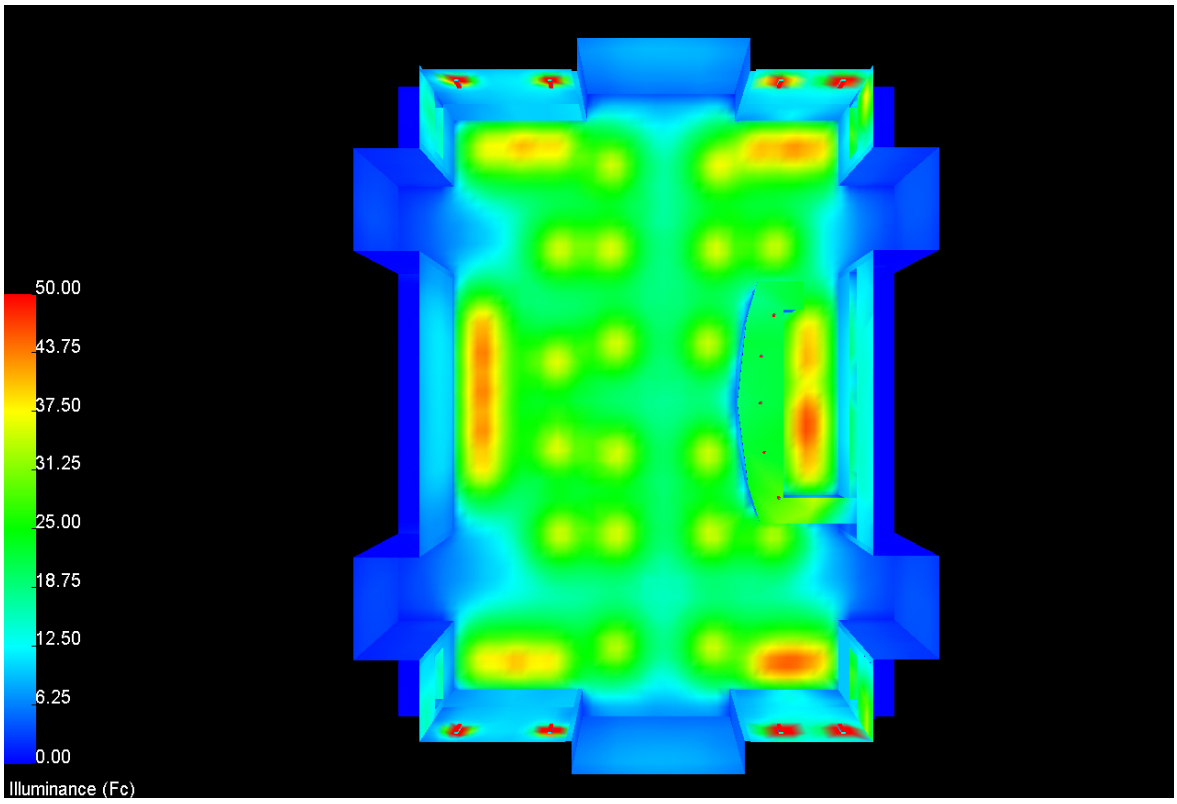
Lighting Power Density Data:

WINE BAR LPD				
TYPE/SPEC #	QUANTITY	W/LUMINAIRE	W/LINEAR FT.	TOTAL WATTS
AA	35	37	NA	1295
AI	5	37	NA	185
DP-8	3	300	NA	900
DP-18	4	25	NA	100
DS-4	8	25	NA	200
SB	4	5	NA	20
SB-1	8	5	NA	40
SK	16	2.1	NA	33.6
SD	30	NA	0.4	12
TB	4	35	NA	140
			TOTAL WATTS	2925.6
			TOTAL SQ. FT.	1153
			LPD	2.5374 W/SQ. FT.

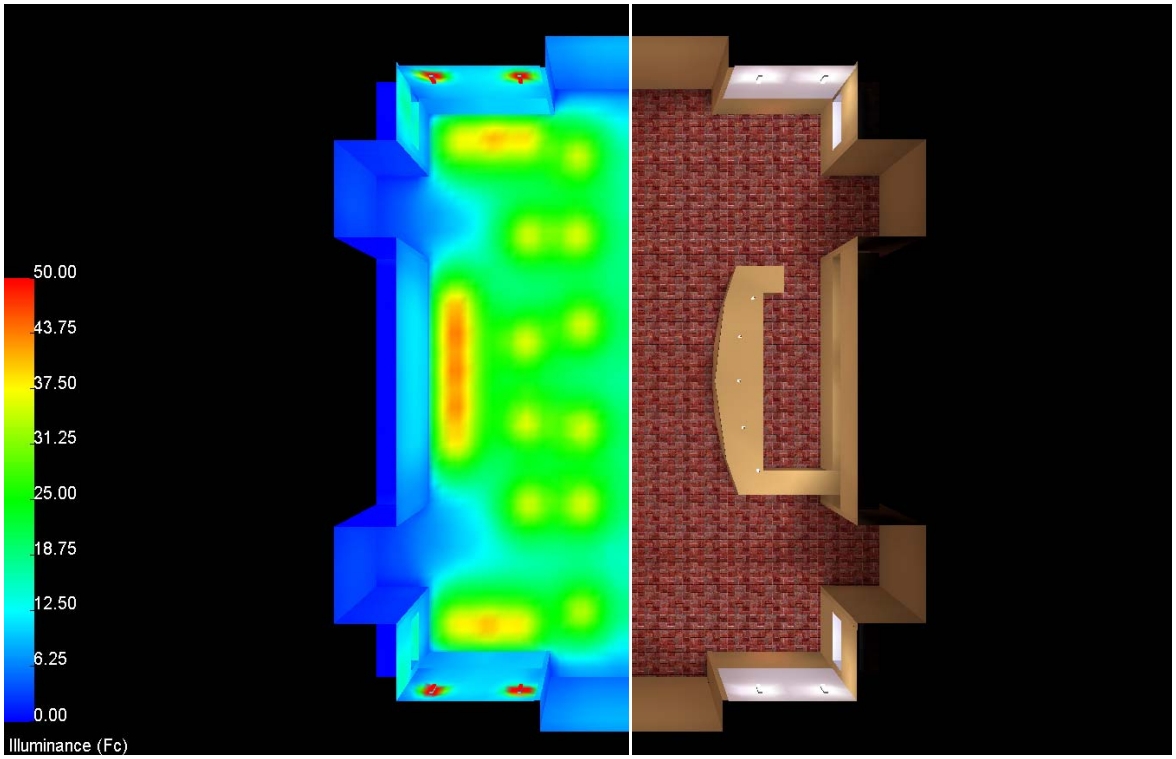
Existing lighting within the wine bar.



Illuminance within in the wine bar (existing lighting).



Existing lighting distribution across the workplane (2'-6" A.F.F.).



Light distribution on the workplane of the wine bar (pseudo color and RGB). Workplane at 2'-6" A.F.F.

IV. The Grand Ballroom

a. Existing Conditions

Description: The grand ballroom is a multifunctional space that can satisfy social gatherings, meetings, wedding receptions, etc. Comfortable accommodating up to 340 guests, the ballroom has features of five large decorative custom chandeliers, custom wall sconces, elegant finishes and materials, and access to an outdoor terrace. The space is designed to accommodate dances with retractable theater lighting equipment installed. The floor is covered with custom designed carpeting, while the walls are covered with fabric upholstery. The ceiling is constructed as two levels – a painted white lower ceiling and a yellow "Pittsfield Buff" colored upper coffered ceiling.

Area: 5,000 Sq. ft.

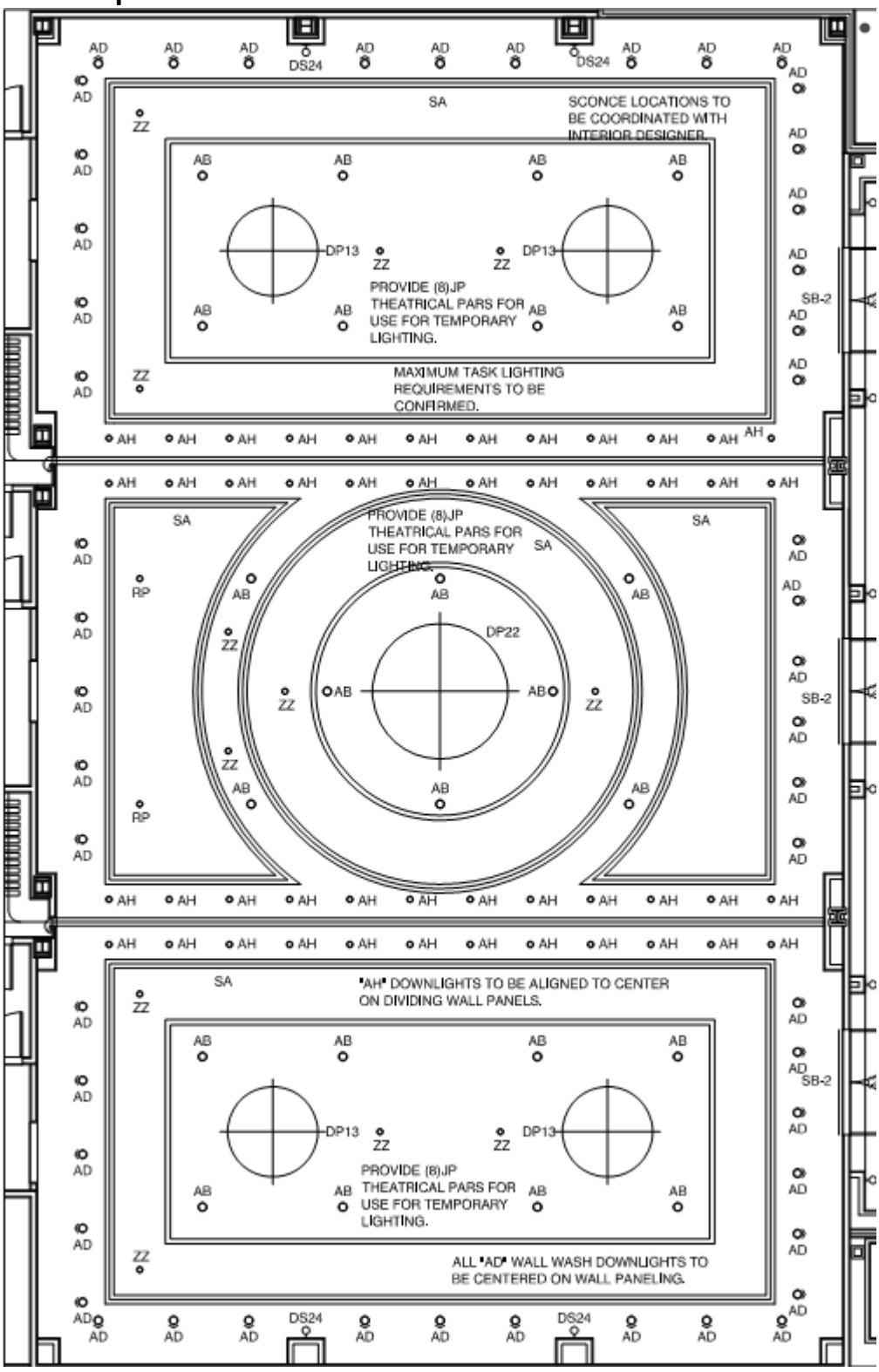
Dimension: 91'-0" x 55'-0"

Space Category:
Large Work Space

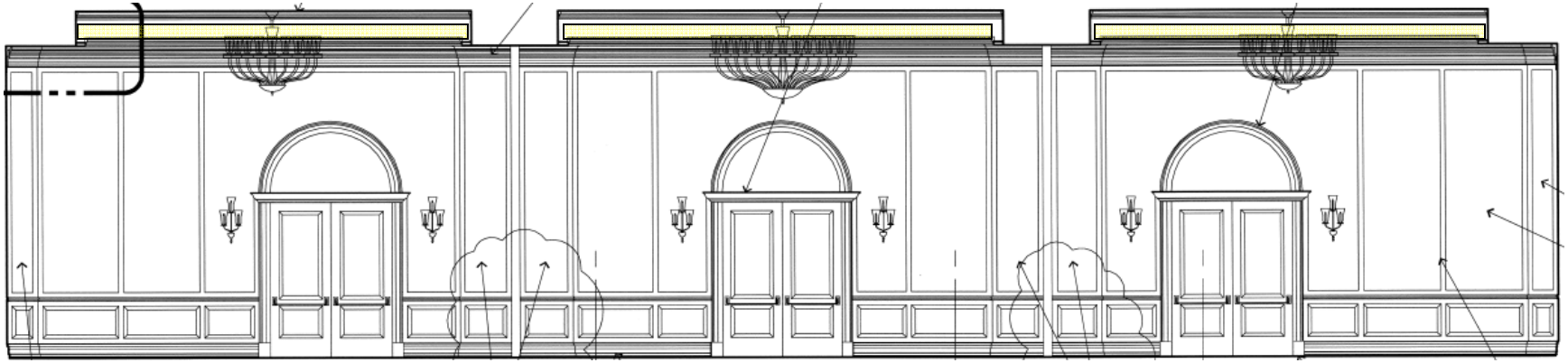
Materials:

MATERIAL/FINISH	OBJECT	COLOR	REFLECTANCE
Axminster Carpet	Ballroom floor	Custom	0.3
Flat Latex Paint	Lower Ceiling	Timid White	0.9
Flat Latex Paint	Ceiling Coffer	Pittsfield Buff	0.81
Semi-gloss Latex Paint	Baseboards, door trim, crown molding, cove molding	Parchment	0.86
White oak	Doors		0.86
Wall Upholdstery	Walls	NA	0.5

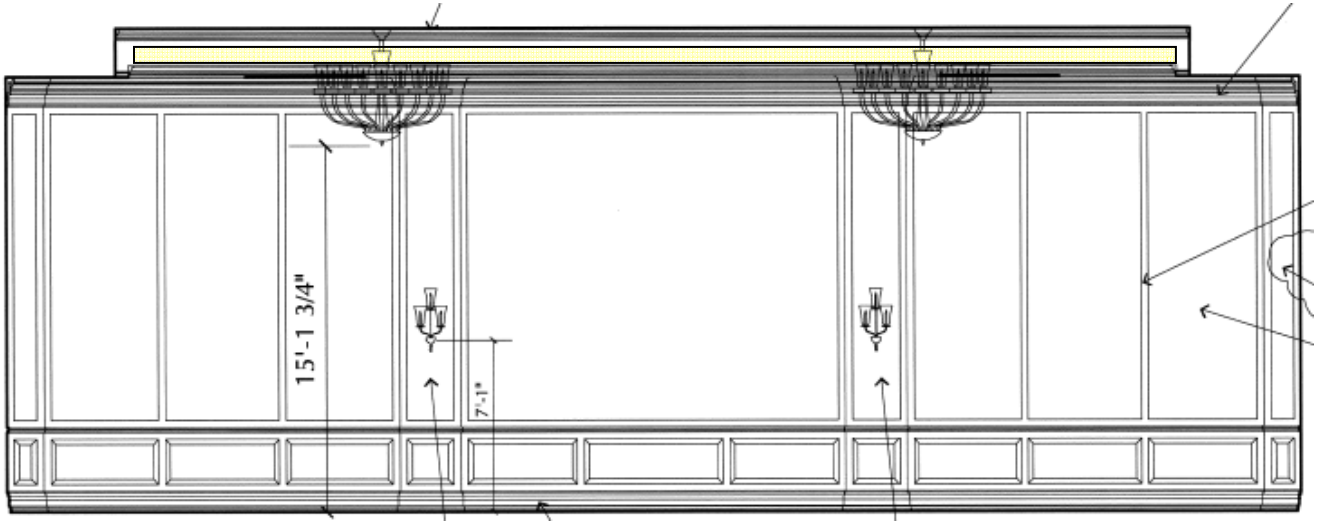
Grand Ballroom plans and elevations –



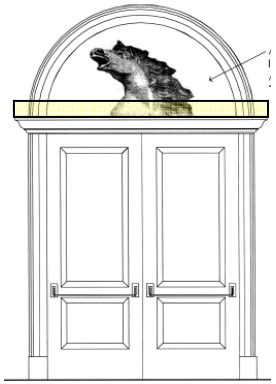
Ballroom reflectied ceiling plan.



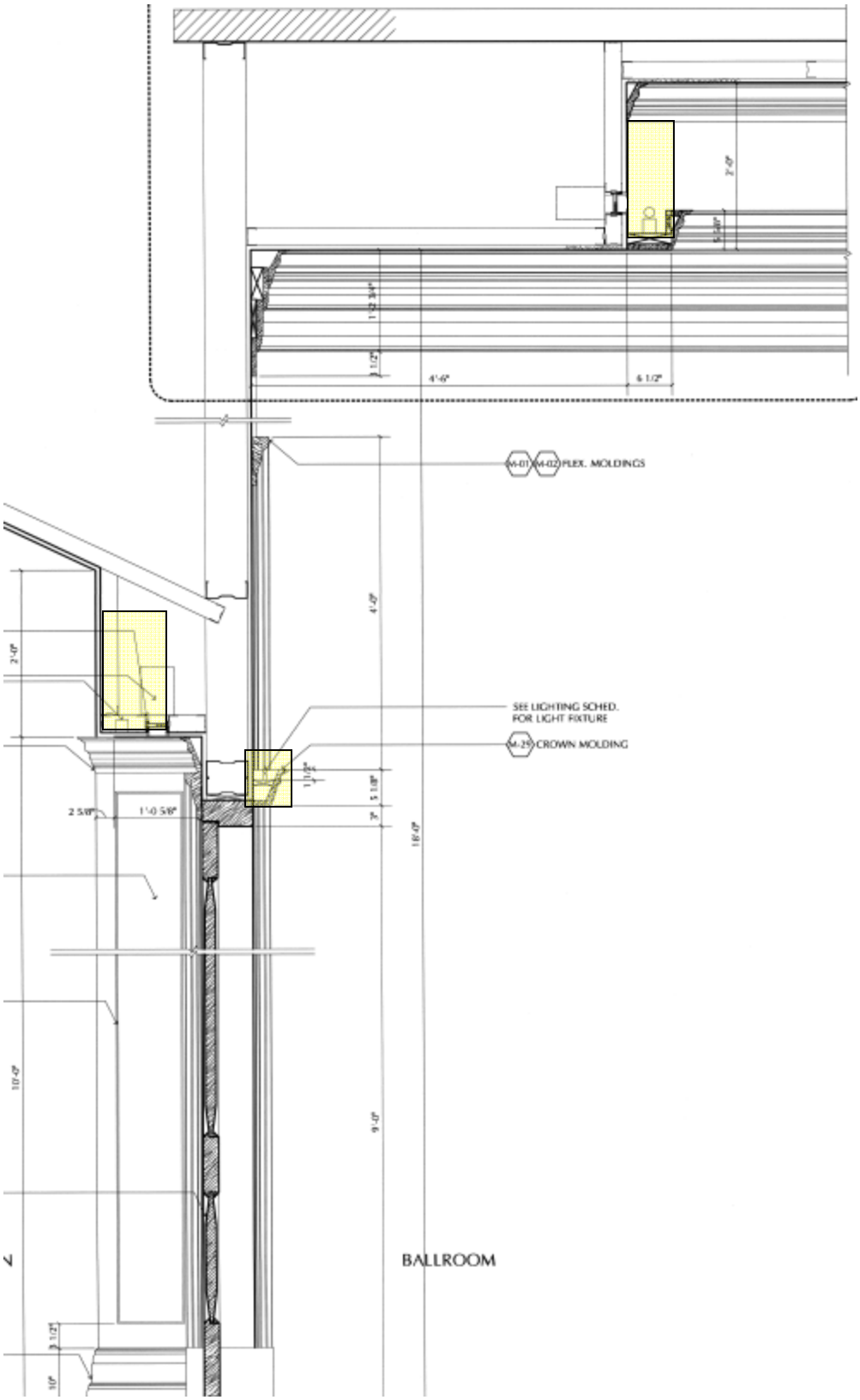
Ballroom east elevation. Cove lighting in yellow.



Ballroom south elevation. Cove lighting in yellow.



Ballroom entrance door elevation.



Ballroom wall section. Cove lighting and strip-lighting over main entrance doors in yellow.

Architectural sketch of the Grand Ballroom.

i. Lighting Equipment

The lighting equipment used in the Grand Ballroom is made up of decorative wall sconces, chandeliers, ceiling recessed downlights, cove luminaires, and millwork strip lighting. There are also retractable pipe holders for theatrical lighting. The light sources are primarily incandescent candelabras and halogen, with the cove lighting utilizing 2400K neon. The wall sconces and chandeliers are custom made to blend with the elegant materials and finishes within the space.

Existing Lighting Equipment:

EXISTING LIGHTING IN BALLROOM					
TYPE/SPEC #	LOCATION	MOUNTING	MANUFACTURER/CATALOG #	LAMP TYPE/WATTAGE	NOTES
AB	Ballroom - ceiling downlights	Ceiling recessed	Kurt Versen: C7392 SC	(1) 250T4	Quartz halogen 7" aperture ellipsoidal downlight. Wide beam. Clear Alzak self-flanged reflector. Heat sink to extend lamp life.
AD	Ballroom - ceiling	Ceiling recessed	Kurt Versen: E7528 SC MOD: 100W max. UL label	(1) 100PAR38/HIR/FL40 (GE Lighting)	6" aperture PAR38 lensed wall wash downlight. Diffuse Alzak self-flanged reflector.
AH	Ballroom - ceiling downlights	Ceiling recessed	RSA: QCT-1975WH QCT-900 LN22; MOD: 37W max. UL label	(1) 37MR16/IR/SP10 Tru-Aim IR by Osram Sylvania	4" aperture low voltage MR16 open downlight. Self-flanged diffuse Alzak reflector. Prismatic overall spread accessory lens.
DP-13	Ballroom - chandelier	Pendant mounted	Preciosa International Inc.: 043 459 018 99500011 13 (Custom)	12x40W MAX Incandescent Candelabra (Candelabra base)	Approximate weight = 115 lbs. Supplied by OSCI. FF&E Spec. #: 220-LT-0200
DP-22	Ballroom - chandelier	Pendant mounted	Preciosa International Inc.: 043 459 018 99500011 14 (Custom)	18x40W= 720W MAX Icandescent Candelabra (Candelabra base)	Approximate weight = 225 lbs. Supplied by OSCI. FF&E Spec. #: 220-LT-0100

Existing Lighting Equipment (continued):

DS-24	Ballroom - Walls sconce	Wall mounted	Preciosa International Inc.: 043 460 003 99500022 02 (Custom)	3x40W= 120W MAX Incandescent Candelabra (Candelabra base)	Approximate weight = 15 lbs. Supplied by OSCI. FF&E Spec. #: 220-LT-0300
SA	Ballroom - Cove	Cove surface	NSI: CL RA 4 D 2400K	Neon: Tecnolux #31 2400K "incandescent" Triphosphor tubing	Dimmable neon. Install in continuous lenghts, end-to-end, as shown in plan.
SB-2	Ballroom - millwork	Millwork surface	Tokistar: AV 3 101 MC	4 FT. AV-101: xenon lamp	Low voltage festoon lamp strip light. Mounting channel. Conceal remote transformer(s) in accessible location(s). Provide all necessary connections, accessories, mounting hardware, and transformers.
ZZ	Ballroom - Ceiling	Ceiling recessed	ETC: RLP-CX	NA	Retractable theatrical pipe holder. Four (4) separately circuited 20A outlet. DMX jack.

b. Lighting Design Criteria and Consideration

(*IESNA Handbook*: Interior-Dance Halls/Discotheques-Ballrooms/social events)

- **Psychological Impressions**
  - Depending on the function taking place in the ballroom, the lighting design in this space can promote more than one psychological impression. During conferences with multiple activities happening at once, the lighting can create a public feeling with the use of uniform ambient light.
  - During a wedding reception where dancing and celebration would take place, a festive lighting atmosphere must be created with lower ambient light and sparkle.

- **Appearance of Space and Luminaires** (Very Important)
  - The ballroom is a highly decorative space. The upholstery-covered walls, painted walls, custom-designed carpeting, and detailed millwork and crown molding must all be on display. The lighting equipment must accomplish this and also enhance the appearance of decorative sconces and chandeliers. It is very important that the interior design of the space be on display and do justice to the elegance that Salamander Hospitality has gone through so much effort to promote. Lighting along the perimeter to highlight the walls and crown molding is desirable. Luminaires within the ceiling area must highlight the furniture in the room.

- **Color Appearance (and Color Contrast)** (Very Important)
  - This exciting space is equipped with colorful paints and wood finishes that must be rendered correctly to promote high aesthetics. Also, the clothing that guests wear into the ballroom will require appropriate color rendering. Therefore, light sources with high Color Rendering Index will be required.

- **Light Distribution on Surfaces** (Important)
  - During functions that are public in nature, the ballroom will require an even distribution of light on the horizontal and vertical surfaces, promoting public and spacious feelings. For more intimate activities, the lighting will need to change accordingly. See “Points of Interest.”

- **Luminances of Room Surfaces** (Important)
  - As discussed above, the color appearance of the paints, fabrics, and wood finishes in the space are very important. Luminances of these surfaces must be high enough to recognize their unique and beautiful qualities. For public, open activities, vertical room surfaces must have higher luminances this lighting effect and feeling.
- **Modeling of Faces or Objects** (Important)
  - Activities in the ballroom are all very social. It is important that vertical illumination allow facial recognition between those in the space. Avoiding harsh facial shadows is also desirable.

- **Points of Interest** (Important)
  - The points of interest in this space are not specified due to the flexibility of activities that can be held in the ballroom. Therefore, the lighting design must also be flexible to accent points of interest no matter where the important objects may be.
  - The interior design in the ballroom has created a few points of interest itself. The decorative chandeliers must receive light from the ceiling cavity to appropriately appear to those in the room. Also, custom wood-carved horses in the wooden arch-work above the doors in the ballroom will create a point of interest. Grazing these wood carvings will aid in the artistry.

- **Sparkle/Desirable Reflected Highlights** (Very Important)
  - It is very important that the lighting design has the ability to create sparkle for festive events like wedding receptions. The deliberate use of sparkle will add to the excitement of the space. This must come directly from the luminiares due to the beige-colored wall upholstery, which will not reflect a considerable amount of light.

- **System Control and Flexibility** (Very Important)
  - As stated before, it is imperative that the lighting system have control and flexibility to accommodate the flexibility of tasks that will take place in the ballroom. Conferences, wedding receptions, dances, meetings, etc. all require different preset light settings.

- **Horizontal Illuminance** (Somewhat Important)
  - General lighting within the Grand Ballroom requires **5 fc** for simple visual tasks.

- **Vertical Illuminance** (Somewhat Important)
  - Vertical surfaces require **3 fc.**

- **Power Density Allowance:** ASHRAE 90.1 2007
  - Conference/Meeting/Multipurpose space: 1.3 W/sq. ft.
  - Additional interior lighting power density allowance for spaces in which lighting is specified to be installed in addition to the general lighting of the purpose of decorative appearance (chandeliers and sconces):
    - Additional lighting power shall not exceed 1.0 W/sq.ft.
  - Total allowable = **2.3 W/SQ. FT.**

c. Evaluation and Critique

The Grand Ballroom does not disappoint when it comes to decorative fixtures, materials, and overall interior design. There are a variety of luminaires in the space, which satisfies the ability to be flexible for different functions. The recessed downlights throughout the space can provide a general, uniform ambient light, while the entire room can be dimmed and set to a more intimate or exciting space. Pinhole downlights (Type AH), added with the decorative incandescent chandeliers and sconces (Types DP and DS) will satisfy the criteria for sparkle in the space.

The existing lighting within the ballroom is shown in the AGI32 renderings below. This setting is with all lighting equipment turned on at full output. The quantitative data for illuminance and lighting power density is also listed. The maximum allowable power density for the ballroom, with additional allowances for decorative lighting, is 2.3W/sq. ft. The existing design exceeds the ASHRAE 90.1 standard; however, as noted before, this space would not likely have all lighting turned on at once.

Light Loss Factors Used in calculations: (Using the IESNA Lighting Handbook – Ch.9)

Type AB: (calculations typical for remainder of luminaires)

- **LDD –** Category IV; Very Clean; 12 mo.
  - **LDD = 0.932**
- **RSDD –** RCR = 3.0; 10% Expected dirt depreciation
  - **RSDD = 0.98**
- **LLD** – Assumed 0.9
    - **TOTAL LLF = 0.9*0.98*0.932**

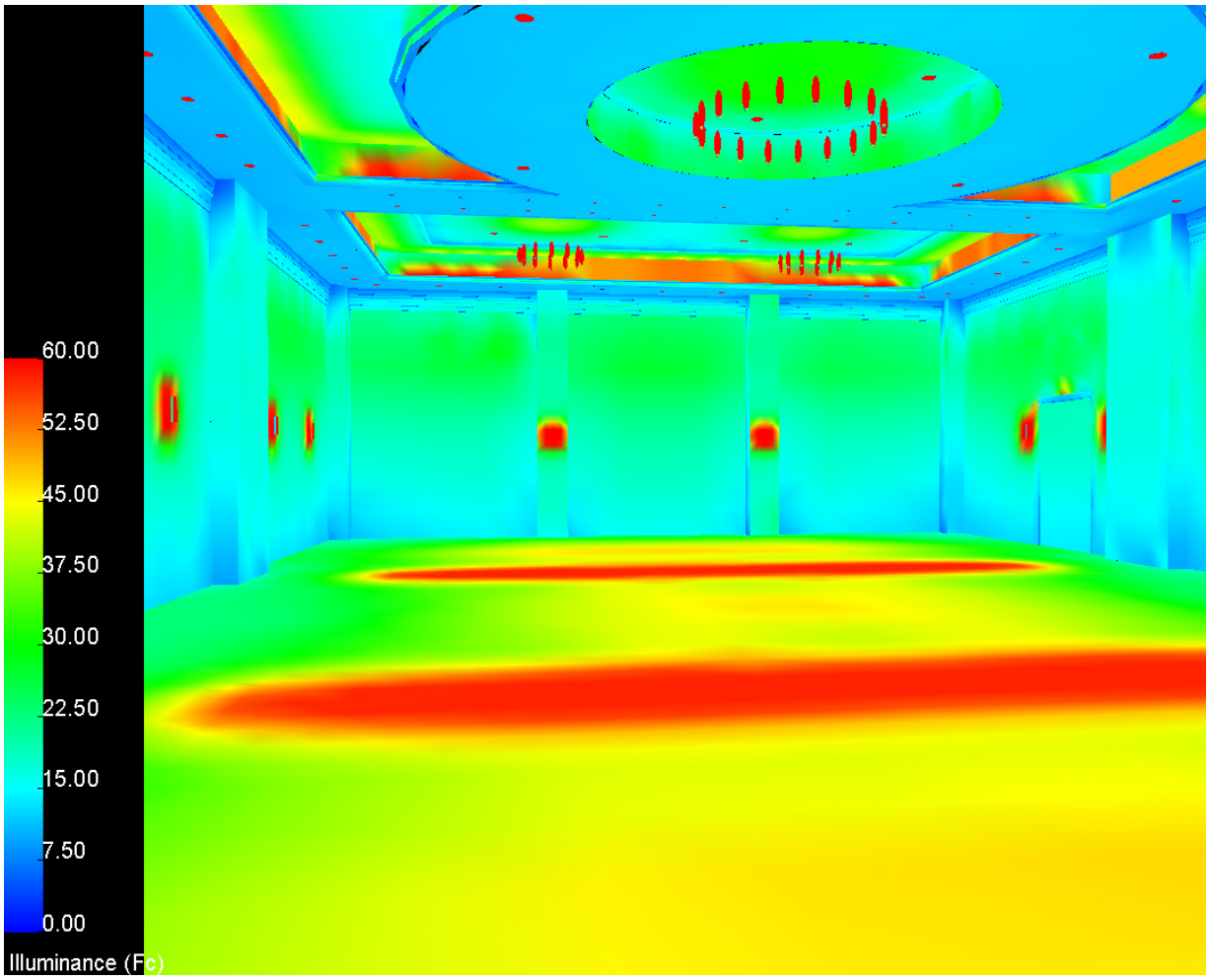
Type AD: LLF = 0.77
Type AH: LLF = 0.822
Type DP and **DS**: LLF = 0.3 (Conversion from bare 100W A-lamp to 40W candelabra included)
Type SA: LLF = 0.755
Type SB-2: LLF = 0.727

	HORIZONTAL ILLUMINANCE	VERTICAL ILLUMINANCE
Average	40.77 fc	14.4
Max/Min	4.37	1.32

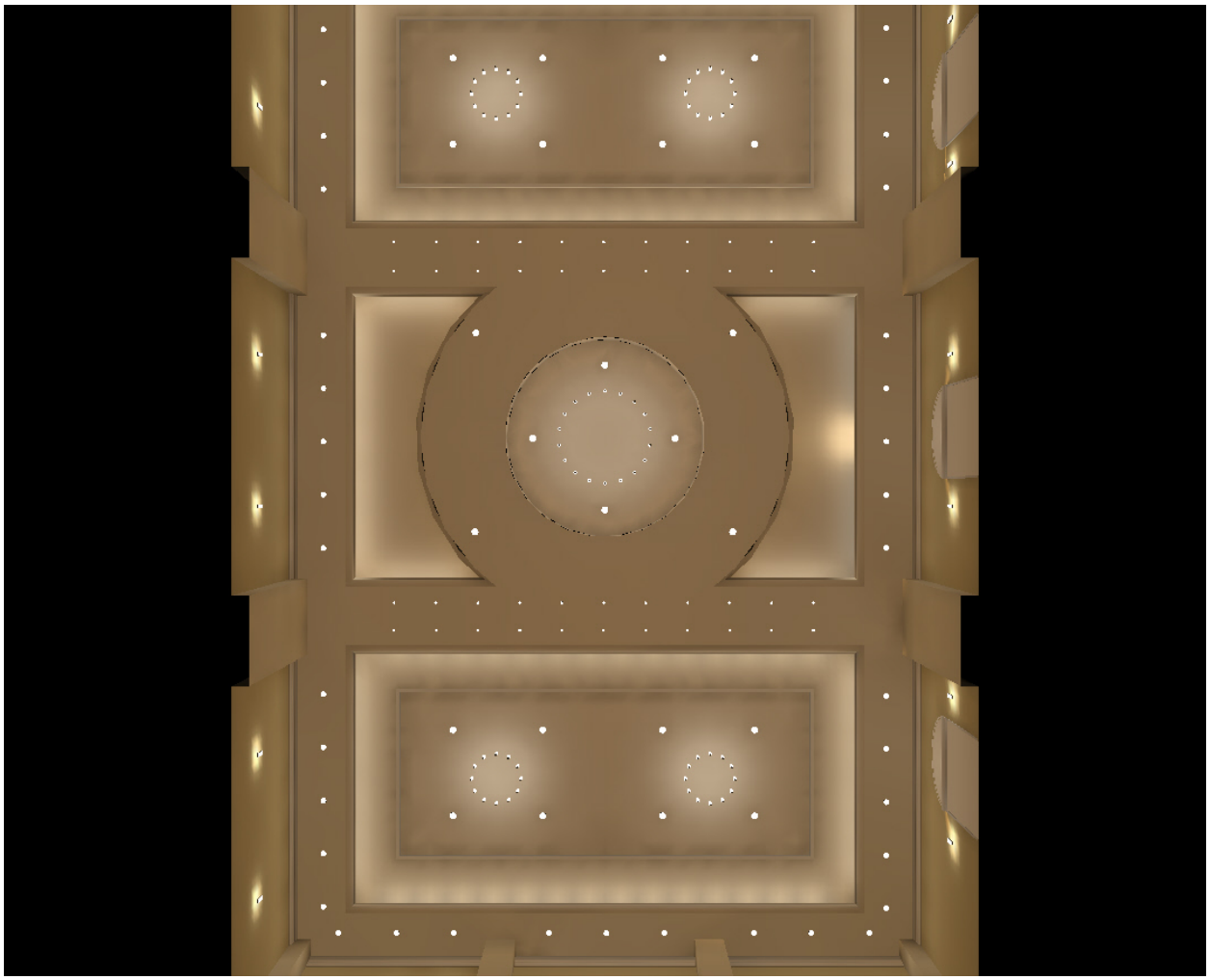
BALLROOM LPD				
TYPE/SPEC #	QUANTITY	W/LUMINAIRE	W/LINEAR FT.	TOTAL WATTS
AB	24	250	NA	6000
AD	51	100	NA	5100
AH	48	37	NA	1776
DP-13	4	480	NA	1920
DP-22	1	720	NA	720
DS-24	4	120	NA	480
SA	498	NA	6.5	3237
SB-2	24	NA	5	120
			TOTAL WATTS	19353
			TOTAL SQ. FT.	5000
			LPD	3.8706 W/SQ. FT.

ALLOWABLE = 2.3 W/SQ.FT. ➔ Not satisfied

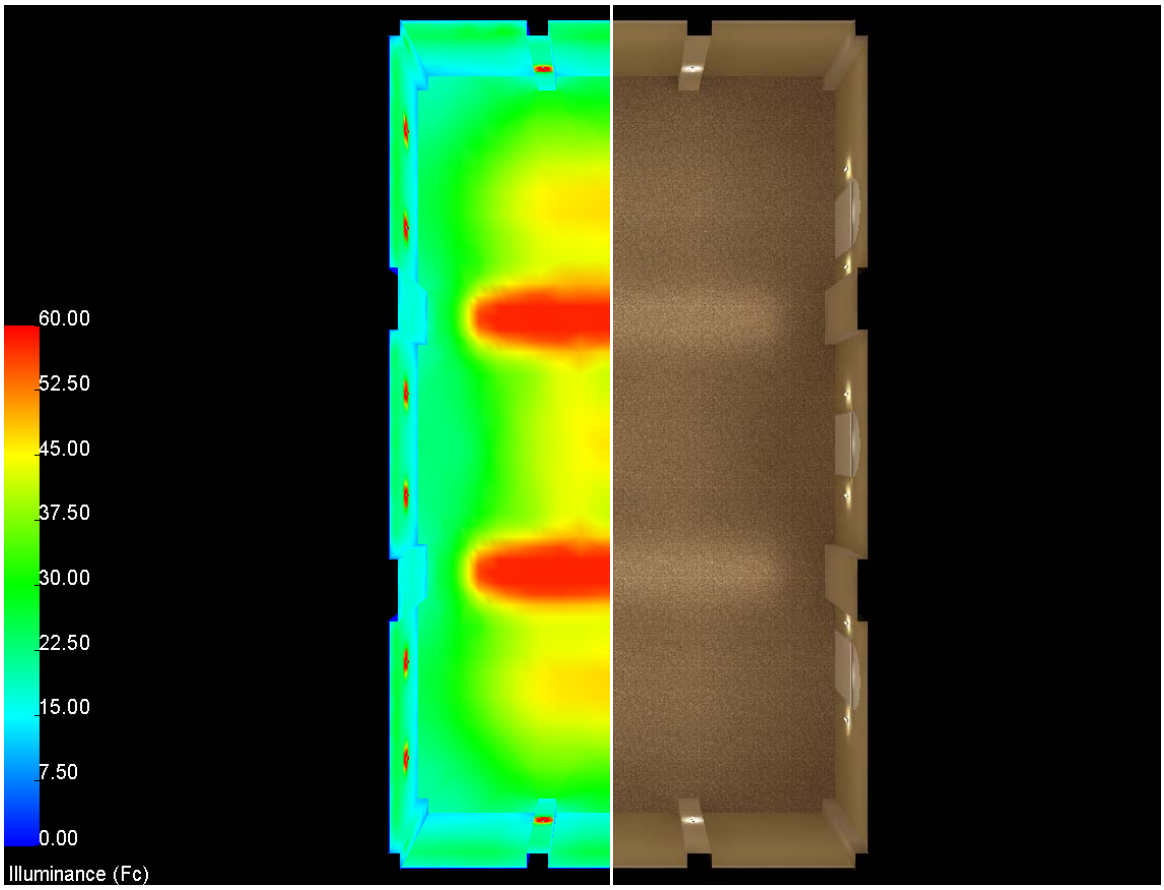
Existing lighting design within the Grand Ballroom.



Illuminance pseudo-color diagram. Illuminance levels within the ballroom are shown.



View of the ceiling in the Grand ballroom with all existing lighting turned on.



Existing light distribution on the floor of the Grand Ballroom (workplane at 2'-6" A.F.F.).