
INTRODUCTION

St. Francis Friary is a dwelling place as well as an area of worship. The four spaces chosen for redesign are the Foyer, Library, Chapel, and Courtyard. Each space is unique in the attributes it offers to the friary. The original design was well done making it difficult to identify potential improvements. The redesign therefore focuses on providing alternative approaches for the owner to consider.

The redesign looks at each space with the intent of drawing to the surface the meaning and reality of each space's function. As such, the library was designed to offer a space secluded from the remainder of the building and provide adequate illumination to aid in writing, reading and locating reference material. The architecture in the library provides the comfortable atmosphere and hence was the main focus of the library design. The foyer was designed to provide circulation as well as create a feeling of anticipation for the main event space, the chapel. The chapel was designed to represent purity. The light was designed to be shared with the incomers without distracting from any of the space's beauty. Thus, an attempt was made to hide all sources from view. Upon exiting the chapel, the courtyard provides an exterior area of refuge. The design in this haven focuses on a feeling of safety and security. In addition, the lighting is used to present the statues of Jesus on the cross in honor of his sacrifice.

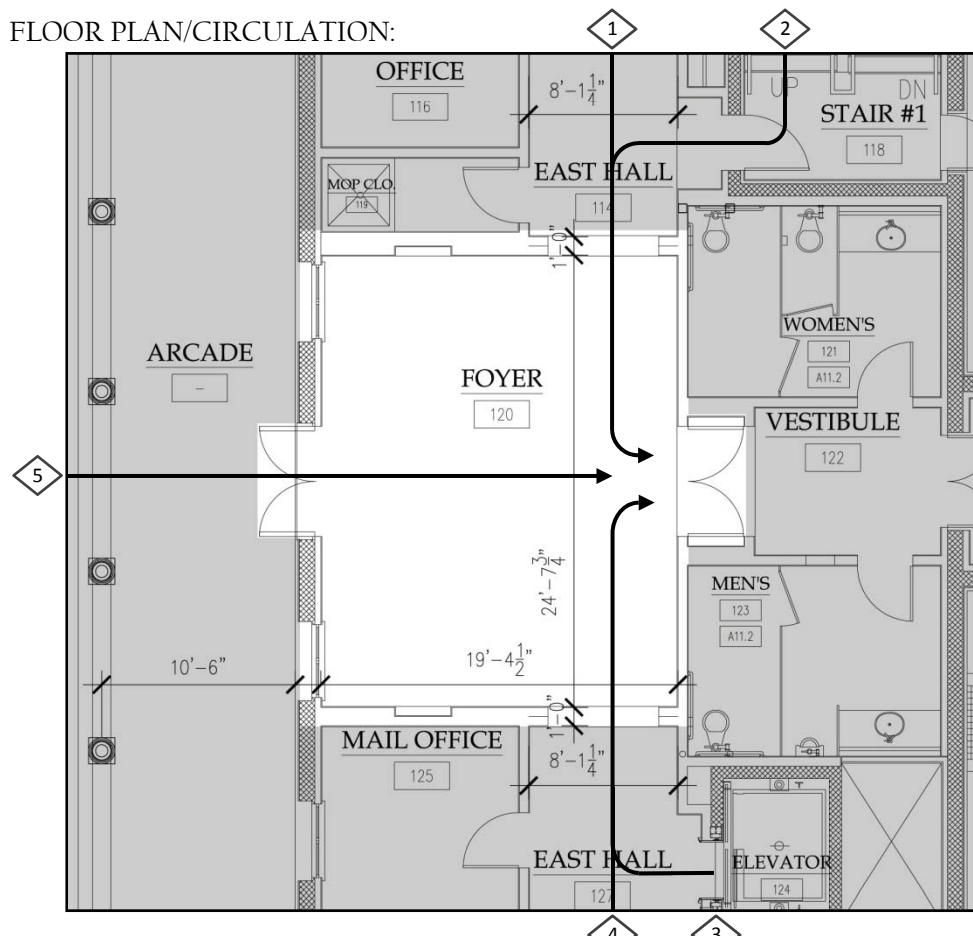
The following depth will present each space, its characteristics, and the design chosen to portray the interpretation of the space's function.

LIGHTING

DESCRIPTION:

The foyer is a rectangular shaped space located on the centerline of the east side of the friary. Used as a means of circulating traffic from all areas of the friary into the chapel, the foyer serves the inner courtyard on the west and the east hall coming from both the north and south. The majority of traffic will be coming from the stairwell and the elevator serving the 2nd floor cells, located on opposite sides of the foyer in the east hall. The foyer is more than double the width of the hallway and the ceiling height is raised four inches. From the viewpoint of the hall, the main focal point will be the grand mahogany entrance to the chapel along the east wall. Upon entering the foyer, the other focal points include the paintings on the north and south walls and the views to the inner courtyard. The circulation, dimensions, focal points, and materials of the foyer and adjacent spaces are shown in more detail below.

FLOOR PLAN/CIRCULATION:



FOYER FLOOR PLAN
SCALE: NONE

- 1 Offices, Main Foyer
- 2 Stairs to 2nd Floor Cells
- 3 Elevator to 2nd Floor Cells
- 4 Library, Refectory
- 5 Inner Courtyard

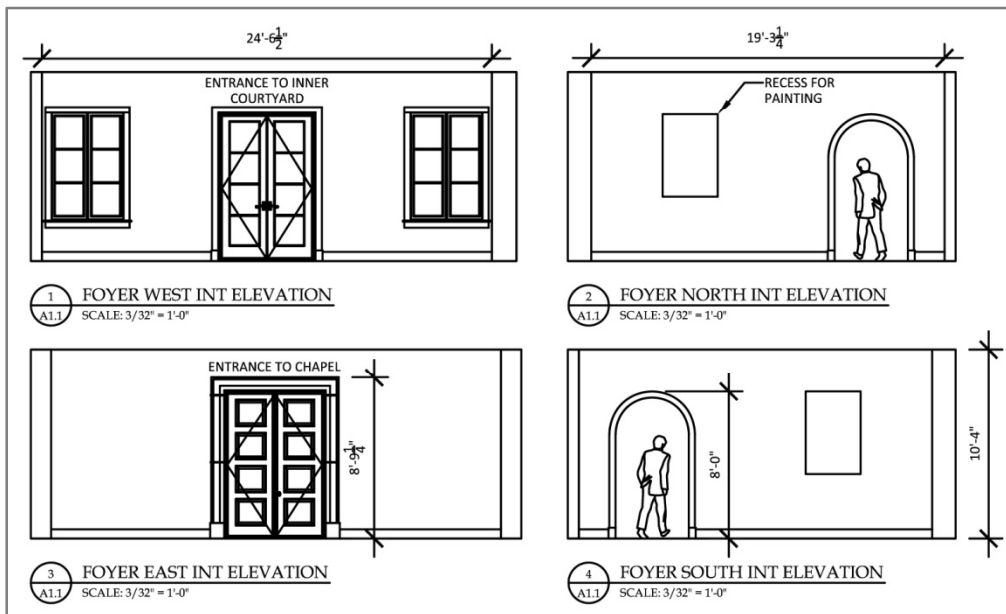
LIGHTING

DIMENSIONS:

	FOYER	EAST HALL	VESTIBULE
North-South	24' 6 1/2"	8' 1 1/4"	
West-East	19' 4 1/2"	-	
Ceiling Height	10' 4"	10' 0"	10' 0"
Floor Area	476 ft ²	-	-

FOCAL POINTS:





West Elevation	View to the inner courtyard through windows and glass door
North Elevation	Recess in wall for painting
East Elevation	Grand mahogany entrance to the vestibule to the chapel
South Elevation	Recess in wall for painting



FOYER INTERIOR ELEVATIONS
SCALE: 3/32"=1'-0"

MATERIALS/REFLECTANCES:

The materials used in the Foyer are continued from the east hall into the foyer and vestibule. The properties of these materials are shown below:

Surface	Material	Reflectance
 Ceiling	Benjamin Moore Paint: Wood Ash	0.88
 Wall	Benjamin Moore Paint: Stone House	0.73
 Woodwork	Honduras Mahogany	0.05
 Flooring	Cork Polyurethane Finish	0.43

LIGHTING

(Very Important)

MODELING OF FACES AND OBJECTS

Upon exiting the chapel, the foyer becomes not just a means of travel, but a gathering space as well. Good facial modeling, achieved by using several layers of light and a vertical illuminance is essential as the friars converse, fellowship, and interact with one another.

POINTS OF INTEREST

The main focal point in the foyer is the entrance to the chapel along the east wall. Higher illuminance levels will be needed to draw attention to and direct traffic to the main door to the vestibule and into the chapel. Paintings on the north and south wall should also be highlighted as a means of decoration.

POWER ALLOWANCE

According to ASHRAE 90.1- 2004 Energy Standard for Building's Space-by-Space method, the allowable power density for a foyer is 1.1 W/ft².

PSYCHOLOGICAL ASPECTS

The foyer will serve two purposes. On the way into the chapel, the foyer will be used for circulation. Thus, the lighting will be used as a directional element with a higher illuminance level near the entrance, preparing the friars to move onto the next space. Upon exiting the chapel, the foyer will serve as a place of gathering. During this time, the lighting should create a comfortable and inviting space with a uniform distribution throughout the foyer. One lighting design should be used to bring across both scenes.

SHADOWS

The windows and glass door allow for sunlight to enter the west side of the space during the day, though some will be blocked by the covered walkway that runs parallel to these windows. As the highest importance in the hierarchy of the space, the entrance to the chapel on the opposite wall should not be in shadow. In addition, when there is no sunlight, it is important that there are no shadows or dark spot in the corners on the west that would make the foyer appear dark and uninviting. Shadows should be purposely placed to bring out the highlighted areas and create a feeling of anticipation.

(Important)

COMPARISON TO ADJACENT SPACES

As a circulation space, the brightness of the foyer should be balanced with respect to the adjacent spaces. The ratio of the illuminance of the foyer to the adjacent corridor and vestibule should not be more than 5:1.

DIRECT GLARE

The arcade, located parallel to the windows along the west wall of the foyer will prevent direct glare from the sunlight. Special care will be taken when choosing and placing luminaires to ensure that there will also be no direct glare from the electric lighting.

LIGHTING

IESNA ILLUMINANCE RECOMMENDATIONS:

Horizontal:	Category B	Simple orientation for short visits	50 lx (5 fc)
Vertical:	Not Critical		

FOYER DESIGN INTENT





The foyer is used as a means of circulation to the main chapel. All traffic will flow through the foyer to the main entrance of the chapel. Thus, the main function and goal of the lighting design for the foyer is to direct the circulation route. The east hallway to the north of the foyer serves the traffic from the offices and the 2nd floor cells by means of the stairwell. The east hallway to the south serves the refectory, library and remainder of the 2nd floor cells by means of the elevator.

The current lighting design for the east hallway uses pendant fixtures that are placed at even intervals down the center of the space. The linear nature of this design makes the hallway appear long, continuous, and unending. The location of the foyer in the center of this hallway provides a great opportunity to create a visual break in this line of pendants. The proposed foyer lighting design accomplishes this task by placing wall sconces at the chapel door. This break in the line gives a visual cue to cease travel and change directions.

The secondary intent of the foyer is to create a sense of anticipation for the grand space ahead. To create this feeling of anticipation, and as allowed by the IES criteria, the light level in the foyer is lower than the hallway and the chapel. It is not uniform and all light is kept to the lower portion of the room. The walls are washed from the bottom up causing the focal interest to be on the lower portion of the wall and the cork flooring. Pictures are highlighted in recesses in the wall to provide a focal point in the room. Gimbal lamps are recessed in the ledge above the pictures to keep the lighting elements from the ceiling. The intent of leaving the ceiling uninterrupted and the visual interest at or below eye level is to make the ceiling feel low because the eye will never process the height of the ceiling. This will create a sharp contrast to the great heights of the chapel.

LIGHTING

LUMINAIRE SCHEDULE: FOYER

TYPE	IMAGE	DESCRIPTION	LAMPS	VOLTS	MOUNTING	MANUFACTURER	CATALOG NO.
F1		FOYER - BOWL WALL SCONCE	(2) 60 W A-19	120	SCONCE	WINONA	3203-I-120-FAH7-PB
F2		FOYER - PICTURE ACCENT LIGHT	QR CBC 20	120	RECESSED	ERCO	88100
F3		FOYER - RECESSED PROJECTOR	T2 - 11W (L1)	120	INGRADE	EXTERIERVERT	MERCURE M2-RMA-120-MER-LOL
		FOYER - WINDOW LEDGE CANDLE		BATTERY	WINDOW	CANDLE IMPRESSIONS	CA10808

LAMP SCHEDULE: FOYER

TYPE	FIXTURE	BALLAST	DESCRIPTION	WATTAGE	CRI	CCT	OUTPUT	RATED LIFE	MANUFACTURER	CATALOG NO.
L1	F1	N/A	A-19 INCANDESCENT - SOFT WHITE, LONG LIFE	60W	-	-	830 LMNS	1500 HRS	PHILIPS	60A/WL 12/4
L2	F2	B2	LOW VOLTAGE HALOGEN	20W	81	3000K	310 LMS	6000 HRS	PHILIPS	20MRC16/SP10-ESX
L3	F3	B3	T2 LINEAR FLUORESCENT 19" - WARM WHITE	11W	77	3000 K	620 LMNS	7000 HRS	NANJING JRIGHT ILLUMINATING SOURCE	YRY7-11WW
			AURELLE LED CANDLE ROUND	1W	-	-	-	350 HRS	PHILIPS	14589-6

BALLAST SCHEDULE: FOYER

TYPE	FIXTURE	LAMP NO.	LAMPS	VOLTAGE	START METHOD	INPUT (W)	BALLAST FACTOR	POWER FACTOR	THD(%)	MANUFACTURER	CATALOG NO.
B3	F3	L3	1	120	PROGRAM RAPID START	11W	> 0.97	1.00	< 10	TRIAD ELECTRONIC BALLASTS	ES1786X

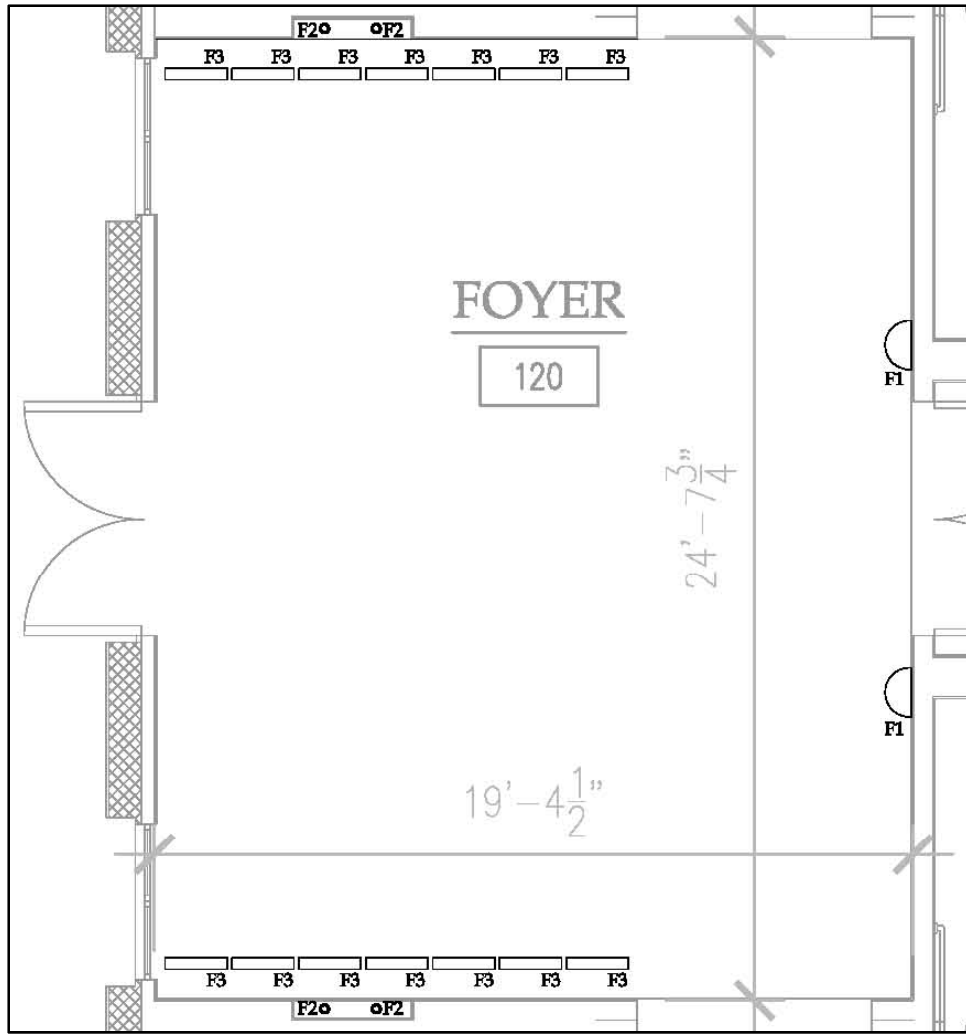
LIGHT LOSS FACTORS: FOYER

FIXTURE	MAINTENANCE CATEGORY	DISTRIBUTION	DIRT CONDITION	CLEANING CYCLE	LLD	LDD	RSDD	BF	TOTAL LLF
F1	II	INDIRECT	CLEAN	6 MONTHS	0.86	0.97	0.9	1	0.75
F2	IV	DIRECT	CLEAN	6 MONTHS	0.89	0.94	0.98	1	0.82
F3	II	INDIRECT	CLEAN	6 MONTHS	0.95	0.97	0.9	0.97	0.80

POWER DENSITY: FOYER

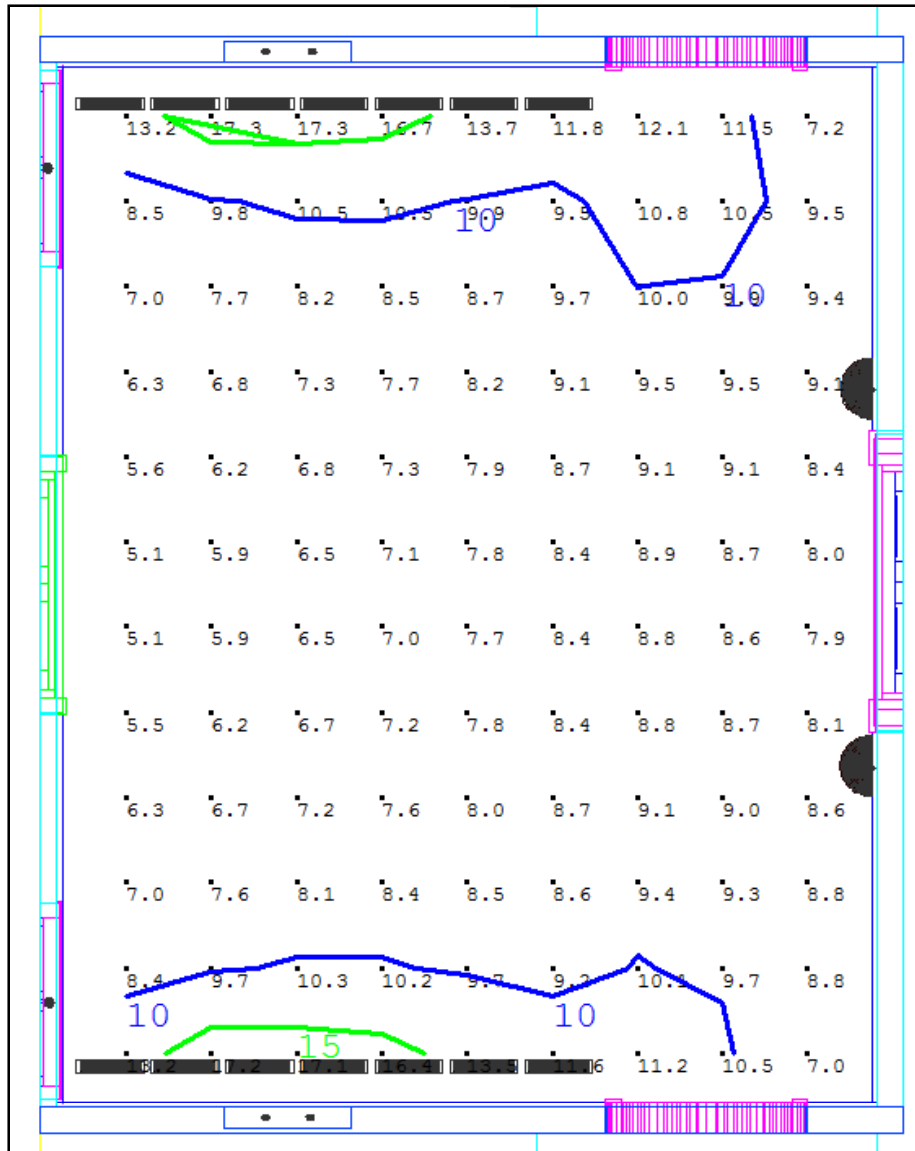
FIXTURE DESIGNATION	LAMPS PER FIXTURE	NO OF FIXTURES	INPUT WATTS	TOTAL INPUT WATTS	AREA OF ROOM	POWER DENSITY	ASHRAE STANDARD	OK?
F1	2	2	60	240				
F2	2	2	20	80				
F3	1	14	11	154				
				474	476	1.0	1.1	OK

LIGHTING



○ FOYER LIGHTING LAYOUT
SCALE: NONE

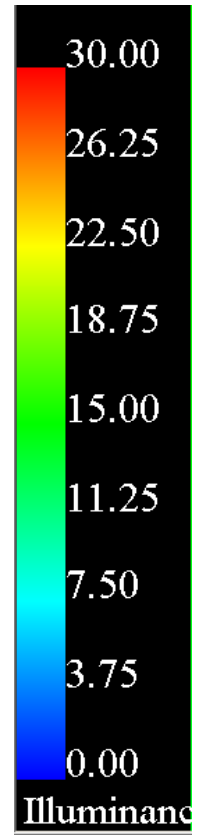
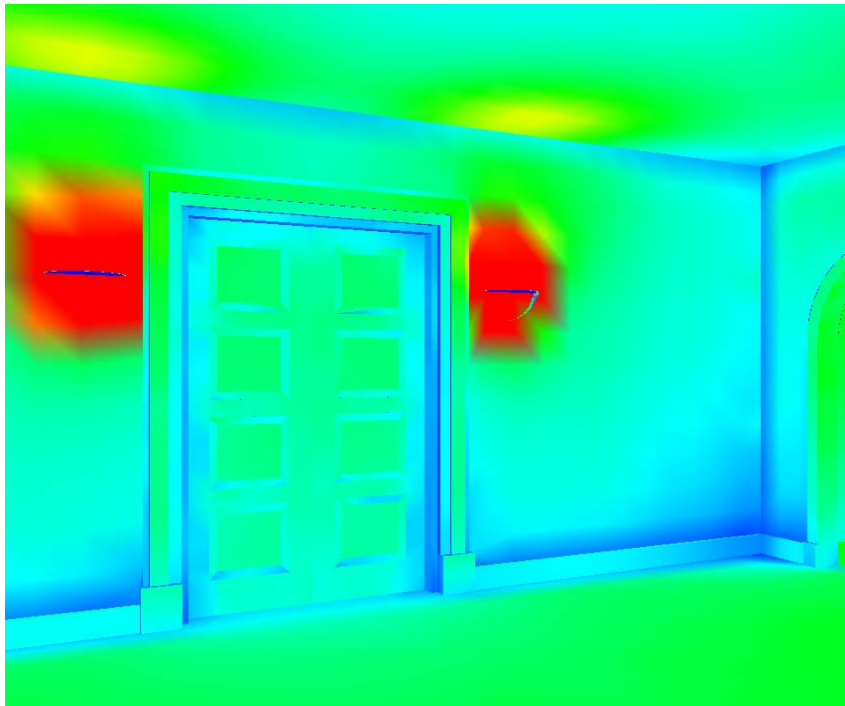
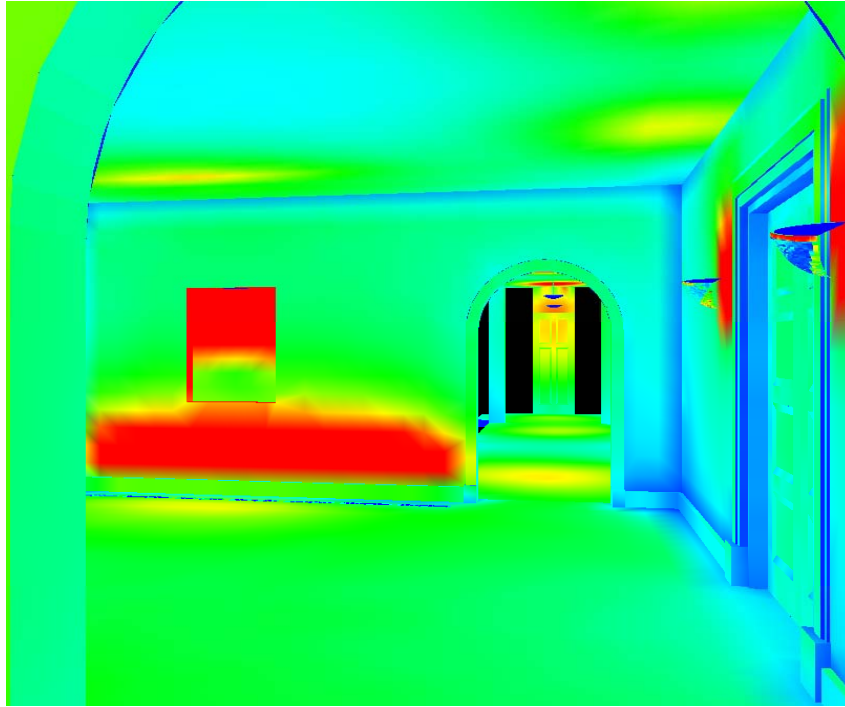
LIGHTING



FOYER ILLUMINANCE CALCULATION GRID
SCALE: NONE

CALC GRID	FOYER HORIZONTAL
AVERAGE	9.1 FC
MAXIMUM	17.3 FC
MINIMUM	5.1 FC
MAX:MIN RATIO	3.39
AVG: MIN RATIO	1.78

LIGHTING

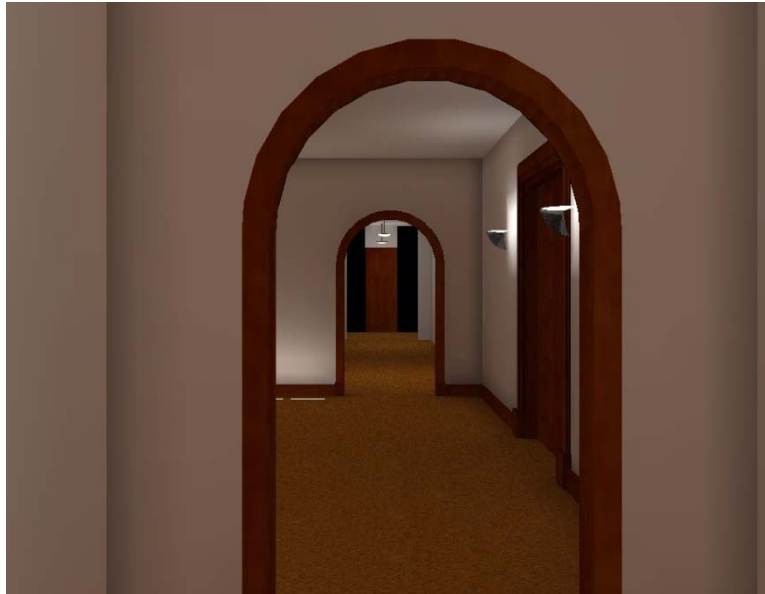


LIGHTING

VIEW INTO FOYER FROM NORTHEAST HALL



VIEW INTO FOYER FROM SOUTHEAST HALL



LIGHTING

VIEW OF SOUTH WALL

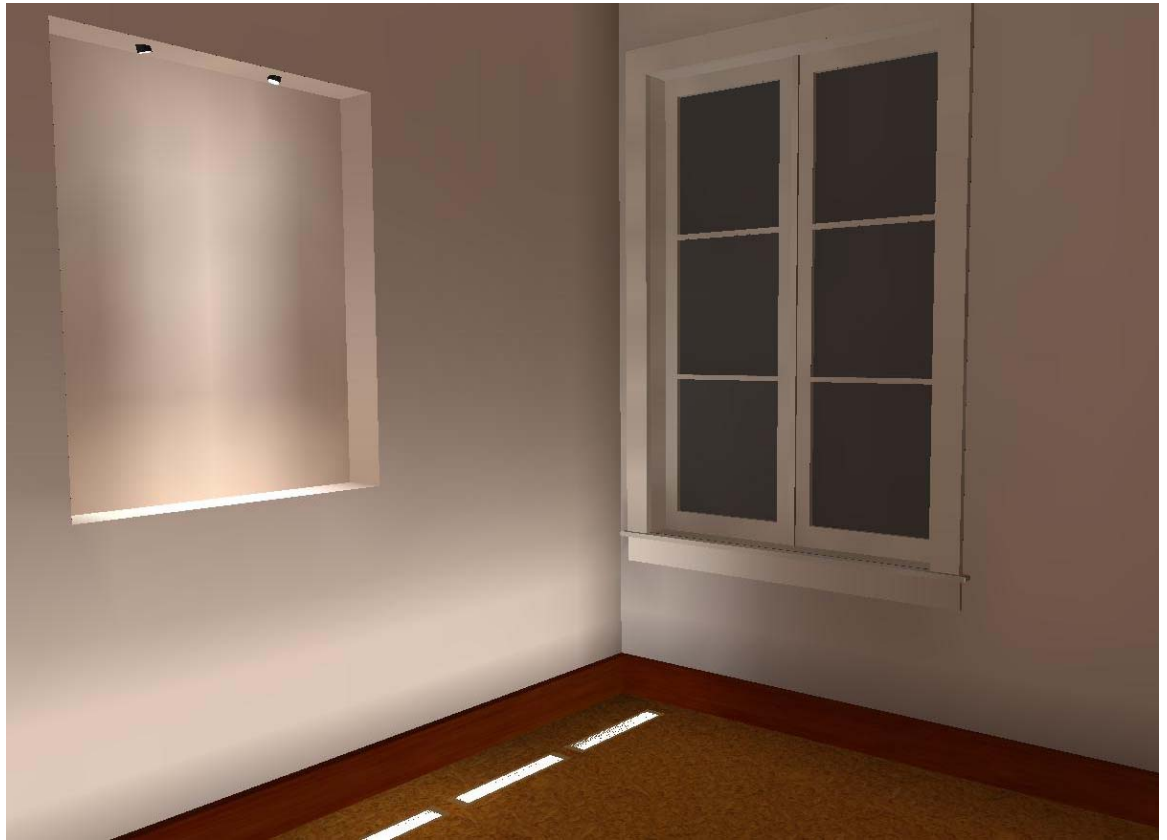


VIEW OF WEST WALL

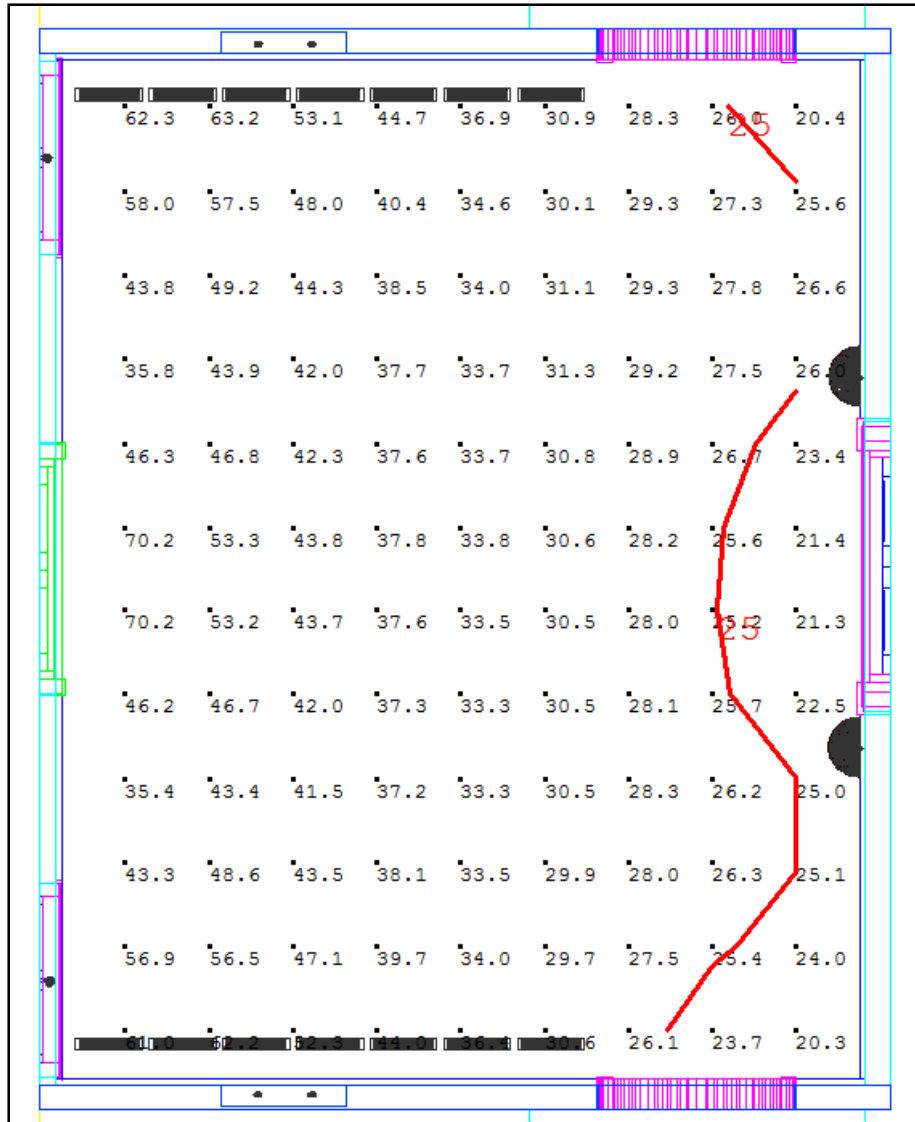


LIGHTING

CLOSE UP OF RECESS FOR PICTURE



LIGHTING



FOYER WITH DAYLIGHT ILLUMINANCE CALCULATION GRID
SCALE: NONE

CALC GRID	FOYER HORIZONTAL
AVERAGE	36.9 FC
MAXIMUM	70.2 FC
MINIMUM	20.3 FC
MAX:MIN RATIO	1.82
AVG: MIN RATIO	3.46

LIGHTING

VIEW TOWARD SOUTHEAST HALL WITH DAYLIGHTING



VIEW TOWARD INNER COURTYARD WITH DAYLIGHTING



VIEW TOWARD MAIN FOYER WITH DAYLIGHTING

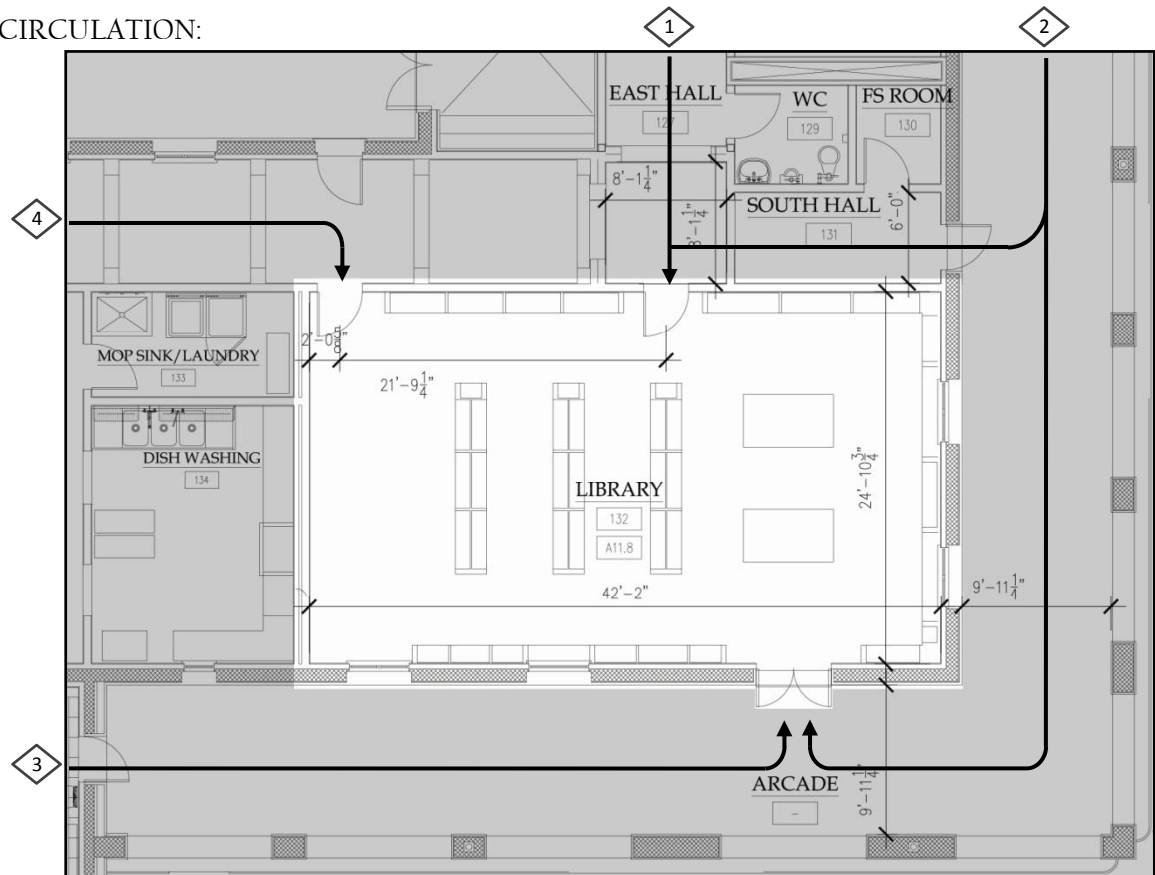


LIGHTING

DESCRIPTION:

The library is a rectangular space located in the southeast corner on the 1st floor of the friary. Used for quiet and personal activities such as reading, writing, and studying, the library is tucked away from the more active areas. To prevent disturbance from the dish washing station, sound attenuating material is used for the walls between the library and dishroom. The majority of the traffic to the library will be coming from the chapel and second floor cells by means of the east hall. Upon entering from this route, the first focal point that is apparent will be the stand alone bookshelves and tables in the center of the room. The cauffered natural finished mahogany ceiling will also be one of the main focal points. In addition to the bookshelves in the center of the room, the library has natural finished birch veneer built in shelves that span the north, east and south walls. The following discusses the circulation, dimensions, focal points and materials of the library.

CIRCULATION:



○ LIBRARY FLOOR PLAN
SCALE: NONE

- | | |
|-----|--------------------------------------------------------|
| ◇ 1 | Chapel, Offices, Stairs to 2 nd Floor Cells |
| ◇ 2 | Chapel |
| ◇ 3 | Refectory |
| ◇ 4 | Recreation |

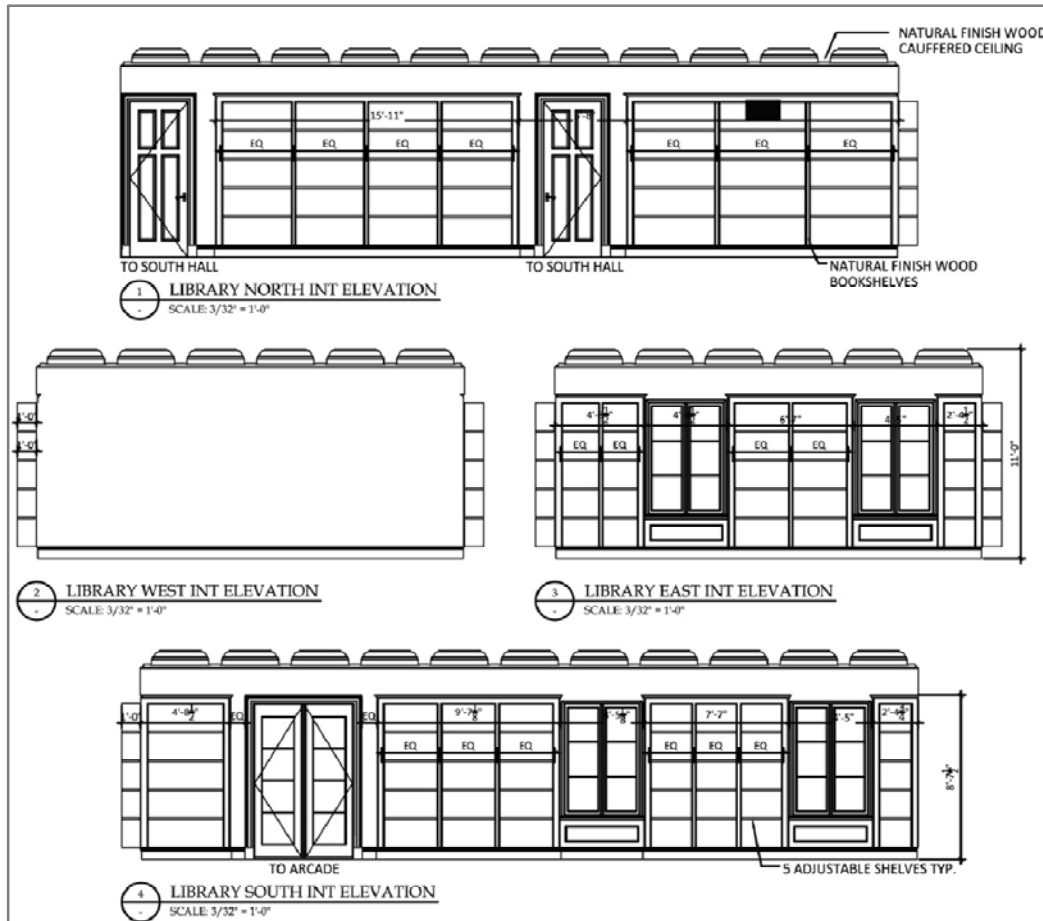
LIGHTING

DIMENSIONS:

	LIBRARY	ARCADE	EAST HALL
North-South	24' 11"	-	-
West-East	42' 2"	9' 11 1/4"	8' 1 1/4"
Ceiling Height	11' 0"	11' 0"	10' 0"
Floor Area	1051 ft ²	-	-

FOCAL POINTS:





North Elevation	Built in bookshelves, entrances from the south and east hall
West Elevation	Painted wall breaks up the shelving
East Elevation	Built in bookshelves, view to chapel courtyard
South Elevation	Built in bookshelves, view to south, solar gain blocked by arcade
Ceiling	Natural wood cauffered ceiling
Furniture	Stand alone bookshelves provided in center of room Two(2) tables provided on the east side of the space



LIBRARY INTERIOR ELEVATIONS
SCALE: 3/32" = 1' - 0"

LIGHTING

MATERIAL/REFLECTANCES:

	<u>Surface</u>	<u>Material</u>	<u>Reflectance</u>
	Ceiling	Benjamin Moore Paint: Wood Ash	0.05
	Wall	Benjamin Moore Paint: Stone House	0.73
	Shelving	Birch Plywood Natural Finish	0.55
	Flooring	Carpet	0.24

DESIGN CRITERIA/CONSIDERATIONS

READING

(Very Important)

APPEARANCE OF SPACE AND LUMINAIRES:

The architecture in the library is well designed and efficiently fulfills its purpose. The bookshelves, though built into the walls, are a focal point and a decorative aspect of the space. In addition, the natural finished cauffered ceiling provides visual interest. The simple and elegant nature of the space requires a lighting plan that will compliment the architecture and not detract from the beauty of the woodwork.

DIRECT GLARE:

One of the major concerns in the library is direct glare caused by both the electric and daylighting. In order to minimize distractions and discomfort that will result in lower satisfaction and productivity, solutions such as the use of indirect fixtures and the use of the Arcade's overhang to block excessive sunlight will be developed.

IESNA ILLUMINANCE RECOMMENDATIONS:

Horizontal: Category D	Performance of visual task of high contrast	300 lx (30 fc)
Vertical:	Not Critical	

REFLECTED GLARE:

Though the majority of the reading material in the library will be matte surfaces, there will be several glossy reading materials available. To avoid the distraction and discomfort caused by reflected glare, consideration will be put into the placement and type of luminaires chosen for the space.

POWER ALLOWANCE:

According to ASHRAE 90.1- 2004 Energy Standard for Building's Space-by-Space method, the allowable power density for a library is 1.7 W/ft².

LIGHTING

SOURCE/TASKS/EYE GEOMETRY:

Desks, available on the east side of the library, are provided for reading and writing on various materials. These materials will include glossy magazines, photocopies, or material that is handwritten with a #2 or softer lead pencil or a ballpoint pen. The geometry between the task and the light source will be considered in order to develop a design that produces minimal veiling reflections.

(Important)

COLOR APPEARANCE(AND CONTRAST)

Wood is the most prevalent interior finish in this space used on the bookshelves, the ceiling and the table. In order to draw out the contrast in the grains of the wood, high color rendering index is important.

LIGHT DISTRIBUTION ON SURFACE

The light should be uniformly distributed on the task plane. This is important for both the bookstacks as well as the tables for reading.

LUMINANCE RATIOS:

The luminance ratio from task to background should not be below 1:5 and the task to wall ratio should be not be greater than 3:1.

BOOKSTACKS: ACTIVE

(Very Important)

DEGRADATION FACTORS:

Radiant energy absorbed from the electric and daylighting can cause books to dry out, fade, the binding to lose strength, and the covers to fray. The design for the lighting of the shelves should minimize the book's exposure to radiant energy in order that they maintain their value.

DIRECT GLARE:

The titles on the spine of the book may be faded and the contrast decreased from wear and tear. To be able to easily browse through the books while keeping the illuminance level at a minimum to prevent degradation, direct glare should be avoided.

IESNA ILLUMINANCE RECOMMENDATIONS:

Horizontal:	Not Critical	
Vertical:	Category D	Performance of visual task of high contrast 300 lx (30 fc)

LIGHT DISTRIBUTION ON SURFACE

The light should be uniformly distributed across the books on the shelves.

LIGHTING

SHADOWS:

Linear or area sources 30 degrees from the vertical will be used to illuminate the bookshelves so that shadows are not formed on the books from the friars.

LIBRARY DESIGN INTENT





The library is located in the southeast corner of the building. It is distanced from the main spaces of the building so it can function in the quiet and secluded atmosphere desired for this type of space. To enter the library, one must traverse the east or south hallway. Both hallway's current designs use a continuous line of pendant fixtures. Upon entering the library from the east hallway, the first impression of the space will be the vast array of books. The main view will be the bookshelves located in the center of the room.

The main architectural elements of the space are the wood cauffered ceiling and the built-in book shelf. In large part, the goal of the lighting design is to draw appreciation to and honor the design of the cauffered ceiling. The lighting elements are planned with the intention of not puncturing or diminishing the value of this feature.

According to IES recommendations, bookshelves require a high illuminance value of 30 fc from top to bottom. This criterion is hard to meet with a small and unobtrusive fixture. In order to comply with the recommendation, keep the ceiling untouched and pure in design, and avoid compromising the look of the space, a fixture was chosen that most fits the architectural appeal. This fixture is designed for library lighting and will be cantilever mounted from the top of the bookshelves. It continues around three of the four perimeter walls. The final wall, the only wall absent of bookshelves, will have candle sconces used to illuminate the last aisle of shelving.

LIGHTING

LUMINAIRE SCHEDULE: LIBRARY

TYPE	IMAGE	DESCRIPTION	LAMPS	VOLTS	MOUNTING	MANUFACTURER	CATALOG NO.
F4		LIBRARY - COVE ABOVE BOOKSHELVES	T5HO	120	COVE	LEDALITE/CUSTOM	IN-COVE II 3808H01EN
F5		LIBRARY - STACK LIGHTING	T5HO	120	WALLWASH	ELLIPTIPAR/CUSTOM	F140-T124-Y-02-T (VXC-02-12)
F6		LIBRARY - WALL SCONCE	13TT	120	SUSPENDED/ WALL MOUNTED	LIGHTOLIER	FW01-PW13SA-SG02-13TT-120
F7		LIBRARY - TABLE LAMPS	N/A	120	TABLE	USER DEFINED	N/A

LAMP SCHEDULE: LIBRARY

TYPE	FIXTURE	BALLAST	DESCRIPTION	WATTAGE	CRI	CCT	OUTPUT	RATED LIFE	MANUFACTURER	CATALOG NO.
L4	F4	B4	(1) T5HO LINEAR FLUORESCENT	39W	85	3500	3500 LMNS	20000 HRS	PHILIPS	F39T5/835/HO/ALTO
L5	F5	B5	(1) T5HO LINEAR FLUORESCENT	24W	85	3500	2000 LMNS	20000 HRS	PHILIPS	F24T5/835/HO/ALTO
L6	F6	B6	4-PIN ELEC TWIN TUBE	13W	82	3500	900 LMNS	12000 HRS	PHILIPS	PL-C 13W/835/4P/ALTO
L7	F7	B7	EL/T MED BASE	34W	82		2100 LMNS	7000 HRS	PHILIPS	37082-5

BALLAST SCHEDULE: LIBRARY

TYPE	FIXTURE	LAMP NO.	LAMPS	VOLTAGE	START METHOD	INPUT (W)	BALLAST FACTOR	POWER FACTOR	THD(%)	MANUFACTURER	CATALOG NO.
B4	F4	L5	1	120	PROGRAM RAPID START	40W	1.02	0.98	10	ADVANCE TRANSFORMER	ICN-2S39@120V
B5	F5	L6	1	120	PROGRAM RAPID START	27W	1.02	0.98	10	ADVANCE TRANSFORMER	ICN-2S24@120V
B6	F6	L7	1	120	PRE-HEAT	16W	0.89	1.01	25	ADVANCE TRANSFORMER	H-1B1-13-TP-BLS
B7	F8	L8	1	120	PROGRAM RAPID START	33W	1.04	0.98	10	ADVANCE TRANSFORMER	ICN-2S28@120V

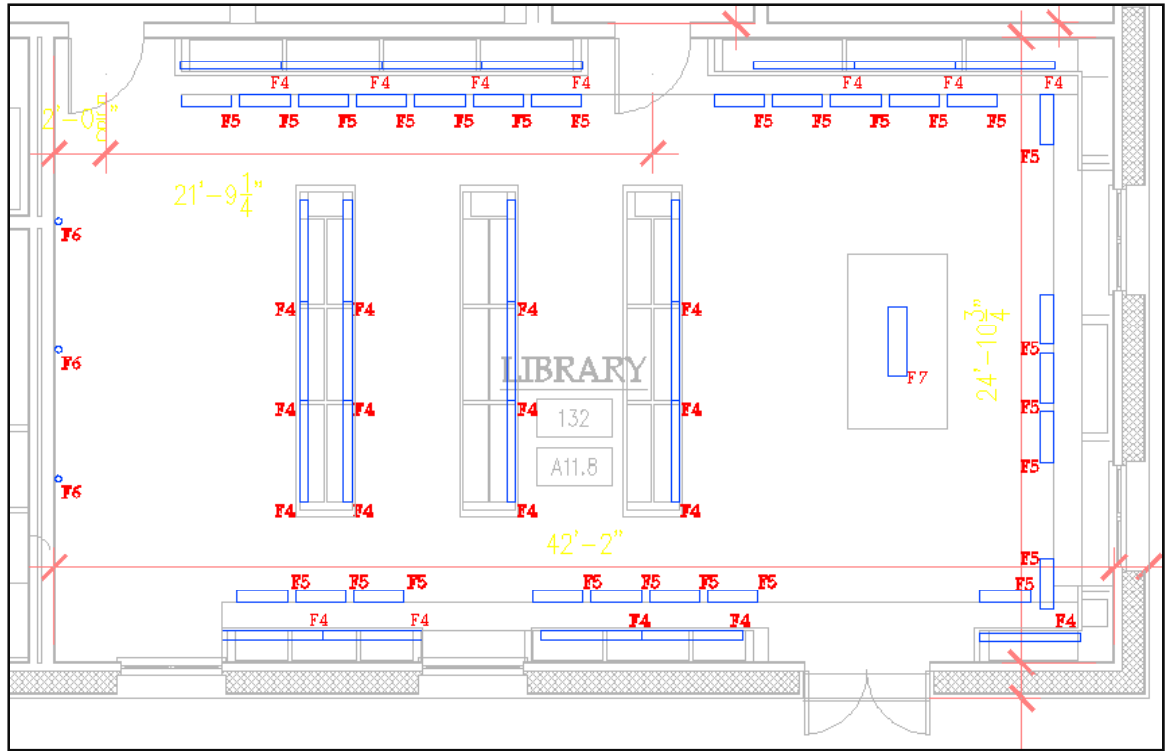
LIGHT LOSS FACTORS: LIBRARY

FIXTURE	MAINTENANCE		DIRT CONDITION	CLEANING CYCLE	LLD	LDD	RSDD	BF	TOTAL LLF
	CATEGORY	DISTRIBUTION							
F4	II	INDIRECT	CLEAN	6 MONTHS	0.93	0.97	0.9	1.02	0.83
F5	IV	DIRECT	CLEAN	6 MONTHS	0.93	0.94	0.98	1.02	0.87
F6	V	GENERAL DIFFUSE	CLEAN	6 MONTHS	0.86	0.92	0.97	0.89	0.68

POWER DENSITY: LIBRARY

FIXTURE DESIGNATION	LAMPS PER FIXTURE	NO OF FIXTURES	INPUT WATTS	TOTAL INPUT WATTS	AREA OF ROOM	POWER DENSITY	ASHRAE STANDARD	OK?
F4	1	24	40	960				
F5	1	24	27	648				
F6	1	3	16	48				
				1656	1051	1.6	1.7	OK

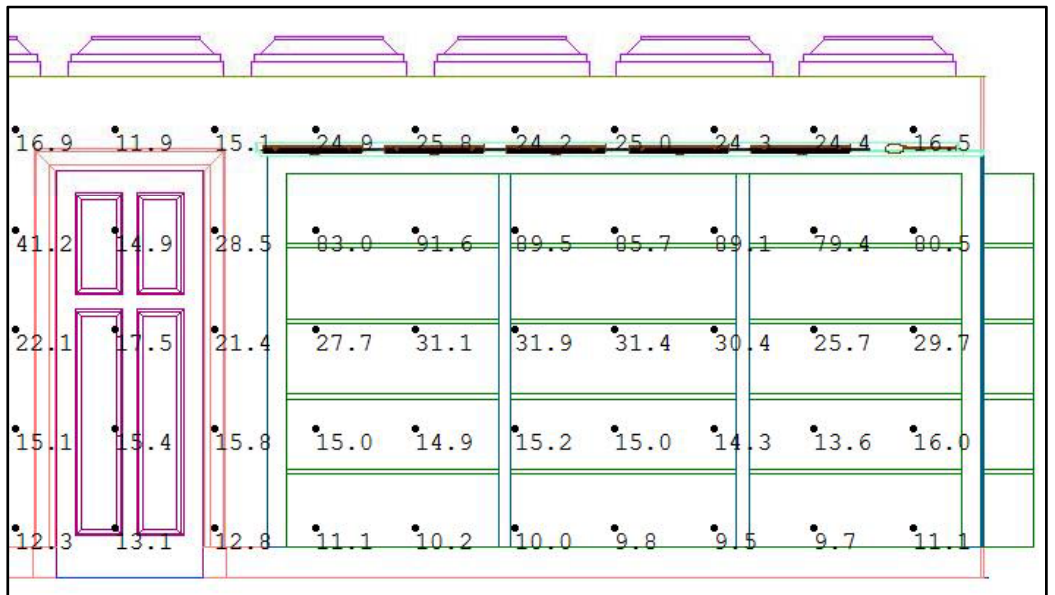
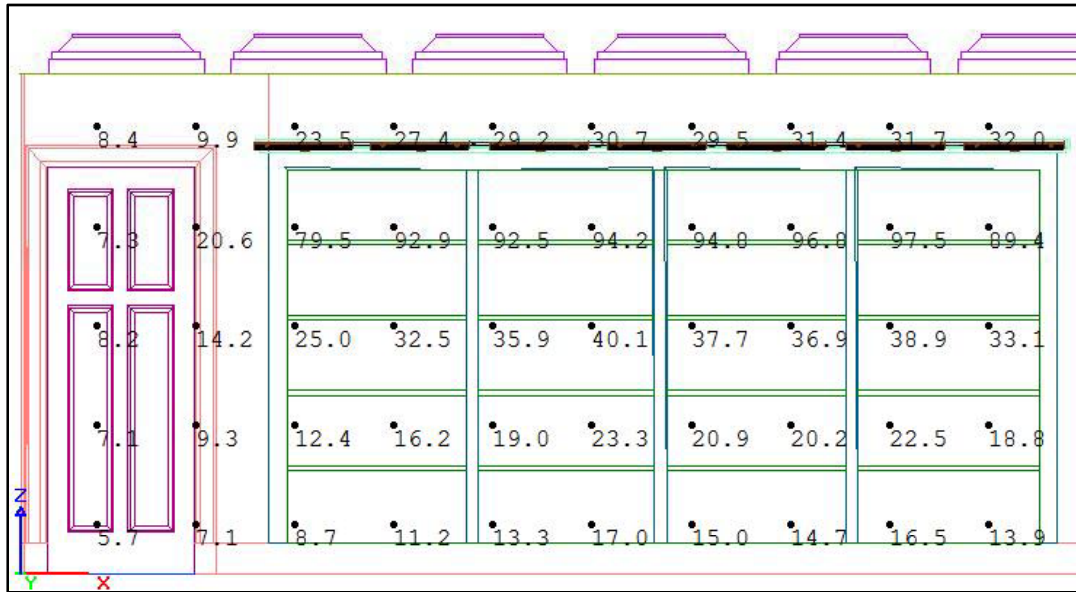
LIGHTING



○ FOYER LIGHTING LAYOUT
SCALE: $1/8" = 1'-0"$

LIGHTING

ILLUMINANCE LEVELS: BOOKSHELVES



○ LIBRARY ILLUMINANCE CALCULATION GRID
SCALE: NONE

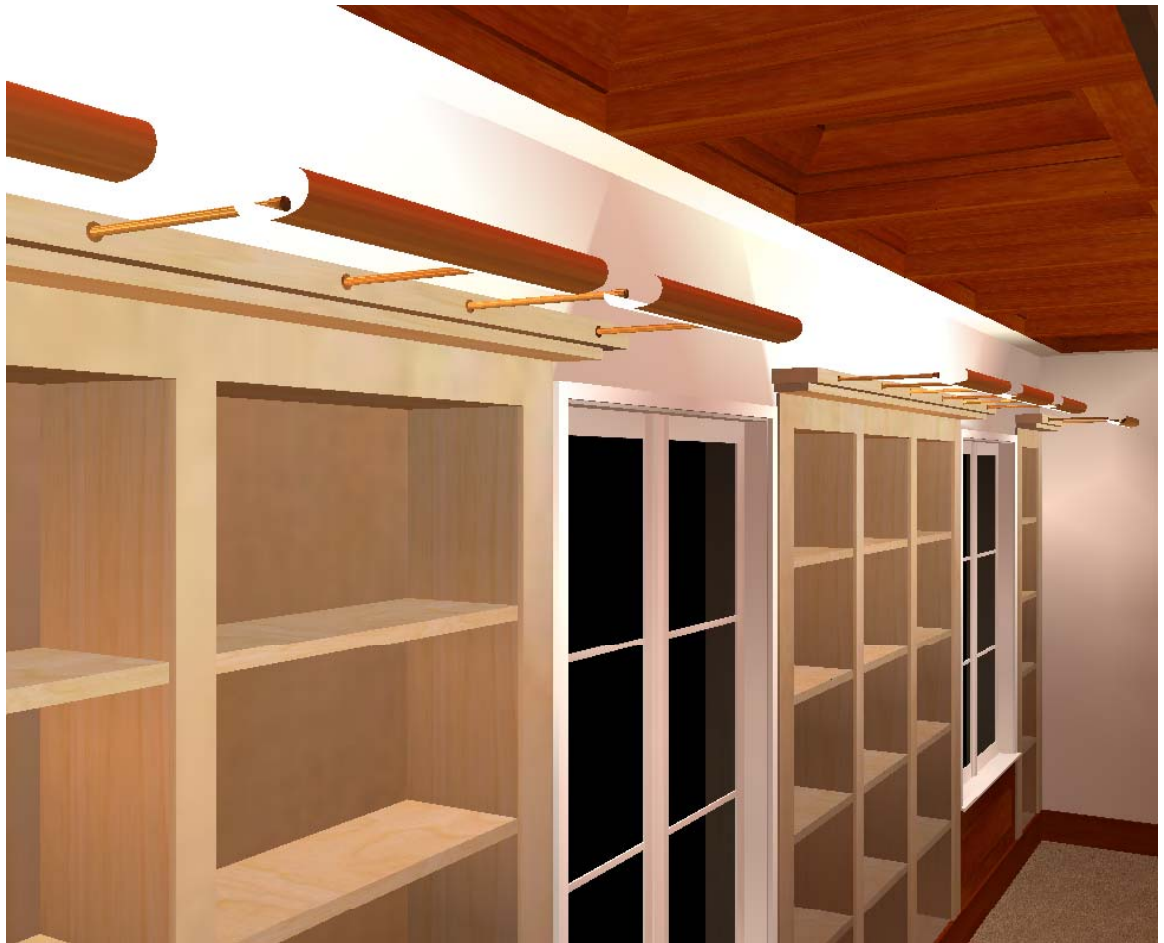
CALC GRID	VERTICAL
AVERAGE	30.4 FC
MAXIMUM	97.5 FC
MINIMUM	5.7 FC
MAX:MIN RATIO	17.1
AVG: MIN RATIO	5.3

LIGHTING

LIBRARY: ENTRANCE FROM EAST HALLWAY



LIBRARY: BUILT-IN BOOKSHELVES



LIGHTING

LIBRARY: FREE STANDING BOOKSHELVES



LIBRARY: VIEW TO CHAPEL COURTYARD

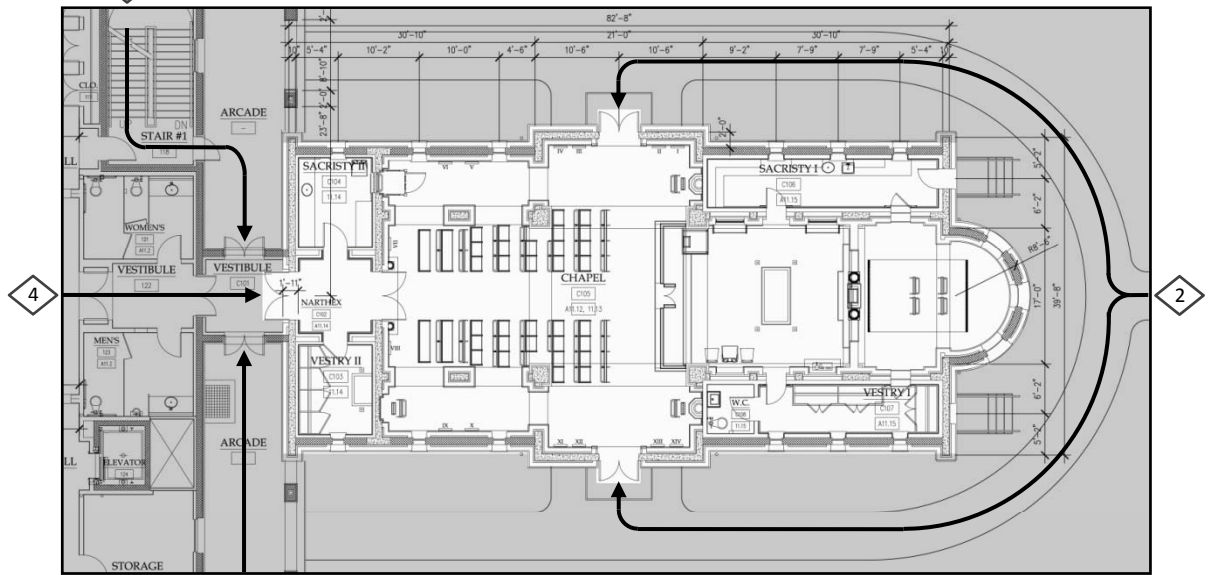


LIGHTING

DESCRIPTION:

The chapel has a more complex design and holds the highest importance of all the spaces in the friary. There is one interior entrance marked by a grand mahogany doorway in the foyer. This entrance enters the vestibule leading to two other interim spaces before entering the chapel. The other main traffic routes to the chapel are exterior routes and can be found on the flow diagram below. The chapel is a holy place set aside as an area of worship. The space itself is two stories of stone with stained glass displays on both levels of the North, East and South walls. The travertine flooring continues the design of using natural materials. The ceiling height, design, and material vary throughout the chapel. There are low, high, and domed ceilings made of stone, stucco, or exposed wood trusses. Stone archways are placed throughout the chapel as the ceiling or use of the spaces change. The following discusses more in depth the circulation, dimensions, focal points and materials of the chapel.

FLOOR PLAN/CIRCULATION:



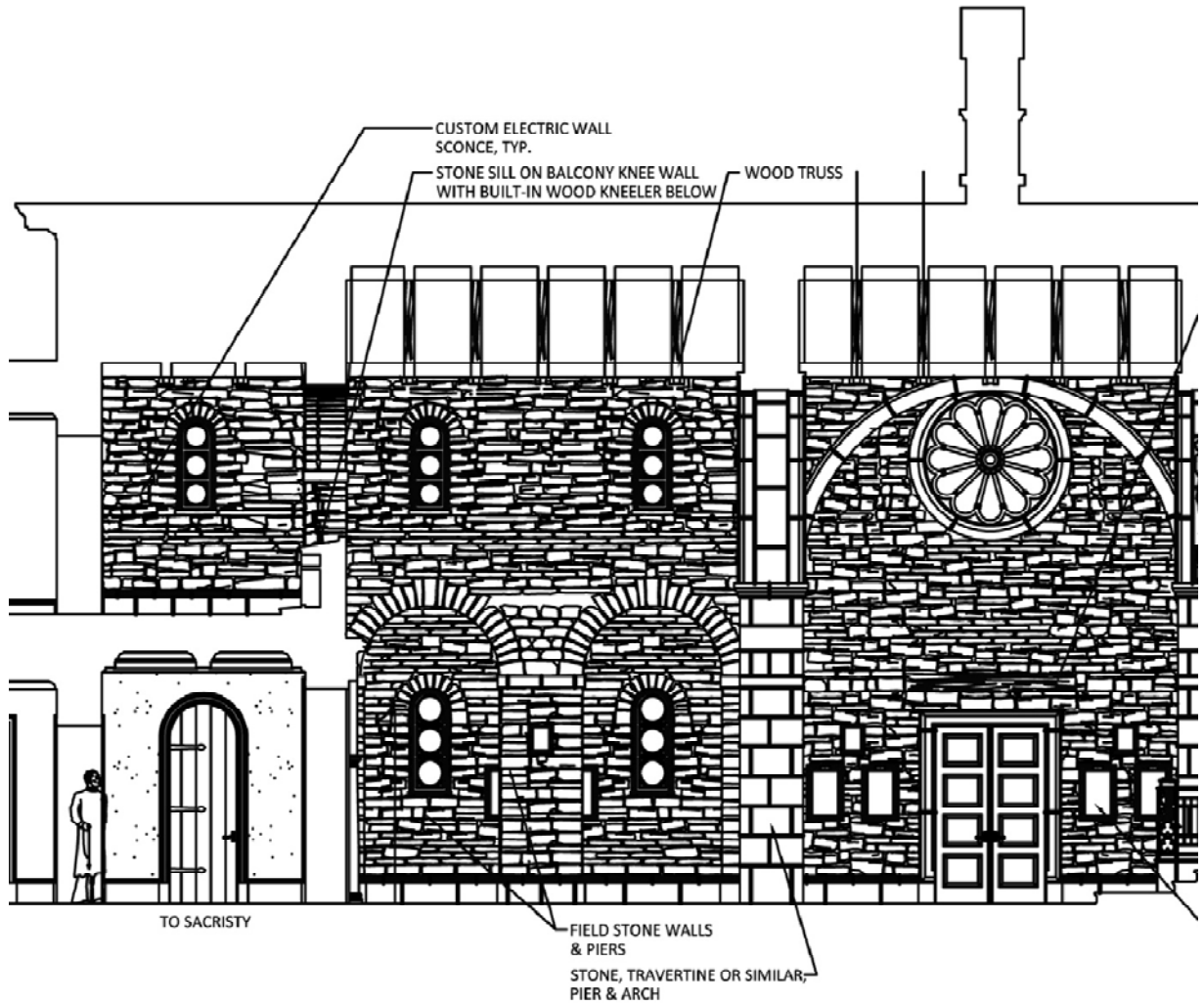
○ CHAPEL FLOOR PLAN
SCALE: NONE

- ◇ 1 Stairs to 2nd Floor Cells
- ◇ 2 Courtyard
- ◇ 3 Library, Refectory
- ◇ 4 Foyer

LIGHTING

SUMMARY OF SPACE

FOYER
LIBRARY
CHAPEL
COURTYARD

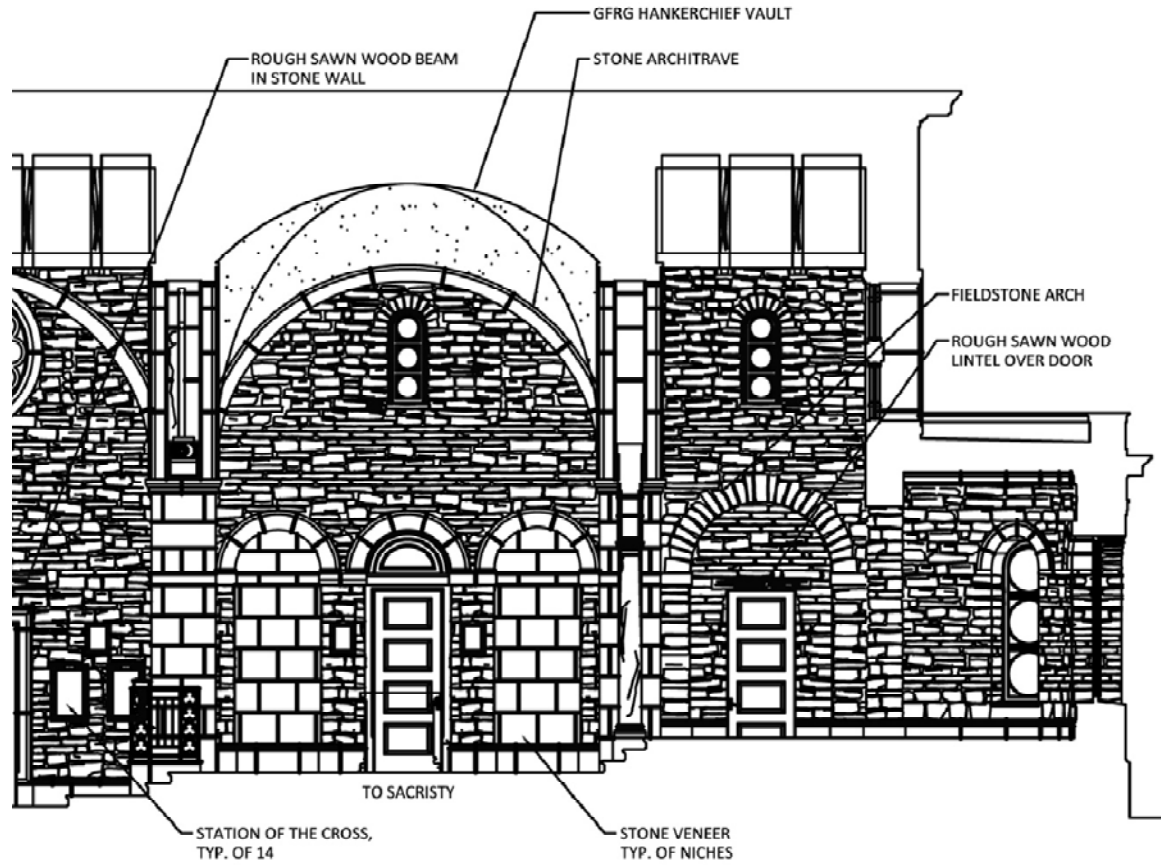


○ CHAPEL INTERIOR ELEVATION (TYPICAL NORTH AND SOUTH)
SCALE: 3/32"=1'-0"

LIGHTING

SUMMARY OF SPACE

FOYER
LIBRARY
CHAPEL
COURTYARD



○ CHAPEL INTERIOR ELEVATION (TYPICAL NORTH AND SOUTH)
SCALE: 3/32"=1'-0"

LIGHTING

SUMMARY OF SPACE

FOYER
LIBRARY
CHAPEL
COURTYARD


DIMENSIONS:

	CHAPEL	NARTHEX	VESTIBULE
North-South	39' 8"	9' 4"	8' 1 ¼"
West-East	91' 2"	9' 4"	-
Ceiling Height	VARIES	11' 4"	10' 0"
Floor Area	1990 ft ²	-	-

FOCAL POINTS:

West Elevation	Entrance from Foyer, 2 nd Floor Balcony
North Elevation	Grand archways
East Elevation	Pulpit, Christ on the Cross, Tabernacle
South Elevation	Grand archways
Ceiling	Exposed wood trusses
Furniture	Pews located in center of chapel

MATERIALS:

	Surface	Material	Reflectance
	Capitals	Travertine: Brushed Ivory	0.61
	Walls	Alabama Brown Fieldstone	0.26
	Recess	Stone Veneer: Alabama Yellow	0.26
	Floor	Travertine: Noce Finish	0.33
	Door/Trusses	Honduras Mahogany	0.12

DESIGN CRITERIA/CONSIDERATIONS

CONGREGATIONAL AREA

(Very Important)

APPEARANCE OF SPACE AND LUMINAIRES:

The chapel is a holy space set aside for worship. The luminaires chosen should match and blend with the appearance of the space without distracting from the main focus.

COLOR APPEARANCES:

Various finishes are used throughout the chapel including fieldstone, travertine, and mahogany. The source type and color rendering index should be considered in design to enhance the characteristics of these rich materials.

LIGHTING

DIRECT GLARE:

The light sources should be placed at a height and location where they are not in direct view. Adequate glazing should be provided on windows to avoid discomfort glare. This is a minor concern since the majority of the windows in the chapel are stained glass.

FLICKER:

As a large space, the chapel has potential for noticeable flicker. This should be considered when choosing sources and ballasts.

MODELING OF FACES OR OBJECTS:

This area, as portrayed in the name, will be used for congregating, therefore, facial modeling is important.

SURFACE CHARACTERISTICS:

As discussed in the color rendering criteria, high quality materials were used for this space. The fieldstone used for the walls in particular will have a three dimensional quality that should be enhanced by the lighting design.

(Important)

IESNA ILLUMINANCE RECOMMENDATIONS:

Horizontal: Category C	Working space, simple tasks performed	100 lux (10 fc)
Vertical: Category A	Public space	30 lux (3 fc)

LIGHT DISTRIBUTION ON TASK PLANE:

One of the tasks that will occur in this space is reading of the Bible. The distribution on the task plane will need to be uniform to alleviate strain.

POWER ALLOWANCE:

According to ASHRAE 90.1- 2004 Energy Standard for Building's Space-by-Space method, the allowable power density for this space is 1.1 W/ft².

POINTS OF INTEREST:

The points of interest in the chapel include Christ on the cross, the tabernacle, and the paintings on display.

CONGREGATIONAL AREA

SHADOWS:

The elaborate architectural design of the chapel incorporates archways as a division between the different areas of the chapel. The luminaires should be placed at a height, angle, and frequency that minimizes the shadows created by this physical division.

LIGHTING

LEADERSHIP AREA

(Very Important)

DIRECT GLARE:

The leadership area requires higher illuminance levels than the congregational space. However, care should be taken when placing luminaires to avoid disabling or discomfort glare on the speaker.

IESNA ILLUMINANCE RECOMMENDATIONS:

Horizontal:	Category D	Performance of visual tasks of high contrast	300 lux (30 fc)
Vertical:	Category D	Performance of visual tasks of high contrast	300 lux (30 fc)

MODELING OF FACES AND OBJECTS:

Modeling of the leadership area is important so that facial features, expressions, and movement can be easily read.

POWER ALLOWANCE:

According to ASHRAE 90.1- 2004 Energy Standard for Building's Space-by-Space method, the allowable power density for this space is 1.1 W/ft².

(Important)

LIGHT DISTRIBUTION ON TASK PLANE:

As a reading area, the light distribution should be uniformly distributed across the task plane. This will allow for the speaker to quickly glance down at notes or the bible without having to shift the reading material to receive better lighting conditions.

REFLECTED GLARE:

The source/task/eye geometry should be determined for the lighting of the pulpit area to ensure that there is minimal reflected glare.

HIGHLIGHTED ITEMS

IESNA ILLUMINANCE RECOMMENDATIONS:

Horizontal:		Not critical	
Vertical:	Category D	Performance of visual tasks of high contrast	300 lux (30 fc)

LIGHTING

CHAPEL DESIGN INTENT

The definition of a friary states that it is a dwelling place reserved for prayer. As such, the chapel will be the most important of the spaces. Determining a lighting design to honor the holiness and architecture of the space was difficult. The goal was to enhance the features of the space and the holiness of the atmosphere without drawing attention to the lighting design itself. To accomplish this task, sources were used to illuminate areas of need while the fixtures remained hidden from view. The only visible fixture is the pendant lamps lined down the center of the chapel. These pendants will be simple in order to not draw attention to themselves.







The most important features of the chapel are Christ on the cross, the paintings and statues located in the side of the crossing, the altar, the pulpit, the tabernacle, the grand arches and the exposed trusses. The lighting was designed to enhance these features and to allow the space to “shine” based upon its architecture while leaving the focus on the task of worship and not the elements of the space.

A hierarchy of importance was developed in order to determine the proper lighting necessary for the space. As a result, three layers of light were introduced; ambient, accent and task lighting. The ambient lighting is provided in the space by uplighting the grand arches and by providing an ambient glow from the pendant fixtures. Indirect flood lights were mounted on the top surface of the capitals of the columns to illuminate the underside of the grand arches and give height to the space. The pendant fixtures illuminate the exposed trusses but leave the ceiling above the trusses unlit so the true height of the space is not revealed. The pendant fixtures should provide the light levels necessary to accomplish the tasks of reading and writing. The task lighting for the pulpit is a pendant light mounted on the beam overhead.

Two spotlights were placed on either side of the mantle and used to uplight the cross. A fill light will be created from the ambient light in the chapel itself. This will allow the statue to be accented without creating strong shadows that mask its intricate details. The same spotlights will be used to accent the altar and tabernacle behind.

LIGHTING

LUMINAIRE SCHEDULE: CHAPEL

TYPE	IMAGE	DESCRIPTION	LAMPS	VOLTS	MOUNTING	MANUFACTURER	CATALOG NO.
F8		CHAPEL - RECESSED DOWNLIGHTS	26W TT	120	RECESSED	KURT VERSEN	CFT626HEB
F9		CHAPEL - DISPLAY SPOTLIGHTS 10, 25, 40 DEGREE SPREAD	39W T6	120	SURFACE MOUNTED	PRESCOLITE	AKTMHT639 WH AKTSP1 WH
F10		CHAPEL - SMALL ARCHWAY SPOTLIGHT	35W MH	120	WALL MOUNTED	ERCO LIGHT SCOUT	33511
F11		CHAPEL - MAIN PENDANT FIXTURE SPOTLIGHT	(8)35W HAL	120	PENDANT	CUSTOM FIXTURE	N/A
F12		CHAPEL - PENDANT ABOVE PULPIT	20W HAL	120	PENDANT	LIGHTOLIER	8684
F13		CHAPEL - MEDITATION SPACE PENDANT	20W HAL	120	PENDANT	LIGHTOLIER	8684

LAMP SCHEDULE: CHAPEL

TYPE	FIXTURE	BALLAST	DESCRIPTION	WATTAGE	CRI	CCT	OUTPUT	RATED LIFE	MANUFACTURER	CATALOG NO.
L8	F8	B8	COMPACT FLUORESCENT GX24Q-3 BASE	26W	82	3000	1200 LMS	12000 HRS	PHILLIPS	PL-T 26W/830/RP/ALTO
L9	F9	B9	METAL HALIDE T-6 WITH G12 BASE	39W	81	4000	3300 LMS	9000 HRS	PHILLIPS	CDM35/T6/840
L10	F10	B10	METAL HALIDE T-4 WITH G8.5 BASE	39W	81	3000	3300 LMS	9000 HRS	PHILLIPS	CDM35/TC/830
L11	F11	-	(8)HALOGEN MRC-16 GU5.3 BASE	35W	-	3000	870 LMS	5000 HRS	PHILLIPS	35MRC16/IRC/WFL60
L12	F12	-	HALOGEN MRC-16 GU5.3 BASE	20W	-	3000	400 LMNS	5000 HRS	PHILLIPS	20MRC16IRC/FL26
L13	F13	-	HALOGEN MRC-16 GU5.3 BASE	20W	-	3000	400 LMS	5000 HRS	PHILLIPS	20MRC16IRC/FL26

BALLAST SCHEDULE: CHAPEL

TYPE	FIXTURE	LAMP	NO. LAMPS	VOLTAGE	START METHOD	INPUT (W)	BALLAST FACTOR	POWER FACTOR	THD(%)	MANUFACTURER	CATALOG NO.
B8	F8	L8	1	120	RAPID START	29W	1.00	0.98	10	ADVANCE TRANSFORMER	RCF-2S26-H1-LD-QS
B9	F9	L9	1	120	ELECTRONIC	45W	1.00	0.9	15	ADVANCE TRANSFORMER	IMH-39-A-M110
B10	F10	L10	1	120	ELECTRONIC	45W	1.00	0.9	15	ADVANCE TRANSFORMER	IMH-39-A-M110

LIGHT LOSS FACTORS: CHAPEL

FIXTURE	MAINTENANCE CATEGORY	DISTRIBUTION	DIRT CONDITION	CLEANING CYCLE	LLD	LDD	RSDD	BF	TOTAL LLF
F8	IV	DIRECT	CLEAN	6 MONTHS	0.85	0.96	0.97	1.00	0.79
F9	IV	DIRECT	CLEAN	6 MONTHS	0.83	0.96	0.97	1.00	0.77
F10	II	INDIRECT	CLEAN	6 MONTHS	0.83	0.92	0.89	1.00	0.68
F11	IV	DIRECT	CLEAN	6 MONTHS	0.93	0.96	0.97	1.00	0.87
F12	IV	DIRECT	CLEAN	6 MONTHS	0.93	0.96	0.97	1.00	0.87
F13	IV	DIRECT	CLEAN	6 MONTHS	0.93	0.96	0.97	1.00	0.87

POWER DENSITY: CHAPEL

FIXTURE DESIGNATION	LAMPS PER FIXTURE	NO OF FIXTURES	INPUT WATTS	TOTAL INPUT WATTS	AREA OF ROOM	POWER DENSITY	ASHRAE STANDARD	OK?	
F8	1	5	29	145					
F9	1	4	45	180					
F10	1	12	45	540					
F11	8	5	35	1400					
F12	1	1	20	20					
F13	1	6	20	120					
					2405	1900	1.3	2.4	OK

LIGHTING

CHAPEL INTERIOR



CHAPEL INTERIOR

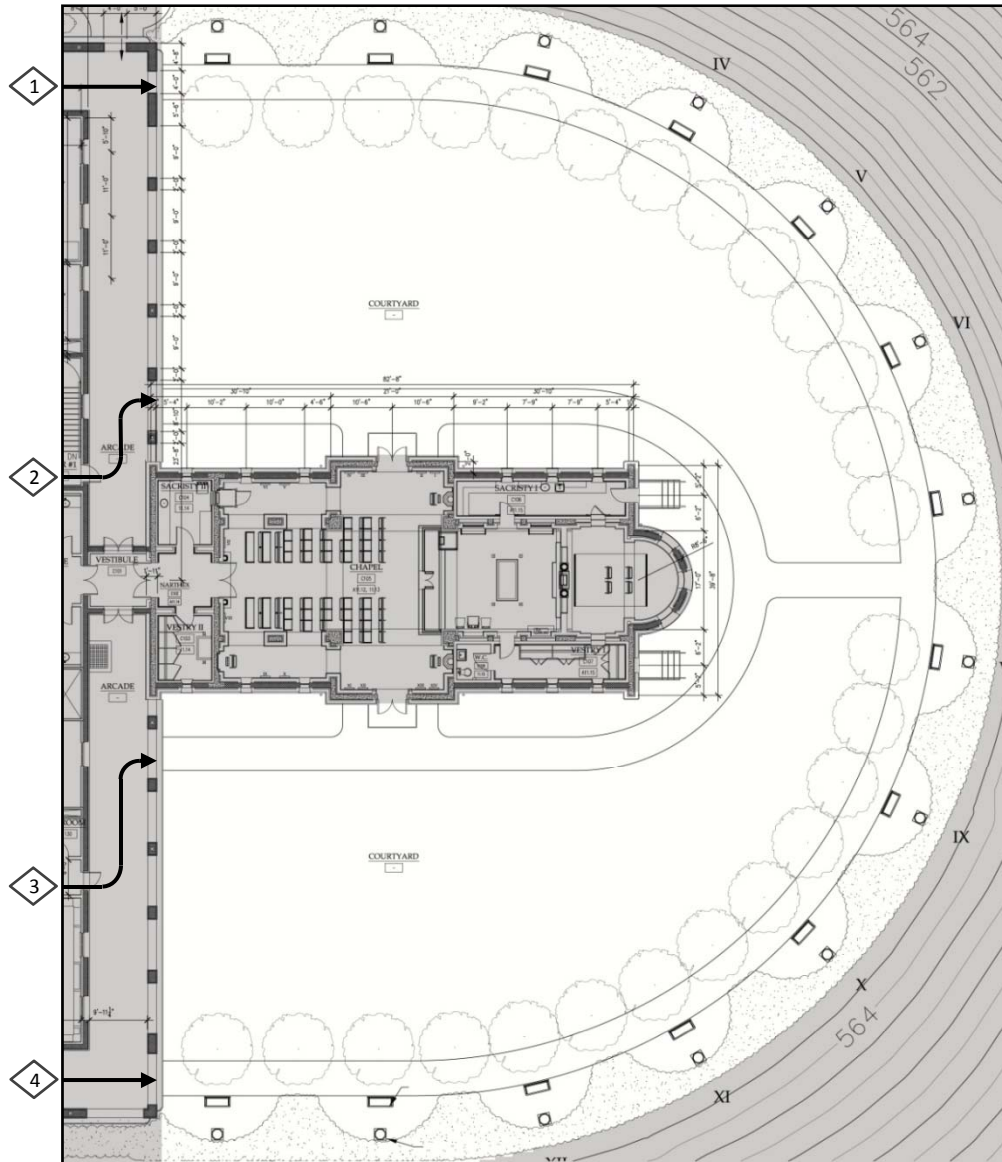


LIGHTING

DESCRIPTION:

The courtyard, located on the east side of the friary surrounds the chapel. It can be accessed by means of the chapel or the arcade that lies along the perimeter of the friary. The courtyard is an arched space, a radius the length of the entire east side of the building, with twelve stations of the cross equally spaced along the outer edge. The following discusses more in depth the circulation, dimensions, focal points and materials of the courtyard.

FLOOR PLAN/CIRCULATION:



○ COURTYARD FLOOR PLAN
SCALE: NONE

- | | |
|-----|---------------------------------------|
| ◇ 1 | Offices, Main Foyer |
| ◇ 2 | Stairs to 2 nd Floor Cells |
| ◇ 3 | South Hall |
| ◇ 4 | Library, Refectory |

LIGHTING





DIMENSIONS:

	COURTYARD	CHAPEL	ARCADE
North-South	200' 0"	39' 8"	185' 4"
West-East	144' 6"	91' 2"	9' 11 ¼"
Ceiling Height	-	VARIES	11' 0"
Floor Area	21150 ft ²	-	-

FOCAL POINTS:

West Elevation	Chapel Façade and Arcade
Remaining Elevations	Trees and path leading to stations of the cross
Statuses	Stations of the cross are placed along the perimeter

MATERIALS:

	<u>Surface</u>	<u>Material</u>	<u>Reflectance</u>
	Façade	Alabama Brown Fieldstone	0.26
	Pathways	Clay Paver: English Edge Cocoa	0.17
	Sculpture base	Travertine: Brushed Ivory	0.61
	Sculpture	Bronze Metal	0.14

DESIGN CRITERIA/CONSIDERATIONS

GARDEN: PATHS

(Very Important)

APPEARANCE OF LUMINAIRES:

The courtyard is a natural space and should maintain that appearance. It is the least marred by human hands and the closest to God's original artwork. Thus, the luminaires chosen should blend in with the surroundings.

COLOR APPEARANCE:

As an exterior space at night, mesopic vision will be used. Thus, color rendition will be lessened especially in peripherals. Lighting should account for this by having a high CRI and an appropriate CCT.

CONTROLS:

Controls will be designed to evaluate daylight levels and turn the courtyard lighting on and off accordingly.

LIGHTING

DIRECT GLARE:

To avoid direct glare, luminaire placement is important. Bright sources cause discomfort when placed in an exterior space against a dark background. To prevent this, the visibility of the sources should yield to the higher importance of the object or area being illuminated. Light entering the windows on the second floor of the east wall should be minimal.

IESNA ILLUMINANCE RECOMMENDATIONS:

Horizontal:	10 lx (1 fc)
Vertical:	3 lx (0.3 fc)

LIGHT DISTRIBUTION ON SURFACES:

The illuminance along the pathway should be relatively uniform. This will give the impression that the lighting is purposefully placed and offer a sense of security. This will provide a safe path, where changes in elevation can be seen well in advance.

LIGHT POLLUTION/TRESPASS:

Because of the high respect for nature in this space, light pollution will be a major concern. The lighting should be designed for least interference with the access to a clear view of the stars. When lighting the façade, light trespass will also need to be considered for the 2nd floor cells along the east wall.

MAINTENANCE:

Fixtures chosen should be durable and weather resistant. The fixtures should be easily accessible and easy to maintain so that no lamps are burnt out, compromising the safety of the friars.

MODELING OF FACES AND OBJECTS:

Facial modeling is extremely important in an exterior space to allow recognition of other pedestrians and provide a sense of safety and security. To achieve facial modeling, vertical illuminance is required along the path. Modeling of objects is discussed in the sculpture section that follows.

POWER ALLOWANCE:

According to ASHRAE 90.1- 2004 Energy Standard for Building's Space-by-Space method, the allowable power density for this space is 0.2 W/ft² for the Building Façade.

LIGHTING

SAFETY AND SECURITY:

The courtyard is a very open and vast space with a pathway that lines the outer edge of the property. Trees line the inner edge of the path while sculptures are evenly spaced along the outer edge. In order to focus on the beauty of the courtyard and enjoy the sculptures, the viewer should not have any doubts about security. To provide a comfortable atmosphere, high light levels will be placed on hazardous areas, destinations, architectural features, and landscape features.

SHADOWS:

To ensure a feeling of safety, there should be no shadows along the path. Area and local sources should be used so that as the friars walk along the pathway their bodies do not create shadows along the path.

SCULPTURES

(Very Important)

APPEARANCE OF SPACE AND LUMINAIRES:

As discussed previously in the path section, the appearance of luminaires should respect the surroundings.

IESNA ILLUMINANCE RECOMMENDATIONS:

Horizontal:	Category A	Public Space	30 lx (3 fc)
Vertical:	Category B	Simple orientation for short visits	50 lx (5 fc)

LIGHT DISTRIBUTION ON SURFACE:

To introduce the depth and surface characteristics, the light should not be evenly distributed across the sculpture. Shadows will be necessary to create this depth and will be made by using a key and fill light and administering light from several different angles.

POINTS OF INTEREST:

The points of interest in the courtyard include the façade, the landscaping, and twelve sculptures of the stations of the cross.

REFLECTED GLARE:

The sculptures of the stations of the cross are bronze. Because of the reflective nature of this material, the reflections of the sources should be considered in luminaire placement.

SHADOWS:

Shadows should be used to provide depth, however, special care should be taken to ensure that the shadows do not fall over any ornate details of the sculpture.

SURFACE CHARACTERISTICS:

The characteristics of the material will need to be taken into account when designing the lighting. The reflective qualities will determine the reflected glare as well as the perceived color of the sculpture.

COURTYARD DESIGN INTENT







The sculptures located along the perimeter of the courtyard are 8' tall and made of bronze. In order to bring out the quality of the sculpture's material and highlight the design of the sculpting an in-ground floodlight was used to illuminate the features of the sculpture from below. The metal halide source allows a large range of color temperature to choose from thus the best option for the material can be chosen. To provide both fill light for the sculpture as well as ambient light for safety and security of the friars, a pole lamp is located across the pathway. The light from this fixture will dance off the trees limbs creating decorative shadows along the path.

A pathway leads from the entrance of the chapel to the twelve stations of the cross that line the edge of the property. In an attempt to represent tea candles, colored LEDs will be placed along the outer edge of the pathway. Since the color of true flames is not consistent, as well as to compensate for the fact that red LEDs depreciate faster than other colors, a slight variation of color will be used for the lamps. These candle-like fixtures will illuminate the pathway, giving a comfortable feel to the atmosphere while displaying the changes in elevation and direction of the path. To continue the feeling of security, sconces will be placed next to the entrances to the chapel to provide a clear indication of the destination.

When viewing the exterior of the chapel, the main focal point is the bell tower. This should be most prevalent of the architectural features. LED wall washers will be mounted on the interior of the tower and used to create a glowing 2' x 4' box that contains in it the bells for the chapel.

LIGHTING

LUMINAIRE SCHEDULE: COURTYARD

TYPE	IMAGE	DESCRIPTION	LAMPS	VOLTS	MOUNTING	MANUFACTURER	CATALOG NO.
F14		IN-GROUND FIXTURE: BRONZE COVERING, WET LOCATIONS	70W MH	120	IN-GROUND	BEGA	8615-MH
F15		COURTYARD - WALLWASH IN CHAPEL BELL TOWER	30W LED	120	SURFACE MOUNTED	COLOR KINETICS	501-00002-00
F16		COURTYARD - POLE LAMP PATHWAY	39 MH	120	POLE	ARCHITECTURAL AREA LIGHTING	PROS-DIRS-39MHT6EB
F17		COURTYARD EXTERIER FLOOD FAÇADE LIGHTING	70W MH	120	SURFACE MOUNTED	ALLSCAPE	FL-02-K-70MH-T6-120-R3
F18		COURTYARD - LED PATHWAY LIGHTS	0.9W LED	120	IN-GROUND	ERCO	
F19		COURTYARD - WALL SCONCE	MH	120	WALL MOUNTED	DESIGN PLAN	PEA-9-F1

LAMP SCHEDULE: COURTYARD

TYPE	FIXTURE	BALLAST	DESCRIPTION	WATTAGE	CRI	CCT	OUTPUT	RATED LIFE	MANUFACTURER	CATALOG NO.
L14	F14	B14	METAL HALIDE TD-6 WITH RX7 BASE	70W	80	4200	5700 LMS	9000 HRS	PHILLIPS	MHN70/TD/840
L15	F15	-	LED	30W	-	4000	-	-	COLOR KINETICS	-
L16	F16	B16	METAL HALIDE T-6 WITH G12 BASE	39W	81	3000	3300 LMS	9000 HRS	PHILLIPS	CDM35/T6/830
L17	F17	B17	METAL HALIDE TD-6 WITH RX7 BASE	70W	80	4200	5700 LMS	9000 HRS	PHILLIPS	MHN70/TD/840
L18	F18	B18	LED	0.9	-	-	-	-	COLOR KINETICS	-
L19	F19	B19	METAL HALIDE T-6 WITH G12 BASE	39W	81	3000	3300 LMS	9000 HRS	PHILLIPS	CDM35/T6/830

BALLAST SCHEDULE: COURTYARD

TYPE	FIXTURE	LAMP	NO. LAMPS	VOLTAGE	START METHOD	INPUT (W)	BALLAST FACTOR	POWER FACTOR	THD(%)	MANUFACTURER	CATALOG NO.
B14	F14	L14	1	120	ELECTRONIC	86W	1.00	0.98	18	ADVANCE TRANSFORMER	IMH-70-A-BLS-ID
B16	F16	L16	1	120	ELECTRONIC	45W	1.00	0.9	15	ADVANCE TRANSFORMER	IMH-39-A-M110
B17	F17	L17	1	120	ELECTRONIC	86W	1.00	0.98	18	ADVANCE TRANSFORMER	IMH-70-A-BLS-ID
B19	F19	L19	1	120	ELECTRONIC	45W	1.00	0.9	15	ADVANCE TRANSFORMER	IMH-39-A-M110

LIGHT LOSS FACTORS: COURTYARD

FIXTURE	MAINTENANCE CATEGORY	DISTRIBUTION	DIRT CONDITION	CLEANING CYCLE	LLD	LDD	BF	TOTAL LLF
F14	VI	INDIRECT	DIRTY	6 MONTHS	0.83	0.9	0.9	0.67
F15	VI	INDIRECT	DIRTY	6 MONTHS	1.00	0.9	1.0	0.90
F16	IV	SEMI-DIRECT	DIRTY	6 MONTHS	0.83	0.92	1.0	0.76
F17	VI	INDIRECT	DIRTY	6 MONTHS	0.83	0.9	1.0	0.75
F18	VI	INDIRECT	DIRTY	6 MONTHS	1.00	0.9	1.0	0.90
F19	IV	SEMI-DIRECT	DIRTY	6 MONTHS	0.83	0.92	1.0	0.76

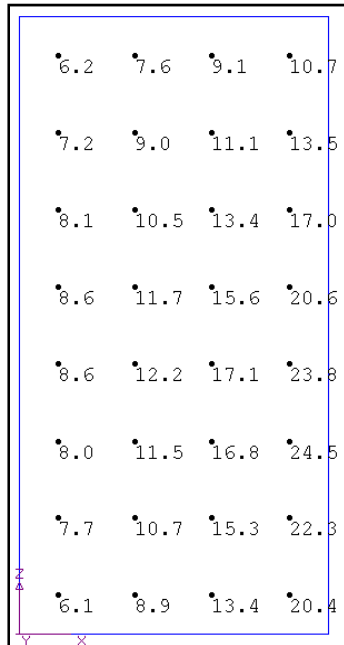
LIGHTING

POWER DENSITY: COURTYARD FAÇADE

FIXTURE DESIGNATION	LAMPS PER FIXTURE	NO OF FIXTURES	INPUT WATTS	TOTAL INPUT WATTS				
F17	1	21	86	1806				
F19	1	8	45	360	FAÇADE AREA	POWER DENSITY	ASHRAE STANDARD	OK?
				2166	8042	0.3	0.2	OK

The chapel façade power density is slightly above the standard at 0.3 W/ft², however, the chapel makes up for the façade using space by space method by being well below the power density standard.

STATUE LIGHTING CALC GRID



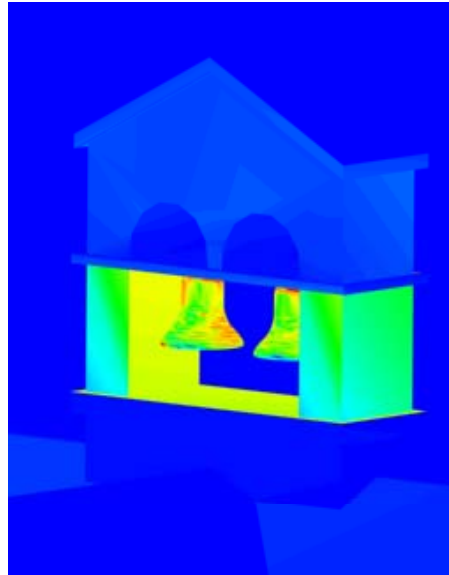
SCULPTURE ILLUMINANCE CALCULATION GRID

SCALE: NONE

CALC GRID	VERTICAL
AVERAGE	12.73 FC
MAXIMUM	24.5 FC
MINIMUM	6.1 FC
MAX:MIN RATIO	2.09
AVG: MIN RATIO	4.02

LIGHTING

BELL TOWER



PATHWAY WITH STATIONS OF THE CROSS



LIGHTING

CHAPEL FAÇADE AND ARCADE



CHAPEL FAÇADE

