



UNESCO ASIA-PACIFIC HERITAGE AWARDS for Culture Heritage Conservation

#### UNESCO ASIA-PACIFIC HERITAGE AWARDS

for Culture Heritage Conservation

2003 ENTRY FORM

Office of the Regional Advisor for Culture in Asia and the Pacific United Nations Educational Scientific and Cultural Organization

UNESCO Bangkok Office
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Date of Submission: 29 March 2003

#### PLEASE TYPE:

Conservation of the Catholic Cathedral of the Immaculate Conception, HKSAR

Location of Project (Street, City, Postcode, State, Country)

Catholic Cathedral of the Immaculate Conception

16 Caine Road, Mid-Levels, Hong Kong Special Administrative Region, China

Date of Completion of the Project (must be post-October 1991) 8 December 2002

Name or Names of Individuals Responsible for the Project

Rev Dominic CHAN, Vicar General, Parish Priest of The Catholic Cathedral of the Immaculate Conceptoin, HKSAR

Name of Building Owner whose permission for Nomination has been obtained (if not submitted by owner)

The Most Reverend, Joseph ZEN Ze-Kiun, SDB, Bishop of Hong Kong

Address of Owner

12/F Catholic Diocese Centre

16 Caine Road, Mid-Levels, HKSAR

Name(s) of Architect/Designer/Consultant

- (i) Ms Anna KWONG, Mr SL LAM, Mr WC MAK Diocesan Building and Development Commission;
- (ii) Mr Bernard HUI, Mr Charles KUNG, Mr TF LO Rocco Design Limited;
- (iii) Mr Peter TSUI Pacific Audio Supplies Company;
- (iv) Mr Kevin LI, Ms Levin HUNG William Artists International Ltd; (v) Mr Dominic CHAN Hop Shing Loong Lighting Ltd Address(es) of Architect/Designer/Consultant
- (i) Rm 901, 16 Caine Road, Mid-Levels, HKSAR
- (ii) 20/F Southmark, 11 Yip Hing Street, Wong Chuk Hang, HKSAR
- (iii) 6/F Sino Industrial Plaza, 9 Kai Cheung Road, Kowloon Bay, Kowloon, HKSAR
- (iv) 3/F Shing Dao Industrial Building, 232 Aberdeen Main Road, Aberdeen, HKSAR
- (v) G/F., 70 Morrision Hill Road, Wanchai, Hong Kong



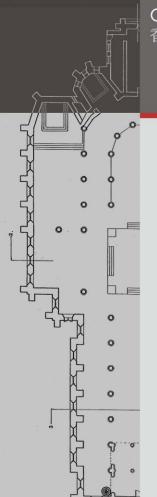














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Name of General Contractor	r (i) Societe Bond (HK) & Co., Ltd;	(ii) Wende	n Engineering Service Llmited;
·	(iii) Tai Yue Engineering Co Ltd;	(iv) Pacific	Construction Ltd
Address of General Contrac	tor		
(i) Flat A, 14/F, Far East	Bank, Mongkok Builidng, 11 Nelson Str	eet, Kowloon, HKS	AR
(ii) 1402-3 Causeway Bay	/ Centre, 15-23 Sugar Street, Causeway	y Bay, HKSAR	
(iii) Unit I 8/F On Ho Indus	strial Building, 17-19 Shing Wan Road,	Tai Wai, Shatin, NT	T, HKSAR
(iv) Unit 1406, 14/F Star F SUBMITTED BY:	House, 3 Salisbury Road, TST, Kowloor	ı, HKSAR	
Name Rev Dominic CHA	N, Vicar General, Parish Priest of The	Catholic Cathedral	of the Immaculate Conceptoin, HKS/
Address 12/F Catholic Dio	cese Centre, 16 Caine Road, Mid-Leve	ls	
			<u> </u>
City HKSAR	Postal Code	Country	China
Phone Number ( 852 )2843	1-4674	Fax Number ( 8	52 )2840-1727
Email vgoffice@catholic.d	org.hk, office@hkdbdc.org.hk		
How did you learn about the	e Asia-Pacific Heritage Awards?		- F '- ''
From the Architectural Se	ervices Department of HKSAR Governn	nent	
CHECKLIST: The following documents ar	re enclosed		
a.   Drawing, including	site plan, floor plans and sections. (New, ol). Total no. of enclosed:2	d, and reconstructed	parts should be clearly marked in
<b>b. IX</b> 5" x 7" Photograph Total no. enclosed: [mi	s used to support the project description, cla in. 15]165	early labelled with lo	cation and identified on a plan.
synopsis of project     map showing locati     project's goals and     the context and hist     the reconstruction/c     project size (in squa     the methodology of     use of appropriate b     issues of conservati     changes made to bu     if restoration involv     lessons learned     present condition an     heritage/protection     mobilization of fina     if project is a public     indicated     viability of project (         key stakeholders an	milding/artisan techniques and materials on/restoration considered and justifications ilding (repairs and additions), and relations; ed changing original use, rationale for chan and use status of the property incial support and regulatory framework of exprivate initiative, contributions of each participation for future use and maintenance) d involvement of local community in project on to its surrounding environment and community in project on to its surrounding environment and community.	for solutions hip of new to old ging use  project tner should be clearly	y
	monstrating how the project meets the crite	ria for the Awards	



















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The Conservation of the Catholic Cathedral according to the Gospel of St. Mark (2 21-22)

'No one sews a piece of unshunk cloth on an old garment; if he does, the patch tears away from it, the new from the old, and a worse tear is made. And no one puts new wine into old wineskins; if he does, the wine burst the skins, and the wine is lost, and so are the skins.'



















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Driginal 200x200 green marble Tg Driginal 365x365 b/\* Conton marble Did 200x200 reddish br Old 205×205 brown tiles

Floor Plan







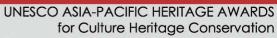






CATHEDRAL OF THE IMMACULATE CONCEPTION, HKSAR香港天主教聖母無原罪主教座堂 UNESCO ASIA-PACIFIC HERITAGE AWARDS for Culture Heritage Conservation West Elevation 6 6 6 6 Longitudinal Section







Front Elevation



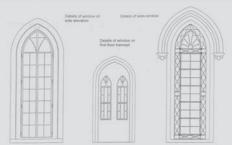
Front Portico



Latitudinal Section



Back Elevation



Measure drawing for coloured glass window drawings

















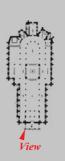
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Before - External view



After - External view

































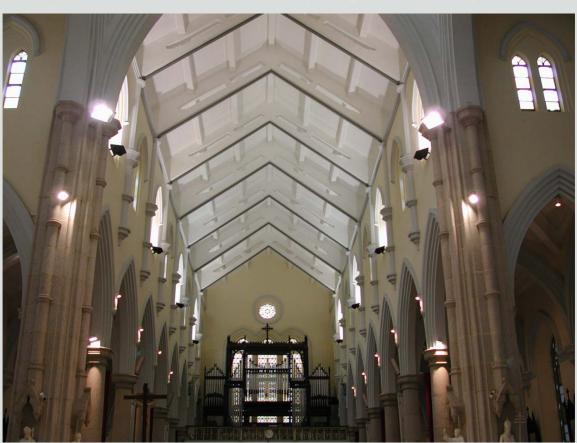




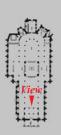
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**Before** - interior lighting only to meet functional illumination requirement







After - enhanced ambience for liturgical prayers and ceremonies

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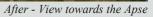


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Before - View towards the Apse



















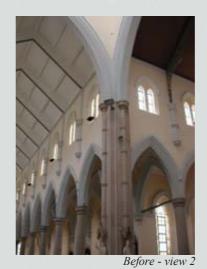




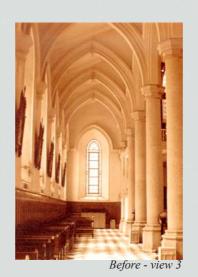
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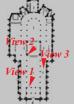












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Series of photos for comparison of lighting effects



























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View 1 - Main Altar (After completion of conservation works)



View 2 - Main Altar and Aisle (After completion of conservation works)







1958







Frew 2



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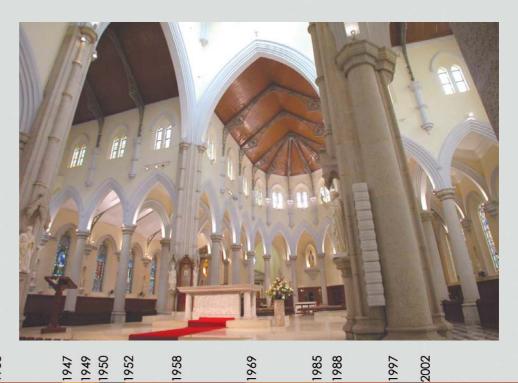








Speakers arrangement with consideration of audio requirement and its effect on interior space

















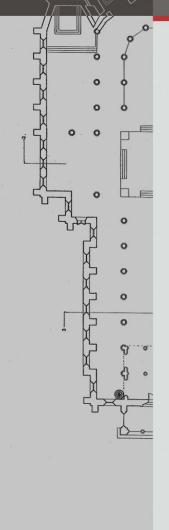


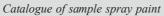
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Before - Niche of the Immaculate Conception



















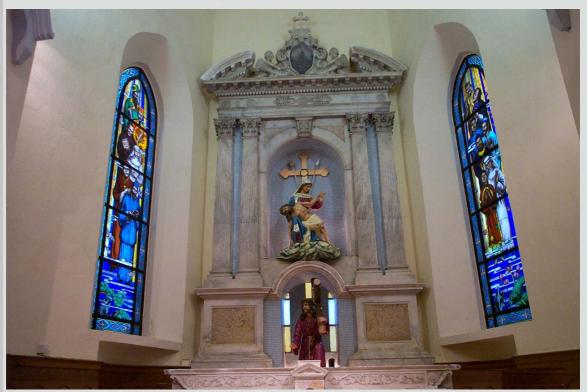




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Before - The Chapel of our Lord's Passion



After - The Chapel of our Lord's Passion dedicated to the Chinese Martyrs







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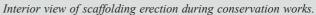




Newly completed stained glass at the Chapel of Our Lord & Passion









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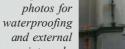














After









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1958









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View 1

Celebration of liturgical ceremonies







1888













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Celebration of liturgical ceremonies













1958



1985



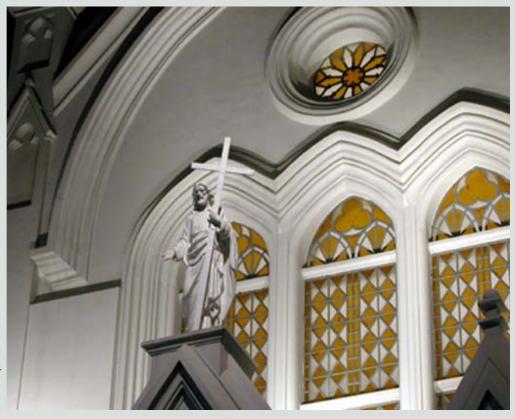




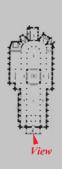
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Night View (after completion of external lighting works)







1947 1949 1950



1958



1985







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#### Catholic Cathedral of the Immaculate Conception

#### Synopsis of Project and Project's Objectives

`No one sews a piece of unshrunk cloth on an old garment; if he does, the patch tears away from it, the new from the old, and a worse tear is made. And no one puts new wine into old wineskins; if he does, the wine will burst the skins, and the wine is lost, and so are the skins. '(Mark 2 21-22)

The objective of the project is to preserve the Cathedral as a living structure which has been in continuous use over 115 years. The project is to maintain and repair the historic fabric and improve the building services provisions, including lighting and acoustic systems to meet the need of the community while enhancing the character and significance of the historic building.

#### **Context and Historical Background** of the Cathedral

Constructed during 1883-1888, the Catholic Cathedral of the Immaculate Conception is an imposing Gothic style building in cruciform shape with a tower at the intersection of the nave and transepts.

The Cathedral is more than a 'chair' where the Bishop resides; it is also a place where Christians gather to worship and where Christians learn about their faith.

It is the symbol of Christianity in the territory and, in particular, a symbol of religious freedom since the return of the sovereignty to China in 1997.





1930s













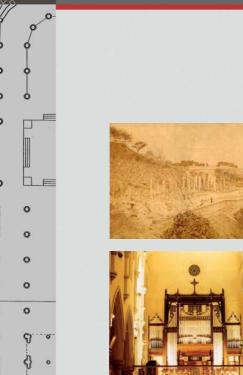


### CATHEDRAL OF THE IMMACULATE CONCEPTION, HKSAR

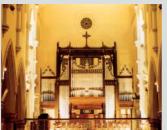
香港天主教聖母無原罪主教座堂



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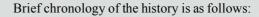












1883	The foundation stone was laid on the Feast
	Day of Immaculate Conception,
	8 December 1883.

1888	The Cathedral was completed at a cost of
	US\$15,400 and opened to the public on
	7 December 1888

1937	The central spire was destructed during a
	typhoon.

1938	The Cathedral and the three altars (the main
	altar, the Sacred Heart altar and the St. Joseph
	altar), were consecrated by the Vicar Apostolic
	of Hong Kong, the Bishop of Macau and the
	Bishop Emeritus of Guangzhou.

1941	Damage by a shell dropped by the Japanese
	on 8 December 1941.

1947	The campanile in front of the Cathedral was
	demolished for building a school.

1949	The pipe organ was repaired with new parts
	from Italy.

1950	Roof repair at a cost of US\$3,200 with a
	donation from Mr. Tang King Po

1952	The central dome was replaced by the present
	tower. The roof over the aisle, transepts and
	St. Joseph altar were rebuilt. The dado of the
	Cathedral was decorated with carved timber
	panels and the floor was laid with green and
	white tiles

1958	A five-storeys church office building wa
	built next to the Cathedral.

1969	Internal layout was re-arranged with the
	liturgical reform after the Vatican II
	Eccumenical Council. The position of the
	Main alter was moved to the centre, i.e. at the
	intersection of the nave and transepts under the
	central tower.

1985 A niche was constructed over the door of the sacristy for the statue of the Immaculate Virgin to whom the Cathedral is dedicated. Four large Italian stained glass windows depicting the four Evangelists were installed at the east side of the Main altar. 1988

Large scale renovation to celebrate the Centenary of the Cathedral was carried out by Rocco Design Limited. The roof structure was repaired, by grouting and air-conditioning was introduced.













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#### **Architectural Character of the Cathedral**

#### The Structure

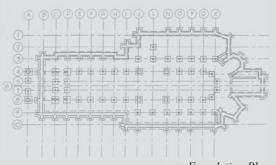
The layout of the Cathedral is in the form of a Greek cross. It measures 82m in length and 40m wide. It rises to a height of 23.7m with an additional 10m for the central tower. It was designed by Crawlwey and Company of London in an elegant Gothic Revival style.

The walls were constructed of bricks and stone, laid on a granite platform and supported by external buttresses at both sides. The interior space is well articulated by granite columns which give rise to pointed arches supporting the timber pitch roofs.

In 1952, owing to termite infestation, the timber roof over the aisle, transepts and St. Joseph altar were replaced by concrete roofs.



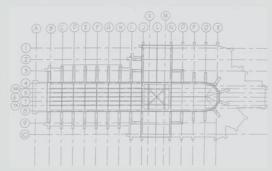
Axonometric View



Foundation Plan



Front Elevation



Roof Framing Plan



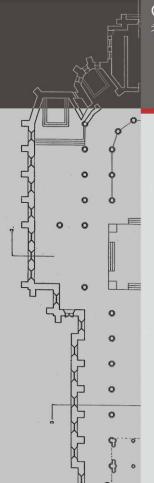














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#### **Main Altar**

The main altar, which was reconstructed in 1988, sits at the intersection of the nave and transepts under the central tower. The Bishop 5 'chair' is located at the south-west corner of the altar platform. It is the chair from which a 'Cathedral' receives its name, symbolizing the seat of Episcopal authority entrusted to the Bishop of the Catholic Diocese of Hong Kong. The original wooden pews in the body of the church were rearranged to face the main altar and serve to enhance the centrality of the altar.

Relics of ten saints are embedded in the marble of the main altar according to the tradition of early Christians where Mass was celebrated on the tombs of the martyrs who had died heroically for their faith.





View - Main altar after completion of the conservation project.

#### **Immaculate Conception Statue**

The statue of the Immaculate Conception stands in a niche high above the floor at the apse of the church. The gentle mercy figure, which was donated by Catholic students, is carved of wood. The bright golden crown was placed on her head by Bishop Lawrence Bianchi, the second Bishop of the Diocese of Hong Kong, at the closing ceremony of the Marian Year in 1955.

















### CATHEDRAL OF THE IMMACULATE CONCEPTION, HKSAR

香港天主教聖母無原罪主教座堂



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The Sacred Heart Chapel



The Chapel of Our Lord's Passion



The Chapel of St.Joseph



The Chapel of St. Anthony

#### Chapels

There are four chapels in the Cathedral.

The Sacred Heart Chapel at the end of the south aisle is the place reserved for the Most Blessed Sacrament and is set aside for Eucharistic devotion. The marble altar was the former main altar of the Wellington Street Church, the first Roman Catholic Cathedral church destroyed by fire in 1859.

The Chapel of Our Lord's Passion to the right of the Sacristy was donated by J.J. Braga, a Portuguese parishioner. The Chapel is now dedicated to the Chinese martyrs after the recent renovation work.

The Chapel of St. Joseph at the end of the north aisle is decorated with the coat of arms of the House of Savoy. It was a gift of Victor Emmanuel II, the future King of Italy, through the mediation of Joseph Mary Sala, an Italian noble residing in Hong Kong.

The Chapel of St. Anthony to the left of the Sacristy is dedicated to one of the most popular of the saints, St. Anthony, a Portuguese Franciscan who spent much of his life ministering to the people of Padua, Italy.





#### The Baptismal Font

The baptismal font is placed at the narthex of the Cathedral, in the centre at the beginning of the nave. It draws attention to the primacy of Baptism as the sacrament of birth of a Christian life and initiation into the community of the Church.















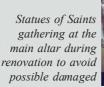


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#### **Statues of Saints**

A church is also a place where believers are encouraged to live holy lives through the example of saints represented by the Cathedral's statuary and in its stained glass windows. Among the many canonized saints whose statues adorn the Cathedral pillars and walls, the most prominent are those surrounding the Sanctuary area. There are two Apostles: St. Peter and St. Paul; three Bishops and Doctors of the Church: St. Anthanasius, St. Ambrose and St. Augustine; two Popes and a King: Pope St. Gregory the Great, Pope St. Pius X and King St. Louis of France.







#### **Stained Glass Windows**

The attractive stained glass windows are of relatively recent origin. The four windows along the wall near the Sacred Heart Chapel were designed by the French artist Louis Gesta in 1923. They depict Jesus and John the Evangelist at the Last Supper, St. Catherine of Sienna, St. Pascal Baylon and the Appearance of the Risen Lord to Mary Magdalene. The windows on the opposite wall depict the Four Evangelists: Matthew, Mark, Luke and John. They were made in Italy and donated by Mr. John Poon in 1985.













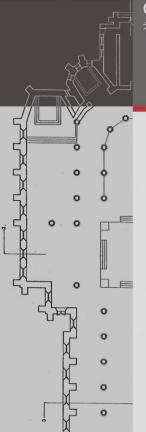














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#### Heritage /Protection Status of the Property

In view of the historical, architectural and cultural significance of the building, the Cathedral was listed as a Grade 1 historic building by the Antiquities Advisory Board of the HKSAR government in 1981.

#### **Conservation Programme and Time Frame**

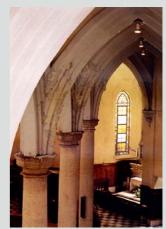
#### **Beginning**

The recent conservation programme started in 1997 when major roof leakages were reported. The Diocesan Building and Development Committee was given the task to formulate the client's requirements and an ad-hoc Cathedral Repair Committee was formed to carry out the repairs.

#### **Documentation**

Measured drawings were prepared in April 1997 with the assistance of the Architectural students of the Department of Architecture, University of Hong Kong.

Archival research was carried out with reference to Rev. Louis Ha's book, 110 Years in the Grace of Our Lord- The Hong Kong Catholic Cathedral of the Immaculate Conception which was published in November 1999.



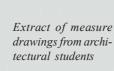
Serious roof leakge at 1997

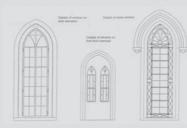


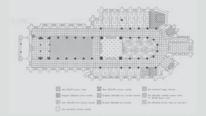




Major roof repair works started in 1998



















### CATHEDRAL OF THE IMMACULATE CONCEPTION, HKSAR



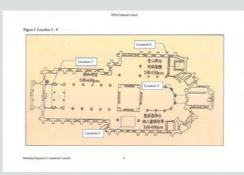


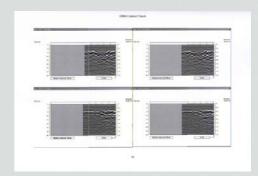
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#### **Diagnosis of Defects**

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With the aim of achieving a sufficiently sound structural condition which would ensure the long-term stability of the Cathedral, monitoring check-points were set up in 2000. Infra red scanning of the underground condition noting changes in the water level was carried out during the course of repairs. Causes of defects were also analysed and options for the repair works were discussed before the carrying out of the repairs.





Ground radar survey, with the use of a 500MHz attenna system and a cable locator, to identify underground utilities and possible voids





Photo records of monitoring check points

#### **Repairs and Upgrading**

The major repairs and upgrading of the Cathedral to fit the ever-changing needs of its community and enhancement of its historic character were completed on 8 December 2002.

As the Cathedral is a living structure requiring constant repair, upgrading and renewal, the ad-hoc Cathedral Repair Committee has become a standing committee under the Parish Council to continue the regular monitoring and maintenance of the Cathedral.















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#### Project Size, Cost and Mobilization of Financial Support

A fund raising campaign was held in 1997. Display boards on the deteriorated condition of the roof were set up to arouse the interest of the community in looking after the fragile fabric of the Cathedral.

A dollar to dollar donation was offered by the Cheung Kong Property Development Ltd., i.e. whenever the Cathedral community could raise a dollar, the Cheung Kong Property Development Ltd. would make an equal donation for the repair and renovation of the Cathedral.

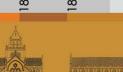
The cost of the project was US\$ 1,119,100 and the breakdown was as follows (US\$):

1	Roof repairs	\$ 705, 100
2	Builder's works for replacement of cracked floor tiles, cracks	
	and spalling concrete, installation of lighting and audio system	
	and decorative finishes to the interior	\$ 192,300
3	Stained glass for the Chinese martyrs	\$ 7,700
4	Improvement works at Grotto area	\$ 15,500
5	Audio equipment	\$ 47,900
6	Lighting equipment	\$ 118,600
7	General maintenance of A/C system	\$ 12,800
8	Consultancy service for audio and lighting installation	\$ 19,200
	_	
	Total	\$ 1,119,100





The Contract document for the major roof repairs and internal renovation works from 1998-1999





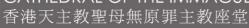














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#### **Issues of Conservation Considered and Justifications for Solutions**

#### **The Conservation Plan**

- a. The aspects of significance, both historical and liturgical, of the Cathedral were established through documentation and archival research.
- b. Defects to the historic building were analysed and monitoring measures installed before prescribing the repair methods.
- c. The needs of the Parish community in respect of the changing liturgical requirements and the functional performance were carefully studied before implementation.

#### General Principles Adopted as Referred to Venice Charter

- The main theme of the project was to regularly monitor and maintain the building fabric of the Cathedral and to keep future repair requirements to a minimum. Repairs were to be executed in a prudent manner, with no attempt at disguise or artificial aging.
- b. Valid changes and contributions of historical changes made in the past were accepted. Whilst the programme of renovation offered the opportunity of removing features which were considered of no heritage value, the replacements were carried out with caution using compatible materials and methods of construction to preserve the historic integrity of the historic building
- c. The full implications of the building services upgrading works were carefully considered. The choice of services system was not just made upon its functional performance, but also on their impact on the spatial and liturgical quality of the Cathedral.





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### CATHEDRAL OF THE IMMACULATE CONCEPTION, HKSAR

香港天主教聖母無原罪主教座堂



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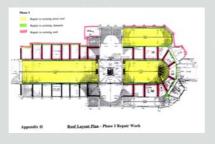
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Application of SUNTEX waterproofing



Granite paving at front Portico



#### Material and Methodology in Conservation

#### **General Repairs of the Building Fabrics**

The choice of the roof material in the repair of roof leakages was based on: (a) the compatibility of the material to the existing fabric, (b) the loading of the material on the existing roof; and (c) the performance of the roofing membrane.

Before the complete overhaul of the entire roof, the material selected, "SUNTEX" waterproofing liquid membrane system, was applied over a small section of the roof over the transept for 2 years to test out its performance and compatibility before the main roof repairs were carried out from 1998 to 1999.

While the concrete paving around the Cathedral was re-constructed to make way for carparking and Sunday mass goers, reserved conduits were laid to meet future requirement of building services.

The concrete floor paving at the front Portico, the side entrance and the entrance to the sacristy from the previous renovation was considered incompatible with the historic building. Granite paving similar to the granite used for the original stone columns and various related details was designed and laid by a specialist master mason, Mr.Arnaldo Acconci in the traditional manner.



Phasing study of roof repair works















### CATHEDRAL OF THE IMMACULATE CONCEPTION, HKSAR

香港天主教聖母無原罪主教座堂



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Different paving between walkway (black and white marble tile) and seating area (green ceramic tile)

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Broken marble tile under St. Joseph altar due to ground settlement



Selection of marble tile to match existing green tiles



Completed photo record

The Buildings Department had served a Dangerous Slope Order in 1998 for the slope of Caritas building adjoining the Catheral, the ground settlement has led to the subsidence of floor at St. Joseph altar and the cracking of marble flooring. During the slope stablization process, an old air-raid shelter was accidentally found which was left insitu for future study.

During the repair of the internal marble flooring, salvaged floor tiles were used to match the existing flooring pattern. Where salvage tiles were insufficient to cover the floor paving at the St. Joseph altar, new marble tiles of matching colour to the oldest surviving flooring were laid to harmonize with the floor pattern.

The blue mosaic backdrop in the niche for the Statue of the Immaculate Conception, which was an addition in 1980s, was considered incompatible with the character of the historic Cathedral. Sprayed stone to minimize the impact of the background was applied during the renovation.



were preserved as



















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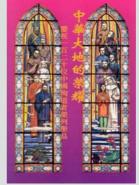
### Changes made to the Chapel of Our Lord's Passion for the Chinese Martyrs and the Rationale for the Change

The Chapel of Our Lord's Passion was originally designated for the memory of the Passion and Death of Jesus. With the canonization of 120 nos. of Chinese martyrs on 1 October 2000 in Vatican, the altar was then designated to the Chinese martyrs and saints who devoted their lifes to the development and preaching of Christianity in China starting from Matteo Ricci.

The selection of the Chapel of Our Lord's Passion for the Chinese martyrs was made because of the similarity in the original theme of the Chapel: the Chinese martyrs sacrificed themselves as Christ did as examples for the believers. A relic box containing relics of 16 nos. of Chinese martyrs was designed by Sr. Paola Yue and placed below the Statues of Jesus carrying the Cross (representing the Passion of Christ) and the Pieta (representing the Death of Christ).

A Chinese artists, Mr. Zhang Qi-kai was commissioned to replace the existing geometric patterned stained glass windows with a theme based on the Chinese martyrs. The stained glass was produced in Zhang's studio in Milan, Italy. The stained glass, which was fired to 800°C, was supplied from Italy, France and Germany. Traditional techniques and craftsmanship were used to convey the meaning of the Chinese martyrs.

利瑪竇神父 徐光啓教友 雷永明神父 真福雅松大修女 田耕莘樞機 真福福若瑟神父



聖趙榮司鐸 聖徐德新主教 聖吳國盛教友 聖郭西德司鐸 聖嘉納修女 聖王安納貞女







Newly completed stained glass at the Chapel of Our Lord's Passion for the Chinese Martyrs













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#### **Lighting Design**

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The Cathedral was first illuminated by candlelight, then by gas lamps and, eventually, by modern electrical fittings, which were introduced during numerous phases of subsequent refurbishments.

The lighting effect prior to the renovation of the Cathedral with respect to qualities such as uniformity, lighting level, and glare control were not suitable for the ambience of liturgical ceremonies. The aesthetics of existing lighting equipment appear to have been arbitrarily chosen to meet merely the functional illumination requirement rather than creating an ambience for prayers and liturgical ceremonies.

Local lighting experts, William Artist and Hop Shing Loong, were invited to give ideas and concepts in early 2001 to improve the lighting design. The objectives to enhance the liturgical space through the lighting improvements were:

- a. The main altar, having a dominant lux level appropriate for the celebration of the mystery of the Eucharist, is•the focus of the liturgical ceremonies.
- b. Indirect lighting for the rest of the Church with a relatively low and uniform lux level appropriate for the ambience of praying to the Lord.
- c. Highlighting the architectural features such as arches, roof trusses and mouldings as well as the liturgical art and statues appropriate for the aesthetics of the historic building.













### CATHEDRAL OF THE IMMACULATE CONCEPTION, HKSAR

香港天主教聖母無原罪主教座堂



UNESCO ASIA-PACIFIC HERITAGE AWARDS for Culture Heritage Conservation

After long discussion among the various stakeholders including the Parish priest, the Parish community, the technical advisers and the lighting consultants, the decision was:

- a. High colour rendition, energy saving, and warm colour metal halide lamps were used for the general upward flood lighting to create the general praying ambience.
- b. 100% colour rendition tungsten halogen lamps were used for the accentuation of the statues and arches.
- c. Different luminaries with a variety of photometrics were used to achieve the lighting effect as required in the celebration of the Eucharist and other liturgical ceremonies.
- d. Visual comfort for uniformity, low contrast, good glare limitation and energy efficiency as well as ease of maintenance.
- e. The choice of luminaries was carefully selected so that they blended into the architecture of the Cathedral, keeping the aesthetic disruption of the fittings to a minimal.
- f. Zoning and control to suit the various liturgical ceremonies yet saving up money for expensive and sophisticated dimming systems. The circuitry and control were arranged with the greatest care.

A trip to Macau was organised to study the lighting effect on St. Joseph Seminary, St. Domingo Church, etc. during the implementation of the project in September 2002.



External Lighting - Front View



Internal Lighting - View towards north



Internal Lighting - View towards south

















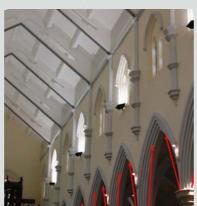




Mock-up inspection for interior lighting prior to selection of supplier's proposal









Comparison of design intent diagram and actual completed lighting effect









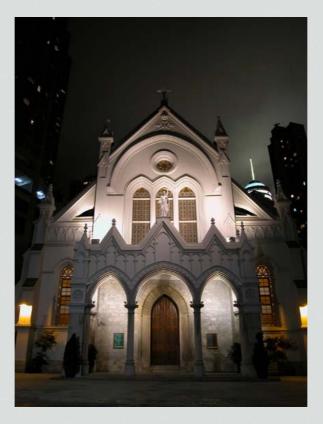








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External Lighting Views and Mock-Ups























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#### **Audio System**

Like many large-scale churches, the Cathedral was a huge challenge for acoustic improvement as the large volume of air and extensive reflective surfaces made the church acoustically reverberant. Echo was a common problem for the congregation as they struggled to hear the semon, following the words of God and joining the choir to praise our Lord.

The most common solution, using sound absorption treatment to decrease the reverberation over five seconds (RT60 mid-band as measured), was considered inappropriate as the introduction of wall insulation panels would significantly affect the character and atmosphere of the Cathedral, not to mention the cost incurred.

A specialist acoustic consultant from Pacific Audio Supplies Company was asked to assist in the design of a new system. The design objectives were:

- a. ' Speech intelligibility' and control of echoes from the radiation pattern of sound to ensure clarity of speech.
- b. Distribution of sound to ensure an even level of sound received at all spots.
- c. High quality audio products of neutral character to keep the visual impact to a minimal.
- d. Fixing of the new audio equipment to cause least intervention to the Cathedral and to be reversible.

















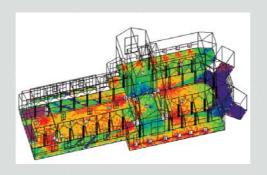


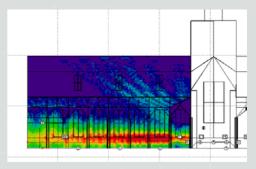
UNESCO ASIA-PACIFIC HERITAGE AWARDS for Culture Heritage Conservation

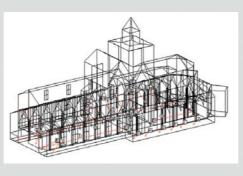
The suggested solution was to use the line array principle to focus a wide but very flat energy pattern so as to concentrate the sound to listeners and to limit the energy spilling into the upper part of the church where large reflective wall surfaces would reflect unwanted sound energy. Mock-up of the two line arrays column speakers, each consisting of 12 small Bose FS32SE speakers was set up in 1999•at the main columns in front of the main altar at listeners 'ear-height to test out if the system would meet the requirements before commissioning of the audio expert. The church community and priests were invited after the Sunday mass to see and listen to the performance of the mock up and its possible effect on the historic building.

To devise an optimum design for the sound installation, Bose Modeler and Auditioner computer design programs were used. A complete 3-D model of the interior of the Cathedral acoustic was built within the computer and different audio system design approaches were tested. The sound levels and speech intelligibility of the existing Cathedral were recorded at all spots and input into the model for comparison. Parish priests and members of the repair committee were invited to the audio studio in December 2000 to speak into the microphone, hear the simulation and compare the different designs according to different speaker placements before ordering of the audio equipment.

With the system installed, the results have proven consistent with the computer simulations and the effect of reverberation has been reduced dramatically thus achieving the required speech intelligibility.







Side coverage showing the firing pattern of the line array speakers concentrating sound energy at listener's level, Minimising unnecessary reverberation effect.















香港天主教聖母無原罪主教座堂



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#### **Services Runs and Installation**

Service runs and quality of installation were insisted on to achieve a neat installation so that the mechanical and electrical (M&E) installation which would not create havoc with the space it was intended to serve. As the M&E drawings were to a large extent diagrammatic rather than representational, the services runs were agreed at an early stage and marked on site giving actual size and position. Close supervision of the work were conducted to avoid butchery of structure or detail by installers.

The main services pipe runs were laid during the repaving of the external areas to reduce their impact on the Cathedral. The services pipe runs inside the Cathedral were hidden underground and the marble flooring were dry laid on grade to minimize their impact on the architectural character of the Cathedral and for easy maintenance in future.



Route of wiring was carefully considered with mock-ups to induce minimum effect.





steel speaker support is to imitate the pipe organ of the Cathedral. With the protruded pipes being cut short after mock-up inspection to make it less obstrusive











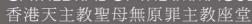














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#### The Grotto

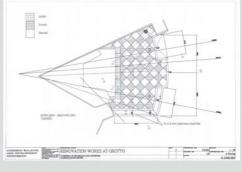
The redecoration and minor repair to the Statue of Our Lady of Loude in the grotto was carried out by an old Catholic, Uncle Jim, who is one of the few surviving local artisans still acquiring the specialist skill in restoring statues.

The railing previously installed for the convenience of the parishioners praying in front of the grotto was considered to be incompatible. To improve the situation, a raised platform of geometry to match the external architectural character of the Cathedral was designed and traditional granite paving was laid to provide a safe setting in front of the grotto.

To bring the grotto into focus, a garden bench was designed specifically and installed at the raised platform. It proved to be much welcomed by the community as toddlers, students, parent, grandparent, and newly wed frequented the grotto and took relaxation on the bench.



Close up view of handrail design detail



Design Drawing



Statue with back-lit lighting



Raised platform to define space and



Night View

















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#### Key Stakeholders and Involvement of Local Community in Project

As the Cathedral is the most important historic building of the Catholic Diocese in Hong Kong, all levels of the church community were involved in offering assistance and advice during the course of the project, including:

#### **Diocesan Organisations**

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- a. The Diocesan Archives, and in particular the Archivist Rev. Louis Ha, provided full historic information to establish the significance of the project.
- b. The Diocesan Liturgical Committee provided views and comments on aspects relating to liturgical arts and music as well as liturgical space.
- The Diocesan Building and Development Committee provided professional and technical advice throughout the conservation works.

#### **Parish Priests and Parish Council**

- a. All the priests in the Parish offered their views on the conservation works and participated in recording their voices for the design of the audio system.
- b. A Cathedral Repair Committee was formed under the Parish Council and members of the Parish Council were invited to participate actively in the conservation works. Bi-weekly meetings were held during the on-site conservation works to monitor the progress.

#### **Parish Community**

- a. The Parish community supported fully the repairs and photographs of the condition before and during renovation were displayed for the information and comments from the users.
- b. A steering group was also formed to appeal for donations for the repairs and arrangement of 'walkathon' and other activities to raise the repair funds.
- c. Feedbacks from the church community were sought through open consultation during the process of repairs and testing and commissioning of the lighting and audio system upon initial completion of the installation.
- d. Different age groups of the Parish community were invited to express their views on lighting design, to test if the illumination level was adequate for reading the bible and listen to the effect of the audio equipment at various stages of works.







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#### **Significance of Project**

The Cathedral bears witnesses to the past history of Hong Kong and retains its position as a leading centre of religious activities in Hong Kong Special Administrative Region. It is a living monument and a sense of pride for its faithful parishioners and a symbol of religious freedom since the return of the sovereignty to China in 1997.

The conservation project handled with extreme care has become a model not just for repairs and renovation of other historic churches, but also for building of new churches in the new towns.

The Cathedral together with other surviving historical religious buildings in the Central District such as the St. John's Cathedral, the Former French Mission Building, the Shelley Street Mosque and the Jewish Synagogue, etc. now formed the Central District heritage walk as well as a popular itinerary of the guided tour conducted by the Hong Kong Institute of Architects.

Since the completion of the conservation project, it has inspired other religious groups as well as the church in China to visit the Cathedral place and has promoted studies and discussions on liturgical art and architecture.

#### **Lessons Learned**

Responsibility for the care and upkeep of the Cathedral is passed on to each succeeding generation. Good maintenance begins with good housekeeping. The repair and renovation project reminded the church community that pro-active prevention and rectification of building defects should be based on the principle of' stitch in time saves nine'. The ad-hoc Cathedral Repair Committee has therefore become a permanent set up, under the Parish Council, to safeguard the future of the historic structure. The next task for the Repair Committee would be to work out a guideline and programme for the house-keeping of the historic Cathedral building.

The upgrading of lighting and audio works in our churches, in particular historic churches, has to be handled with extreme care. The installations should not merely aim at fulfilling the functional illumination and intelligibility of speech, but also require assessment of their impact on the historic building and the ambience of the liturgical space.

It has also been suggested that someday when the adjacent Caritas House, would be torn down and rebuilt in such a way that the Cathedral would become visible once again to strollers along Caine Road and vessels in the Victoria Harbour.



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Asia-Pacific Heritage Conservation 2003 Awards

#### OWNER CONSENT FORM

27 March, 2003

UNESCO Regional Advisor for Culture in Asia and the Pacific UNESCO Bangkok Office Bangkok, Thailand

Dear Sir:

#### Conservation of the Catholic Cathedral of the Immaculate Conception, HKSAR

This is to certify that the above building is the property of Catholic Diocesan of Hong Kong. I hereby grant permission to **Rev. Dominic CHAN, V. G.** to nomivate the above building for the UNESCO Asia-Pacific Heritage 2003 Awards for Culture Heritage Conservation.

Sincerely yours,

The Most Reverend

JOSEPH ZEN ZE-KIUN, SDB

Bishop of Hong Kong 12/F., Catholic Diocese Centre,

16, Caine Road, Mid-Levels, Hong KongSAR













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Asia-Pacific Heritage Conservation 2003 Awards

#### OCCUPANT COMMENT FORM

27 March, 2003

The Cathedral is more than a place for the congregation of the parishioners to celebrate the Eucharist. It is also a sense of pride for the parishioners as it witnesses the history of Hong Kong and the preaching of Christianity in China.

The historic building after the recent repair and upgrading works provide a serene atmosphere for liturgical ceremonies. The success of the project was mainly based on the participation and involvement of the Church community from fund raising, expressing the community needs, setting up an ad-hoc working committee and offering their feedbacks during and after the works.

The conserved Cathedral will retain its position as a leading centre of religious activities in Hong Kong.

Signature

Occupant Name: Rev Dominic CHAN, Vicar General 12/F., Catholic Diocese Centre, Address:

16, Caine Road, Mid-Levels, Hong Kong SAR

















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Asia-Pacific Heritage Conservation 2003 Awards

#### OCCUPANT COMMENT FORM

March, 09, 2003

Dear Father Dominic Chan, V.G.,

Praise be to God. I am writing to express my great joy in finding how great our Cathedral is after the renovation work, which was completed last year, to put an end to the leaking problem, which has troubled us for so long.

Do you remember the time, especially during summer, when the rain always poured? We could not even use the benches at the right hand side facing the altar in the chapel, because of the constant dripping from the roof. Whenever after the benches at the left were full, our fellow parishioners going to the daily masses were forced to sit somewhere far away.

Apart from feeling the inconveniences, it hurts our hearts to see our church, the house of the Lord, to be in such a sorry state. The aging Cathedral was just like a rooftop illegal structure where residents have to place buckets around the living room in order to catch the water leaking from the roof. Our caretakers also had to put towels in the aisles next to the towering pillars, where waters flooded down from the roof constantly, to prevent people from slipping in the corridors.

Do you remember the watermarks on the walls? In the wet seasons the humid has prevented the broadcasting systems to work properly so when our brothers and sisters were going to church, we all had to sit somewhere near the altar in order to hear what the priests say. None of us could listen properly when we sit at the back of the altar, the St. Joseph altar and the altar of the Sacred Heart.

Yes, the renovation work has affected the normal running of the church. It has also disturbed us from attending Masses in the Cathedral; instead we were forced to move to the community hall in the Caritas Building. But thinking back now, it was worth the trouble.

Do you know how we felt when we returned to the Cathedral for the first time after the renovation work? Our hearts were full of joy, thanks God, every time when we walk into the house of God after the facelift. On top of its original beauty being restored, the lighting system has enhanced the arches supporting the roof, which were the core works of art in our Cathedral. The dimmed lights have also given a touch of holiness and peace to the liturgy.

Appendix - User's Comment



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香港天主教聖母無原罪主教座堂



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#### OCCUPANT COMMENT FORM

But there is one thing we did not find quite right. Although the lightings were milder, they were also dimmer than before. A brighter background might help people with the camera, especially during some high masses such as in Christmas when a lot of newcomers might be introduced to our community.

Gratitude should be given to those who have contributed to the stained-glass windows bearing the images of the newly canonized Chinese martyrs at the back of the Cathedral. Praying next to these windows could remind us of the passion of Christ to save our souls, to prepare us for everlasting lives. They have reminded us to follow the martyrs' examples to bear our crosses and follow our Lord.

Another area worth mentioning is the area surrounding the statu of Our Lady at the Cathedral backyard. With the old fences gone, we feel we can be much closer to the mother of God. The flowing waters, generated by the newly installed mechanism under the statue, add music to our prayers. And the new bench actually helps to ease the deterrence for the old or infirm for talking with Our Lady for extended time.

Our praises be to God. With the good leadership of our former parish priest Father John Tsang and our dear Father Dominic Chan, V.G., together with the selfless donations of our fellow parish members and the hard work of the renovation committee, our home, our house of the Lord, has its old glory restored.

The Cathedral is the place where we worship God. We all have the duty to love it, protect it and try our best to improve its facilities. We have to give our best to the Lord.

Best regards and God bless,

Katherine Leung







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2002

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12 July 2002



Asia-Pacific Heritage Conservation 2003 Awards

#### OCCUPANT COMMENT FORM

Mr. Joseph C C Chan Convenor Cathedral Repair Committee Catholic Cathedral 16 Caine Road Hong Kong

Dear Joseph,

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Congratulation on timely completion of Improvement Works for the Cathedral

On behalf of the Parish Council, I would like to congratulate you and the Cathedral Repair Committee on timely completion of the improvement works as scheduled so that the cathedral can be re-opened for the use of parishioners.

It is vital for us to provide a safe and good environment for parishioners in attending masses and other liturgies. Apart from the general repair work done, it is very obvious that both the acoustic and lighting system have been greatly improved. Our parishioners would certainly not forget the tremendous contribution from your Committee.

Looking forward to your continuous support and co-operation!

May God Bless you all,

Yours sincerely,

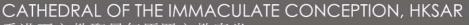
(Anthony NG) Chairman of Parish Council

c.c. Rev. Dominic Chan V.G.









香港天主教聖母無原罪主教座堂



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Asia-Pacific Heritage Conservation 2003 Awards

#### OCCUPANT COMMENT FORM

4 September 2002

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Mr. Joseph C C Chan Convenor Cathedral Repair Committee Catholic Cathedral 16 Caine Road Hong Kong

Dear Joseph,

#### Praise of the Renovation Works for the Cathedral

I wish to express my appreciation to you and members of the Repair Committee for the hard work and contribution in carrying out the improvement works for the Cathedral in summer.

Upon the completion of the renovation, there is a marked improvement in the lighting and sound system. The well-graded illumination at different times creates a serene atmosphere for the congregation to indulge themselves in prayers or spiritual reading while at mass the church is well-lit for the Eucharistic Celebration.

Please keep up the good work!

God Bless,

Yours sincerely,

(Adrian LEE)

Member of Eucharistic Minister

















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#### OCCUPANT COMMENT FORM

The Gonveror. Taskedral Repairs Committee, talkolic Esthedral.

6 th March, 2003

Dear dis,

#### Feedback on the new acoustic and lighting system

the renovation project of the batkedral launched in 2002 has been completed for more than half a year. I would like to easy a few words on the improvement of the acoustic system. In the part, the acoustic system was not too good. Voices could not be heard clearly in certain places of the should. After the renovation work, the acoustic system has been much improved. As a member of the faithful, I can now hear the acriptional readings as well as the homily and the proyers of the priest clearly. With better sound effect, I can gray the reaning of the Word of Good and the there of the Heas were easily. I become nove involved in Mass and get closer to Good. As a reader, I can now poorlain the word of Good to the faithful more clearly with the installation of better microphones. I hope that this will half the faithful achieve a deeper understanding of the scriptical readings.

god Bless!

In thist, Batty than Wai Yue (Hanber of tathachal How Readers' Society)











