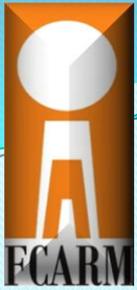


# FEDERACION DE COLEGIOS DE ARQUITECTOS DE LA REPUBLICA MEXICANA



## THE ARCHITECTS AND NATURAL DISASTERS

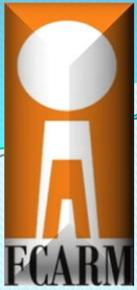




# **FEDERACION DE COLEGIOS DE ARQUITECTOS DE LA REPUBLICA MEXICANA**

**FCARM represents 50,000 national and international Mexican Architects who serve their profession in this country which contains 2,000,000 km<sup>2</sup> and 107 million population.**

**During next five years, Mexican government will construct 5,000,000 houses for the family's that needs it the most, through the architects in this federation, FCARM is keeping an eye on the structure and the design of these houses and decide if the design is appropriate for the people. Also the location of the land that we use to establish the accommodation is in the cities planification and is not located in dangerous zone.**



# **FEDERACION DE COLEGIOS DE ARQUITECTOS DE LA REPUBLICA MEXICANA**

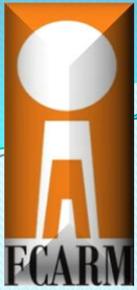
**FCARM will take the experience and the conscience which aroused by this important workshop, immediately form a working group which composed by the architects, and the goal is to train them and diffuse the preventive and correct way that we have to consider in our house design and also the concern we should have for our cities planification.**



**Mexican territory also faces systematic cyclical problems that are derived from the natural disasters.**



- **The Mexican Republic every year is whipped by enormous floods, droughts, frosts, forest fires, earthquakes, earth slidings, hurricanes, and in some cases, volcanic explosions that they generate numerous of lost materials and of human lives.**



**Mexico has undergone great disasters in its history, which have brought human and economic lost, some of they are:**

**This it is the ranking of the 10 more numerous wrecks in Mexico and its costs:**

- **1. - Hurricane Wilma (2005) 1.752 md.**
- **2. - Floods in Tabasco (2007) 700 md**
- **3. - Hurricane Gilberto (1997) 567 md**
- **4. - Earthquake Mexico, DF (1985) 473 md**
- **5. - Hurricane Isidoro (2002) 308 md**
- **6. - Hurricane Emily (2005) 302 md**
- **7. - Hurricane Stan (2005) 228 md**
- **8. - Hurricane Kenna (2002) 176 md**
- **9. - Hurricane Juliette (2001) 90 md**
- **10. - Hurricane Paulina (1997) 62 md**





# Hurricane Wilma

**The most intense hurricane ever recorded in the Atlantic basin.**

**Wilma made several landfalls, with the most destructive effects felt in the Yucatán Peninsula of Mexico, Cuba, and the U.S. state of Florida.**

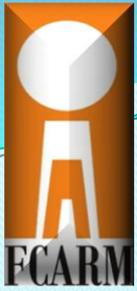




# Hurricane Wilma

Pictures and television reports indicated extensive structural damage throughout the Cancun area, as well as significant flooding and many downed trees, power lines and scattered debris. Several homes had also collapsed. Rainfall amounts in excess of 23 inches (590 mm) were reported in several areas.

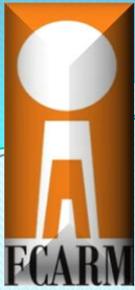




# Tabasco flood

The 2007 Tabasco flood occurred in late October and early November 2007 in the Mexican states of Tabasco and Chiapas, in which as much as 80% of the former was left under water. At least 20,000 people were forced to seek emergency shelter. Over 1,000,000 residents were affected.





# Tabasco flood



The 2007 Tabasco flood not only destroyed many family houses and took away people's belongings, but also affected theatres, libraries, artistic schools and museums.

- One week after the severe flooding, the capital of the state is in bankruptcy in part because flooding has affected various settlements. According to the local Chamber of Commerce, almost 15,000 establishments in downtown Villahermosa suffered losses of 100% in their infrastructure and inventories.





# Hurricane Gilbert

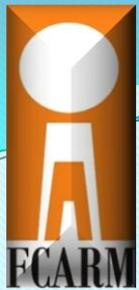
- **35,000 people were left homeless and 83 ships sank when Gilbert struck the Yucatán Peninsula. In north-eastern Mexico, heavy rains in and around Monterrey caused tremendous flooding.**



# Mexico City earthquake



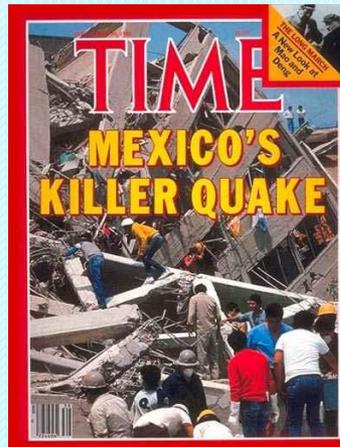
- The most devastating earthquakes in the history of the Americas. On September 19, 1985, Mexico City was struck by an earthquake of magnitude 8.1
- Although the epicentre of the earthquake was more than 3,000 Km. away. Mexico City suffered the most damage.

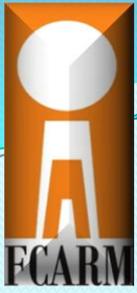


# Mexico City earthquake



- As a result of the earthquake, according to official government statistics, over 9,000 people were killed, 30,000 injured, and 100,000 left homeless. 416 buildings were destroyed and over 3,000 seriously damaged.





# **Earthquake Mexico, D.F. (1985)**

## **Photographs**









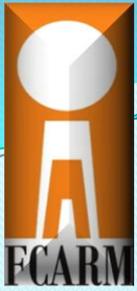












# **Earthquake Mexico, (Temples)**

## **Puebla, Puebla (1999)**

### **Photographs**



**TEMPLO DE SAN AGUSTIN**





**DETALLE DE TORRE EN EL TEMPLO DE SAN AGUSTIN**



**DETALLE DE LA TORRE DEL TEMPLO DE LA SOLEDAD**



**TEMPLO PARROQUIAL SAN ANDRES CALPAN**



**TEMPLO DE SANTA ROSA**



**PARROQUIA DE QUECHOLAC**



**TORRE DE LA PARROQUIA DE SAN ANTONIO EN AMOZOC**



**DETALLE DE TORRE DE LA PARROQUIA DE CUAHUTINCHAN**



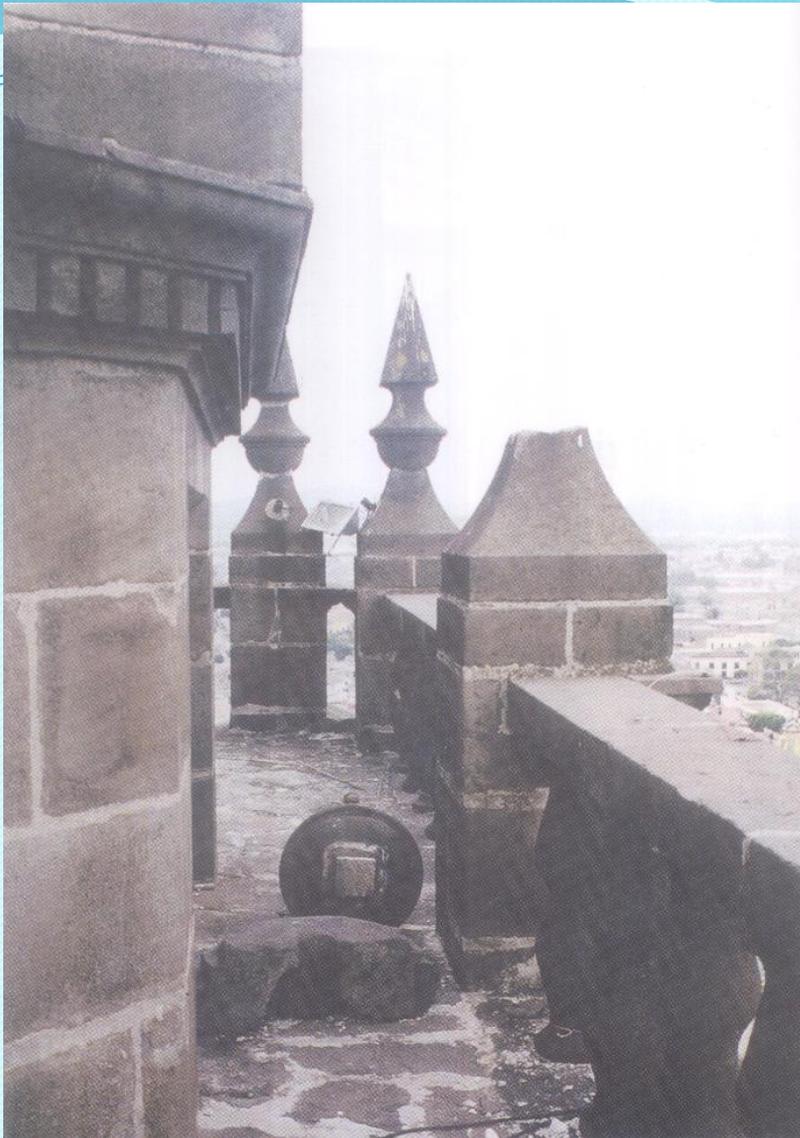
**EXCONVENTO DE SAN FRANCISCO TOTIMEHUACAN**



**CATEDRAL DE LA CIUDAD DE PUEBLA.**



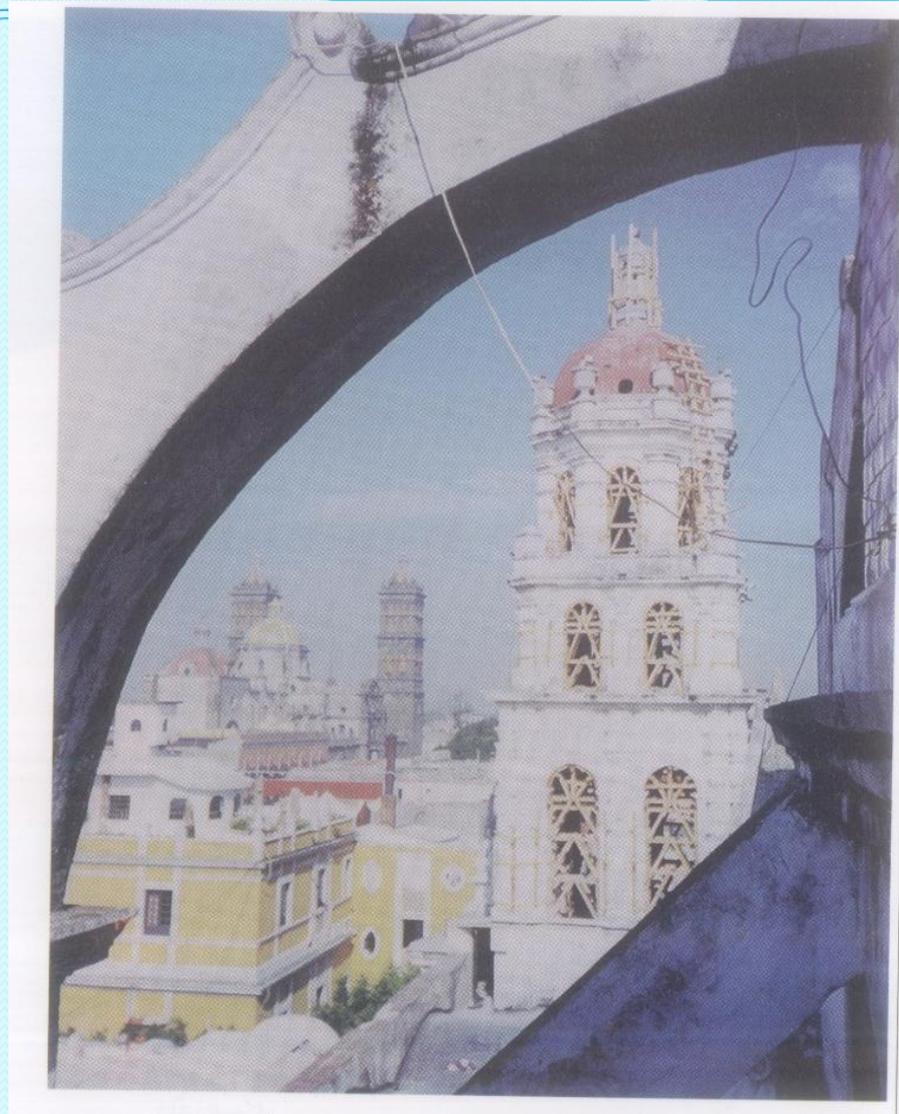
**EDIFICIO CAROLINO BUAP**



**DETALLE DE LA TORRE SUR DE LA CATEDRAL**



**DETALLE DEL ORBE EN LA CATEDRAL**



**TEMPLO DE LA COMPAÑÍA DE JESUS**

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**PARROQUIA DE SAN ANDRES CHOLULA**



**TEMPLO DE SAN JERONIMO**

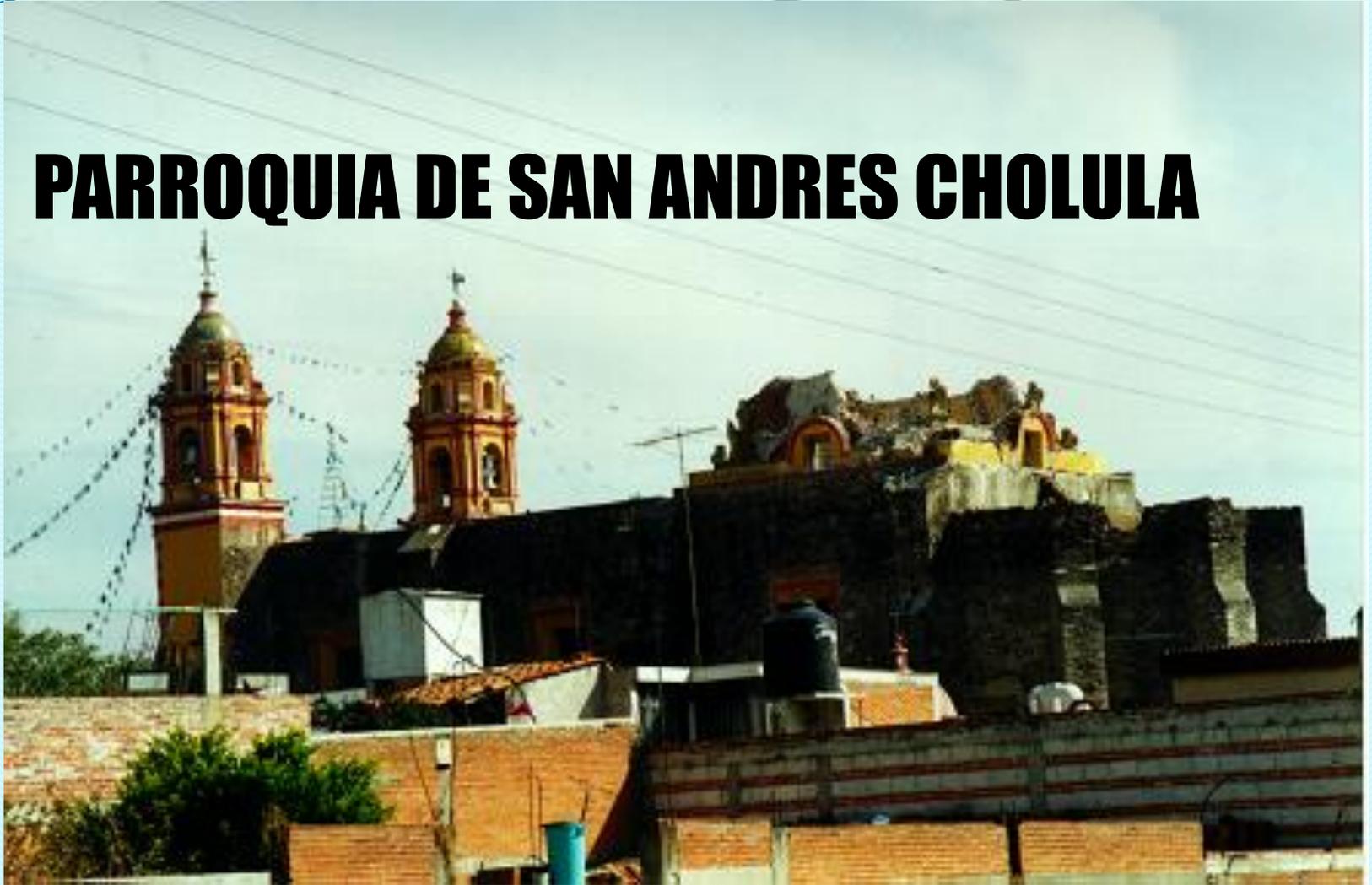


**SANTUARIO DE LOS REMEDIOS EN CHOLULA**



**TEMPLO DE SANTA ROSA**

# PARROQUIA DE SAN ANDRES CHOLULA





Vista general del templo, cúpula colapsada y separación de las torres del cuerpo central.

**PARROQUIA DE SAN ANDRES CHOLULA**

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Cúpula de planta elíptica colapsada.

**PARROQUIA DE SAN ANDRES CHOLULA**

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Vista interior de la cúpula colapsada.

**PARROQUIA DE SAN ANDRES CHOLULA**

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## PARROQUIA DE SAN ANDRES CHOLULA

Restos de la cúpula con el remate de la linternilla en primer plano.



Hundimiento de piso provocado por el desplome de la cúpula.

**PARROQUIA DE SAN ANDRES CHOLULA**

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Colapso de cubierta de viguería  
por caída de contrafuerte..

**PARROQUIA DE SAN ANDRES CHOLULA**

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**PARROQUIA DE SAN ANDRES CHOLULA**

Colapso de cubierta de viguería  
por caída de contrafuerte..

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Grietas longitudinales en bóveda de arista.

**PARROQUIA DE SAN ANDRES CHOLULA**

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## PARROQUIA DE SAN ANDRES CHOLULA

Grietas longitudinales en bóveda de arista.



Daño exterior en bóveda.

**PARROQUIA DE SAN ANDRES CHOLULA**

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**PARROQUIA DE SAN ANDRES CHOLULA**

Proceso de liberación de rellenos.



Retiro de tramo colapsado en bóveda para restitución.



Separación de torre del cuerpo de la iglesia.

**PARROQUIA DE SAN ANDRES CHOLULA**

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Proceso de consolidación de grietas por tendencia a separación de torre.



Arq. Armando Reyes Oliver

Liliana Martínez Caraza

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