



# Practical Task Requirement on Condition Survey and Maintenance

# 1) What The Assessors Expect

Assessment of the Practical Task will generally be based on the following aspects :

- (a) General presentation, organization, **clarity** of expression, use of diagram and **quality** of drawings. (10%)
- (b) Ability and fluency to **communicate** and ability to **react** to questioning with **logical** answers. (10%)
- (c) Ability to detect, diagnose and remedy **defects** in buildings. (20%)
- (d) Ability and **approach** to **problem solving**. (20%)
- (e) **Technical** contents of answers, relevance and correctness. (20%)
- (f) **Conclusion** and recommendations, soundness and practicality. (20%)

# Part A

- 1) Condition survey—Assessors notes PT 2014
  - a) Causes and remedies, locations, diagnosis
  - b) Water seepage from roof and wall
  - c) Defective painting
  - d) Cracking on walls and ceilings
  - e) Dilapidated toilers
  - f) Must sound out the overall condition of the building—poor? Satisfactory? Good?
  - g) Is the building capable for future use?—Then propose further investigation.

# Part A

Condition survey—Assessors notes PT 2014

## External painting peeled off:

- Causes : Long term exposure to sea-front, failure of tile-fillers, ageing
- Remedies: Repaint with appropriate painting system OR other external façade treatment, e.g. tiling. But candidates have to justify the cost implication
- Remarks: Assessors can question on difference and comparison of painting system, e.g. PU, acrylic, silicone, fluorocarbon

# Part A

Condition survey—Assessors notes PT 2014

## Water Leakage from roof:

- Causes : Defective membrane, lack of maintenance
- Remedies: Complete re-roofing considering the 20 years operation period
- Remarks: Candidates should note and comment on the effectiveness of waterproofing membrane applied directly over the existing tiles, as found roof over Assembly Hall.

# Part A

Condition survey—Assessors notes PT 2014

## Dilapidated toilets:

- Causes : Lack of maintenance after vacant
- Remedies: Complete renovation in view of the 20 years operation period
- Remarks: Assessors can question on the future maintenance of the internal pipe-ducts within toilets. As the future use is elderly care home, depending on the zoning, some of the toilets should have appropriate provisions for bathing and capable for wheel chair or even bed access.

# Part A

Condition survey—Assessors notes PT 2014

## Spalling and cracking:

- Causes : Aging, exposure to sea-front chloride attack, uneven settlement
- Remedies: No major recasting is expected as overall condition is acceptable. Waterproofing admixtures can be considered if candidates considered re-tiling over corridor
- Remarks: Assessors can question on condition of concrete and internal painting in building with open corridor approach. Knowledge on chloride attack may be tested. Candidate should be able to propose some detail investigation to assess the quality of concrete.

# Condition Survey

- Visual Inspection. Cause of defects
- Detail investigation. Non-destructive, Semi-destructive and destructive test. Methodology and result

Non-destructive	Semi	Destructive
Hammer tapping	Carbonation, chlorination, cement content	Concrete coring
Infra-red	Electric and ultra-sound	
Micro-wave	Schmidt hammer	



# Maintenance Consideration

- Spalling—repair and recast
- Cracking—grouting or recast
- Roofing—methodology: sheet, liquid apply, spray on top, their pros and cons
- Drainage—PVC, cast iron, epoxy coat
- Painting—difference painting system: acrylic, PU, silicone, fluro-carbon
- Slope—RMI, EI, hydroseed, turfing, shotcrete, soil-nail etc
- Asbestos—AIR, AAP

Please note their approximate cost in unit rate

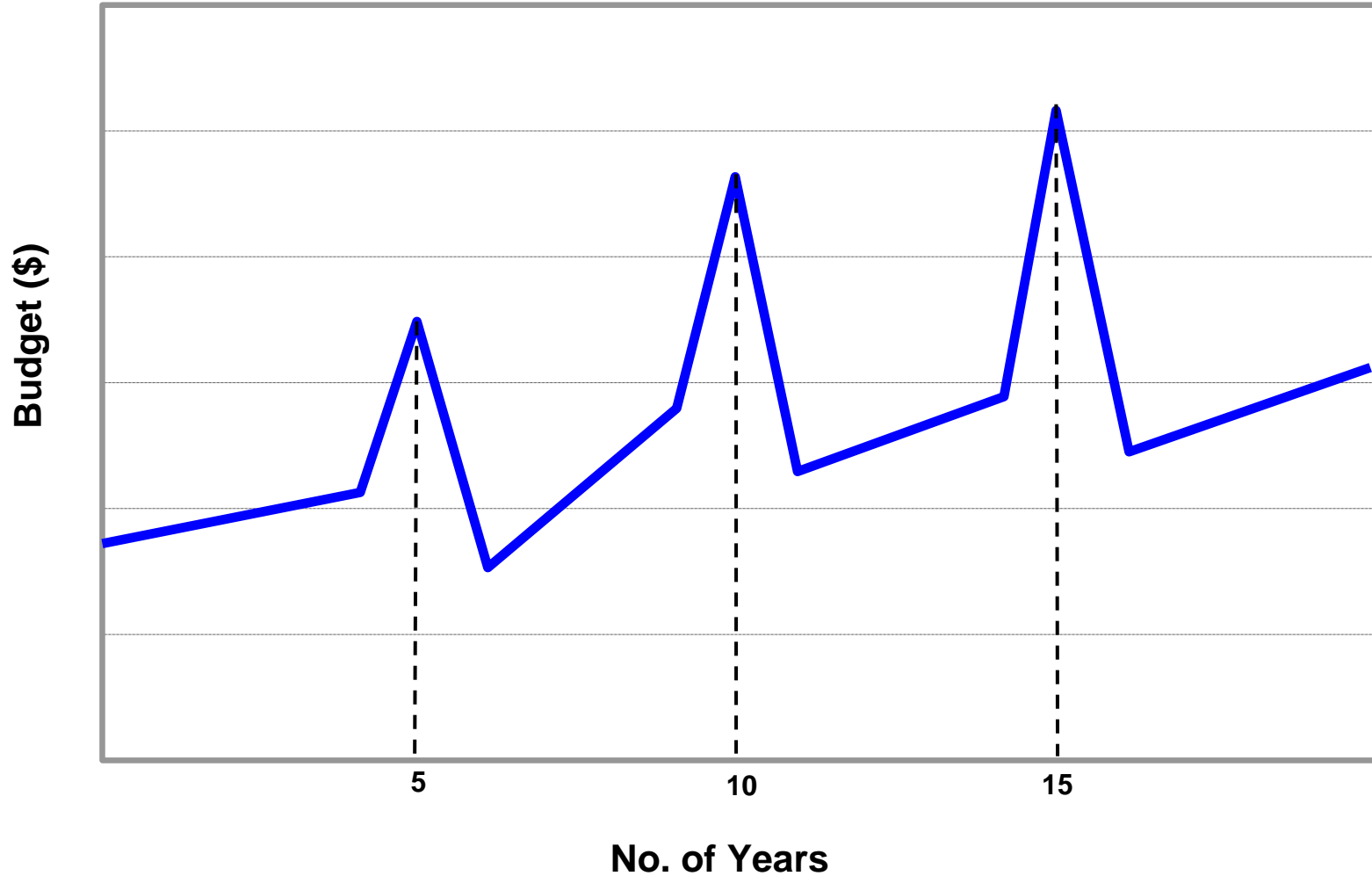
# Maintenance Consideration on Utility

- A/C—difference type of A/C, zoning
- Fire—relevant Fire Code, Cap 502, 572
- Water pipe—replacement, material consideration.
- E&M—rewiring, upgrading of transformers/generators
- Lifts and escalators—overhauling considering life of operation
- Gas Supply
- Information technology, security
- GREEN features—painting and recycle energy.

# Maintenance Management

- Emergency, ST, MT, LT
- ST:<5 years; MT: 5-10 years; LT: >10 years
- Statutory requirement—DMC, MBIS, L&E, E&M, Fire
- Life-cycle of material and methodology, e.g.
  - Re-roofing vs patch repair
  - Painting vs tiling
  - Replacement vs repair
  - Concrete recast vs repair
  - Creating add-on value vs existing
- Budget—appropriate amount of income, e.g. 15%
- DMC consideration, if any

# Annual Maintenance Budget



# Redev vs Rehab—If paper requested for option (2009 paper)

	Rehab	Redev
Financial	Low in investing High* in maintenance	High in investing Low in maintenance
Program	Short*	Long
Lease term	Short	Long
Design—loading, GFA, numbers of unit provided	Maintain existing, partial upgrading	New as per user's requirement
Building life	Low	High
Economic valuation	Low	High
Environmental consideration	Low	High
Social Impact	Low	High (relocation, historical)