**Fire Safety Report**

**-- Table to store information about building construction**

CREATE TABLE BuildingConstruction (

BuildingID *INT* *PRIMARY KEY*,

ConstructionType *VARCHAR*(100),

OccupancyType *VARCHAR*(100),

MaximumOccupancy *INT*,

YearBuilt *INT*

);

**-- Table to store information about fire protection systems**

CREATE TABLE FireProtectionSystems (

SystemID *INT* *PRIMARY KEY*,

SystemType *VARCHAR*(100),

Description *VARCHAR*(255)

);

**-- Table to associate fire protection systems with buildings**

CREATE TABLE BuildingFireProtection (

BuildingID *INT*,

SystemID *INT*

);

**-- Table to store information about emergency response procedures**

CREATE TABLE EmergencyResponseProcedures (

ProcedureID *INT* *PRIMARY KEY*,

ProcedureName *VARCHAR*(100),

Description *VARCHAR*(255)

);

**-- Table to associate emergency response procedures with buildings**

CREATE TABLE BuildingEmergencyProcedures (

BuildingID *INT*,

ProcedureID *INT*

);

**-- Insert data into BuildingConstruction table**

INSERT INTO BuildingConstruction (BuildingID, ConstructionType, OccupancyType, MaximumOccupancy, YearBuilt)

VALUES

(1, 'Steel Frame', 'Office', 200, 2000),

(2, 'Reinforced Concrete', 'Warehouse', 500, 2010);

**-- Insert data into FireProtectionSystems table**

INSERT INTO FireProtectionSystems (SystemID, SystemType, Description)

VALUES

(1, 'Sprinkler System', 'Automatic water-based fire suppression'),

(2, 'Fire Alarm System', 'Detection and alert system for fire incidents');

**-- Insert data into BuildingFireProtection table**

INSERT INTO BuildingFireProtection (BuildingID, SystemID)

VALUES

(1, 1),

(2, 1),

(2, 2);

**-- Insert data into EmergencyResponseProcedures table**

INSERT INTO EmergencyResponseProcedures (ProcedureID, ProcedureName, Description)

VALUES

(1, 'Evacuation Plan', 'Guidelines for safely evacuating the building'),

(2, 'Fire Drill Protocol', 'Scheduled drills to practice emergency response');

**-- Insert data into BuildingEmergencyProcedures table**

INSERT INTO BuildingEmergencyProcedures (BuildingID, ProcedureID)

VALUES

(1, 1),

(1, 2),

(2, 1);

*--------------------Questions----------------*

**-- 1. Building Information:**

-- 1.1 What is the construction type, occupancy type, and maximum occupancy of Building with ID 1?

select BuildingID, ConstructionType, OccupancyType, MaximumOccupancy from BuildingConstruction where BuildingID=1;

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-- 1.2 In which year was Building with ID 2 built?

select YearBuilt from BuildingConstruction where BuildingID=2;

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-- 2. Fire Protection Systems:

-- 2.1 What type of fire protection system does Building with ID 1 have?

select BC.BuildingID, FPS.SystemType, FPS.[Description]

from BuildingFireProtection BFP

join FireProtectionSystems FPS

on BFP.SystemID=FPS.SystemID

join BuildingConstruction BC

on BC.BuildingID=BFP.BuildingID

where BC.BuildingID=1;



-- 2.2 List all buildings with a Fire Alarm System (SystemID = 2).

select BuildingID from BuildingFireProtection where SystemID=2;



--3. Emergency Response Procedures:

-- 3.1 What is the description of the evacuation plan (ProcedureID = 1)?

select Description from EmergencyResponseProcedures where ProcedureID = 1;

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-- 3.2 Which buildings have both an evacuation plan and a fire drill protocol?

SELECT BuildingID

FROM BuildingEmergencyProcedures

WHERE ProcedureID IN (1, 2)

GROUP BY BuildingID

HAVING COUNT(DISTINCT ProcedureID) = 2;

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-- 4. Associations:

-- 4.1 Retrieve a list of buildings with their associated fire protection systems.

SELECT BC.BuildingID, BC.ConstructionType, BC.OccupancyType, FPS.SystemType

FROM BuildingConstruction BC

JOIN BuildingFireProtection BFP ON BC.BuildingID = BFP.BuildingID

JOIN FireProtectionSystems FPS ON BFP.SystemID = FPS.SystemID;

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-- 4.2 Identify the emergency response procedures associated with Building 1.

select ERP.ProcedureID, ERP.ProcedureName,ERP.Description

from EmergencyResponseProcedures ERP

join BuildingEmergencyProcedures BEP

on ERP.ProcedureID=BEP.ProcedureID

where BEP.BuildingID=1

