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Brue10gKjaer {

    state humidityAlarm = false
    state fireAlarm = false

    policy TemperatureControlPolicy
    uses sensors TemperatureSensor
    uses actuators RadiatorActuator
    is-implemented-by {
        if (TemperatureSensor.value <= 18) {
            RadiatorActuator.setValue = 1
        }
        else {
            if (TemperatureSensor.value >= 23) {
                RadiatorActuator.setValue = 0
            }
        }
    }

    policy SkylightWindowControlPolicy
    uses sensors TemperatureSensor ,RainSensor
    uses actuators WindowActuator
    is-implemented-by {
        state skylightOpen
        if (RainSensor.value = 1) {
            WindowActuator.setValue = 0
            state-instance.skylightOpen = false
        }
        else {
            if (TemperatureSensor.value >= 20 &&
                state-instance.skylightOpen = false &&
                RainSensor.value = 0) {
                WindowActuator.setValue = 1
                state-instance.skylightOpen = true
            }
        }
    }

    policy HumidityMonitoringPolicy
    uses sensors HumiditySensor
    uses rooms janitorOffice
    is-implemented-by {
        timer audioAlarmTimer

        if (HumiditySensor.value < 50) {
            state-instance.humidityAlarm = true

            if (audioAlarmTimer reaches 15 seconds) {
                reset audioAlarmTimer
                room-instance.janitorOffice.audioAlarmActuator = 1
            }
        }
        else {
            state-instance.humidityAlarm = false
        }
    }
}

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policy LightMotionPolicy
uses sensors MotionSensor
uses actuators LightSwitchActuator
is-implemented-by {
    timer motionTimer

    if (MotionSensor.value = 1) {
        reset motionTimer
    }
    else {
        if (motionTimer reaches 20 seconds) {
            reset motionTimer

            LightSwitchActuator.setValue = 1
        }
    }
}

schedule WorkingWeekHours
days Monday, Tuesday, Wednesday, Thursday, Friday
from 06:00 to 18:00

schedule LateWorkingWeekHours
days Monday, Tuesday, Wednesday, Thursday, Friday
from 18:00 to 22:00

schedule LockdownWeekHours
days Monday, Tuesday, Wednesday, Thursday, Friday
from 22:00 to 06:00

schedule LockdownWeekendHours
days Saturday, Sunday
from 00:00 to 00:00

room-type TemperatureControlledRoom
is-governed-by TemperatureControlPolicy
during WorkingWeekHours, LateWorkingWeekHours {
    sensor temperatureSensor is a TemperatureSensor
    actuator radiatorActuator is a RadiatorActuator
}

room-type HumidityControlledRoom
is-governed-by HumidityMonitoringPolicy
during-always {
    sensor humidifierSensor is a HumiditySensor
    actuator humidifierActuator is a HumidifierActuator
}

room-type LightMotionControlledRoom
is-governed-by LightMotionPolicy
during-always {
    sensor motionSensor is a MotionSensor
    actuator lightSwitchActuator is a LightSwitchActuator
}

room-type HumidityAndTemperatureControlledRoom
is-of-type TemperatureControlledRoom, HumidityControlledRoom

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building mainBuilding {
  floor groundFloor {
    room groundToilet
    is-of-type TemperatureControlledRoom, LightMotionControlledRoom

    room janitorOffice
    is-of-type TemperatureControlledRoom {
      actuator audioAlarmActuator is a AudioAlarmActuator
      timer audioAlarmTimer
    }

    room office
    is-of-type TemperatureControlledRoom, LightMotionControlledRoom

    room calibrationRoom
    is-of-type HumidityAndTemperatureControlledRoom

    room cleanRoom
    is-of-type HumidityAndTemperatureControlledRoom
  }

  floor topFloor {
    room university
    is-of-type TemperatureControlledRoom, LightMotionControlledRoom
    is-governed-by SkylightWindowControlPolicy during WorkingWeekHours

    room topToilet
    is-of-type TemperatureControlledRoom, LightMotionControlledRoom
  }
}

building repairBuilding {
  floor groundFloor {
    room repairRoom
    is-of-type HumidityAndTemperatureControlledRoom
  }
}

```