

MRCEB 2015 - CHAPTER 14 - PERFORMANCE COMPLIANCE METHODS

USE GROUP: R-2

EXISTING OCCUPANCY VACANT B: BUSINESS (VACANT) PROPOSED OCCUPANCY R-2 MULTI-FAMILY RESIDENTIAL  
 YEAR BUILDING WAS CONSTRUCTED 1920 NUMBER OF STORIES 4 STORIES, HEIGHT (IN FEET): 55  
 TYPE OF CONSTRUCTION TYPE 1B NON-COMBUSTIBLE AREA PER FLOOR: 26,745 SF TYPICAL AT FLOORS 2-4  
 24,645 SF AT FLOOR 1  
 PERCENTAGE OF OPEN PERIMETER INCREASE NOT USED  
 COMPLETELY SUPPRESSED: YES X NO \_\_\_ CORRIDOR WALL RATING LESS THAN 2 HOUR  
 COMPARTMENTATION: YES \_\_\_ NO X REQUIRED DOORS CLOSERS: YES \_\_\_ NO \_\_\_  
 FIRE RESISTANCE RATING OF VERTICAL OPENING ENCLOSURES 2 HOUR  
 TYPE OF HVAC SYSTEM 1020.5 OF THE IBC AND 602 OF THE IMC SERVING NUMBER OF FLOORS ALL  
 AUTOMATIC FIRE DETECTION: YES X NO \_\_\_ TYPE AND LOCATION SMOKE DETECTORS THROUGHOUT BUILDING  
 FIRE ALARM SYSTEM: YES X NO \_\_\_ TYPE AUTOMATIC PER 907.2.12  
 SMOKE CONTROL: YES \_\_\_ NO X TYPE N/A  
 ADEQUATE EXIT ROUTES: YES X NO \_\_\_ TYPE N/A  
 MAXIMUM EXIT ACCESS TRAVEL DISTANCE 125' FT PER TABLE 1017.2; 189 FT EXISTING DEAD ENDS: YES X NO \_\_\_  
 MEANS OF EGRESS EMERGENCY LIGHTING: YES X NO \_\_\_ ELEVATOR CONTROLS: YES X NO \_\_\_  
 MIXED OCCUPANCIES: YES \_\_\_ NO X  
 PATIENT ABILITY FOR SELF-PRESERVATION: NOT APPLICABLE  
 PATIENT CONCENTRATION: NOT APPLICABLE  
 ATTENDANT-TO-PATIENT RATIO: NOT APPLICABLE

| SAFETY PARAMETERS                               | FIRE SAFETY (FS) | MEANS OF EGRESS (ME) | GENERAL SAFETY (GS) |
|---|------------------|----------------------|---------------------|
| 1401.6.1 BUILDING HEIGHT                        | 8                | 8                    | 8                   |
| 1401.6.2 BUILDING AREA                          | 10.5             | 10.5                 | 10.5                |
| 1401.6.3 COMPARTMENTATION                       | 0                | 0                    | 0                   |
| 1401.6.4 TENANT AND DWELLING UNIT SEPARATIONS   | 0                | 0                    | 0                   |
| 1401.6.5 CORRIDOR WALLS                         | 0                | 0                    | 0                   |
| 1401.6.6 VERTICAL OPENINGS                      | 2                | 2                    | 2                   |
| 1401.6.7 HVAC SYSTEMS                           | 0                | 0                    | 0                   |
| 1401.6.8 AUTOMATIC FIRE DETECTION               | 2                | 2                    | 2                   |
| 1401.6.9 FIRE ALARM SYSTEM                      | 5                | 5                    | 5                   |
| 1401.6.10 SMOKE CONTROL                         | ****             | 0                    | 0                   |
| 1401.6.11 MEANS OF EGRESS                       | ****             | 0                    | 0                   |
| 1401.6.11.a. OVER SIX STORIES                   | N/A              | N/A                  | N/A                 |
| 1401.6.12 DEAD ENDS                             | ****             | -4                   | -4                  |
| 1401.6.13 MAXIMUM EXIT ACCESS TRAVEL DISTANCE   | ****             | 5.4                  | 5.4                 |
| 1401.6.14 ELEVATOR CONTROL                      | 0                | 0                    | 0                   |
| 1401.6.15 MEANS OF EGRESS EMERGENCY LIGHTING    | ****             | 4                    | 4                   |
| 1401.6.16 MIXED OCCUPANCIES                     | 0                | ****                 | 0                   |
| 1401.6.17 AUTOMATIC SPRINKLERS                  | 4                | 2                    | 4                   |
| 1401.6.18 STANDPIPES                            | 4                | 4                    | 4                   |
| 1401.6.19 INCIDENTAL ACCESSORY OCCUPANCY        | 0                | 0                    | 0                   |
| 1401.6.20 SMOKE COMPARTMENTATION                | 0                | 0                    | 0                   |
| 1401.6.21 PATIENT ABILITY FOR SELF-PRESERVATION | ****             | N/A                  | N/A                 |
| 1401.6.22 PATIENT CONCENTRATION                 | ****             | N/A                  | N/A                 |
| 1401.6.23 ATTENDANT-TO-PATIENT RATIO            | ****             | N/A                  | N/A                 |
| BUILDING SCORE-TOTAL VALUE                      | 35.5             | 38.9                 | 40.9                |

\*\*\*\*NO APPLICABLE VALUE TO BE INSERTED.

CODE ANALYSIS - USE GROUP: R-2

**SECTION 1401.6.1 - BUILDING HEIGHT: 62 FEET, 4 STORIES.**  
 MAXIMUM PERMITTED PER IBC (IBC) TABLES 504.3 AND 504.4: 180 FEET, 12 STORIES, MAXIMUM VALUE OF 10.  
 SCORE = 8 POINTS

**SECTION 1401.6.2 - BUILDING AREA: 298540 SQUARE FEET.**  
 MAXIMUM PERMITTED AREA (UNLIMITED) MAXIMUM PERMITTED POSITIVE VALUE IS 50% OF MANDATORY FIRE SAFETY SCORE LISTED IN TABLE 1401.8  
 SCORE = 10.5 POINTS

**SECTION 1401.6.3 - COMPARTMENTATION:**  
 BUILDING NOT DIVIDED INTO COMPARTMENTS OR LARGEST COMPARTMENT SIZE GREATER THAN 15,000 SQUARE FEET  
 CATEGORY A: COMPARTMENT SIZE 15000 SQUARE FEET OR GREATER  
 SCORE = 0 POINTS

**SECTION 1401.6.4 - TENANT AND DWELLING UNIT SEPARATIONS:**  
 CATEGORY C: FIRE PARTITIONS WITH 1-HR OR GREATER FIRE-RESISTANCE RATINGS AND FLOOR ASSEMBLIES WITH 1-HR BUT LESS THAN 2-HR FIRE-RESISTANCE RATINGS, OR ONLY ONE TENANT WITHIN FLOOR.  
 SCORE = 0 POINTS

**SECTION 1401.6.5 - CORRIDOR WALLS:**  
 CATEGORY C: 1-HR TO LESS THAN 2-HR FIRE-RESISTANCE RATING, WITH DOORS CONFORMING TO SECTION 716 OF THE IBC (IBC) OR WITHOUT CORRIDORS AS PERMITTED BY IBC (IBC) 1020.  
 SCORE = 0 POINTS

**SECTION 1401.6.6 - VERTICAL OPENINGS:**  
 CALCULATE THE VERTICAL OPENING VALUE BASED ON THE FORMULA:  
 $VO = PV \times CF$   
 PROTECTION: 2 HOURS OR MORE  
 NUMBER OF CONNECTED FLOORS: 4  
 $PV = 2$  (TABULAR VALUE)  
 $CF = 1.5$  (CONSTRUCTION TYPE II)  
 $VO = PV \times CF = 1$  (MAX VALUE = 2)  
 SCORE = 2 POINTS

**SECTION 1401.6.7 - HVAC SYSTEMS:**  
 CATEGORY D: HVAC SYSTEM COMPLIES WITH IBC (IBC) 1020.5 AND IMC (IMC) 602  
 SCORE = 0 POINTS

**SECTION 1401.6.8 - AUTOMATIC FIRE DETECTION:**  
 CATEGORY D: SMOKE DETECTORS THROUGHOUT ALL FLOOR AREAS OTHER THAN INDIVIDUAL SLEEPING OR DWELLING UNITS AND TENANT  
 SCORE = 2 POINTS

**SECTION 1401.6.9 - FIRE ALARM SYSTEMS:**  
 CATEGORY D: FIRE ALARM SYSTEM IN ACCORDANCE WITH IBC (IBC) 907 PLUS A REQUIRED EMERGENCY VOICE/ALARM COMMUNICATIONS SYSTEM AND A FIRE COMMAND STATION CONFORMING TO IBC (IBC) 911 AND CONTAINING CONTROLS SPECIFIED IN IBC (IBC) 911.  
 SCORE = 5 POINTS

**SECTION 1401.6.10 - SMOKE CONTROL:**  
 CATEGORY A: NONE  
 SCORE = 0 POINTS

**SECTION 1401.6.11 - MEANS OF EGRESS:**  
 CATEGORY B: CAPACITY OF THE MEANS OF EGRESS COMPLIES WITH IBC (IBC) 1005, AND THE NUMBER OF EXITS COMPLIES WITH THE MINIMUM NUMBER REQUIRED BY IBC (IBC) 1006.  
 SCORE = 0 POINTS

**SECTION 1401.6.12 - DEAD ENDS:**  
 IN SPACES REQUIRED TO BE SERVED BY MORE THAN ONE MEANS OF EGRESS, EVALUATE THE LENGTH OF THE EXIT ACCESS TRAVEL PATH IN WHICH THE BUILDING OCCUPANTS ARE CONFINED TO A SINGLE PATH OF TRAVEL.  
 \*FOR DEAD-END DISTANCES BETWEEN CATEGORIES, THE DEAD-END VALUE IS OBTAINED BY LINEAR INTERPOLATION.  
 BUILDING IS SPRINKLERED. DEAD END LENGTH = 147 FT.  
 CATEGORY D: DEAD ENDS EXCEEDING 95 FEET IN NONSPRINKLERED BUILDINGS OR 70 FEET IN SPRINKLERED BUILDINGS.  
 SCORE = 4 POINTS

**SECTION 1401.6.13 - MAXIMUM EXIT ACCESS TRAVEL DISTANCE TO AN EXIT:**  
 BUILDING IS SPRINKLERED  
 MAX ALLOWABLE DISTANCE = 250 FT, MAX ACTUAL DISTANCE = 189 FT  
 $VALUE = 20 \times (MAX ALLOWABLE DISTANCE - MAX ACTUAL DISTANCE) / (MAX ALLOWABLE DISTANCE)$   
 $VALUE = 20 \times (250 FT - 189 FT) / 250 FT = 4.88$   
 SCORE = 4.9 POINTS

**SECTION 1401.6.14 - ELEVATOR CONTROL:**  
 ELEVATOR TRAVEL FROM LEVEL OF FIRE-FIGHTER ELEVATOR ACCESS GREATER THAN OR EQUAL TO 25 FT  
 CATEGORY C: ALL ELEVATORS WITH PHASE I EMERGENCY RECALL OPERATION AND PHASE II EMERGENCY IN-CAR OPERATION AS REQUIRED BY THE INTERNATIONAL FIRE CODE.  
 SCORE = 0 POINTS

**SECTION 1401.6.15 - MEANS OF EGRESS EMERGENCY LIGHTING:**  
 NUMBER OF EXITS REQUIRED BY IBC (IBC) 1015, 2 OR MORE  
 CATEGORY C: EMERGENCY POWER PROVIDED TO MEANS-OF-EGRESS LIGHTING AND EXIT SIGNS, WHICH PROVIDES PROTECTION IN THE EVENT OF POWER FAILURE TO THE SITE OR BUILDING.  
 SCORE = 4 POINTS

**SECTION 1401.6.16 - MIXED OCCUPANCIES:**  
 \*FOR AREAS BETWEEN CATEGORIES, THE VALUE IS OBTAINED BY LINEAR INTERPOLATION  
 CATEGORY B: SEPARATIONS BETWEEN OCCUPANCIES IN ACCORDANCE WITH IBC (IBC) SECTION 508.4.  
 SCORE = 0 POINTS

**SECTION 1401.6.17 - AUTOMATIC SPRINKLERS:**  
 CATEGORY E: SPRINKLERS ARE REQUIRED THROUGHOUT; SPRINKLERS ARE PROVIDED THROUGHOUT IN ACCORDANCE WITH IBC (IBC) 905.  
 SCORE = 4 POINTS

**SECTION 1401.6.18 - STANDPIPES:**  
 CATEGORY C: STANDPIPES ARE REQUIRED; STANDPIPES ARE PROVIDED IN ACCORDANCE WITH IBC (IBC) 905.  
 SCORE = 4 POINTS

**SECTION 1401.6.19 - INCIDENTAL USES:**  
 NO INCIDENTAL USES  
 SCORE = 0 POINTS

**SECTION 1401.6.20 - SMOKE COMPARTMENTATION:**  
 \*FOR AREAS BETWEEN CATEGORIES, THE SMOKE COMPARTMENTATION VALUE IS OBTAINED BY LINEAR INTERPOLATION  
 CATEGORY C: SMOKE COMPARTMENTS ARE NOT PROVIDED.  
 SCORE = 0 POINTS

**SECTION 1401.6.21.1 - PATIENT SELF-PRESERVATION**  
 N/A - USE GROUP 1-2 ONLY  
 SCORE = N/A

**SECTION 1401.6.21.1.1 - PATIENT CONCENTRATION**  
 N/A - USE GROUP 1-2 ONLY  
 SCORE = N/A

**SECTION 1401.6.21.1.1 - ATTENDANT/PATIENT RATIO**  
 N/A - USE GROUP 1-2 ONLY  
 SCORE = N/A

SUMMARY PROJECT DESCRIPTION

WORK COMPRISES CORE AND SHELL AND INTERIOR WORK RELATED TO ADAPTIVE REUSE AND HISTORIC PRESERVATION OF A FOUR STORY BUILDING, ORIGINALLY BUILT IN 1923 THE BUILDING HAS A FULL L-SHAPED FLOOR PLATE AT ALL LEVELS. ALL LEVELS WILL BE RESIDENTIAL USE GROUP R-2 WITH A SMALL LEASING OFFICE ON THE FIRST FLOOR. THE CONSTRUCTION TYPE IS I-B. THE RENOVATION WILL PROVIDE SMOKE DETECTION, A NEW FIRE ALARM IN ACCORDANCE WITH SECTION 907, AND A NEW SPRINKLER SYSTEM THROUGHOUT IN ACCORDANCE WITH SECTION 903.

THE BUILDING HAS BEEN EVALUATED UNDER THE PROVISIONS OF CHAPTER 14 OF THE 2015 MICHIGAN REHABILITATION CODE FOR EXISTING BUILDINGS AND APPLICABLE SECTIONS OF THE 2015 MICHIGAN BUILDING CODE.

TABLE 1401.8  
MANDATORY SAFETY SCORES

| OCCUPANCY | FIRE SAFETY (MFS) | MEANS OF EGRESS (MME) | GENERAL SAFETY (MGS) |
|-----------|-------------------|-----------------------|----------------------|
| A-1       | 20                | 31                    | 31                   |
| A-2       | 21                | 32                    | 32                   |
| A-3       | 22                | 33                    | 33                   |
| A-4, E    | 29                | 40                    | 40                   |
| B         | 30                | 40                    | 40                   |
| F         | 24                | 34                    | 34                   |
| M         | 23                | 40                    | 40                   |
| R         | 21                | 38                    | 38                   |
| S-1       | 19                | 29                    | 29                   |
| S-2       | 29                | 39                    | 39                   |

a. MFS = MANDATORY FIRE SAFETY  
 MME = MANDATORY MEANS OF EGRESS  
 MGS = MANDATORY GENERAL SAFETY

TABLE 1401.9  
EVALUATION FORMULAS - USE GROUP: R2

| FORMULA    | T1401.7   | T1401.8      | SCORE | PASS | FAIL |
|------------|-----------|--------------|-------|------|------|
| FS-MFS ≥ 0 | 35.5 (FS) | 21.0 (MFS) = | 14.5  | X    | ___  |
| ME-MME ≥ 0 | 38.4 (ME) | 38.0 (MME) = | 0.4   | X    | ___  |
| GS-MGS ≥ 0 | 40.4 (GS) | 38.0 (MGS) = | 2.4   | X    | ___  |

a. FS = FIRE SAFETY  
 ME = MEANS OF EGRESS  
 GS = GENERAL SAFETY

MFS = MANDATORY FIRE SAFETY  
 MME = MANDATORY MEANS OF EGRESS  
 MGS = MANDATORY GENERAL SAFETY

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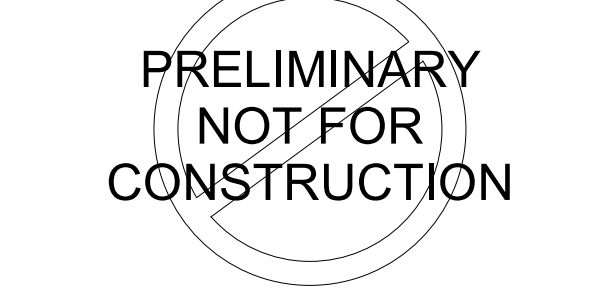
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