DEPARTMENT OF HEALTH AND HUMAN SERVICES — **CENTERS FOR MEDICARE & MEDICAID SERVICES**

MEDICARE/MEDICAID CERTIFICATION AND TRANSMITTAL

ID: 0ZFL

PART I - TO BE COMPLETED BY THE STATE SURVEY AGENCY

Facility ID: 00259

1. MEDICARE/MEDICAID PROVIDER NO.(L1) **245170**

2. STATE VENDOR OR MEDICAID NO. (L2) **616845105**

3. NAME AND ADDRESS OF FACILITY
(L3) **FAIRVIEW UNIVERSITY TRANS SERV**
(L4) **2450 RIVERSIDE AVENUE SOUTH**
(L5) **MINNEAPOLIS, MN** (L6) **55454**

4. TYPE OF ACTION: **2** (L8)
1. Initial **2. Recertification**
3. Termination **4. CHOW**
5. Validation **6. Complaint**
7. On-Site Visit **9. Other**
8. Full Survey After Complaint

5. EFFECTIVE DATE CHANGE OF OWNERSHIP (L9)

6. DATE OF SURVEY **10/06/2016** (L34)

8. ACCREDITATION STATUS: __ (L10)
0 Unaccredited 1 TJC
2 AOA 3 Other

7. PROVIDER/SUPPLIER CATEGORY 02 (L7)

01 Hospital	**05 HHA**	**09 ESRD**	**13 PTIP**	**22 CLIA**
02 SNF/NF/Dual	**06 PRTF**	**10 NF**	**14 CORF**	
03 SNF/NF/Distinct	**07 X-Ray**	**11 ICF/IID**	**15 ASC**	
04 SNF	**08 OPT/SP**	**12 RHC**	**16 HOSPICE**	

FISCAL YEAR ENDING DATE: (L35)
12/31

11. .LTC PERIOD OF CERTIFICATION
From (a) :
To (b) :

12.Total Facility Beds **28** (L18)

13.Total Certified Beds **28** (L17)

10.THE FACILITY IS CERTIFIED AS:

A. In Compliance With Program Requirements Compliance Based On:
___1. Acceptable POC

X B. Not in Compliance with Program Requirements and/or Applied Waivers:

And/Or Approved Waivers Of The Following Requirements:
___ 2. Technical Personnel
___ 3. 24 Hour RN
___ 4. 7-Day RN (Rural SNF)
___ 5. Life Safety Code
___ 6. Scope of Services Limit
___ 7. Medical Director
___ 8. Patient Room Size
___ 9. Beds/Room

* Code: **B*** (L12)

14. LTC CERTIFIED BED BREAKDOWN

18 SNF	18/19 SNF	19 SNF	ICF	IID
	28			
(L37)	(L38)	(L39)	(L42)	(L43)

15. FACILITY MEETS 1861 (e) (1) or 1861 (j) (1): (L15)

16. STATE SURVEY AGENCY REMARKS (IF APPLICABLE SHOW LTC CANCELLATION DATE):

17. SURVEYOR SIGNATURE Date :
Magdalene Jares, HFE NE II 11/03/2016 (L19)

18. STATE SURVEY AGENCY APPROVAL Date:
Kamala Fiske-Downing, Enforcement Specialist 11/08/2016 (L20)

PART II - TO BE COMPLETED BY HCFA REGIONAL OFFICE OR SINGLE STATE AGENCY

19. DETERMINATION OF ELIGIBILITY
____ 1. Facility is Eligible to Participate
____ 2. Facility is not Eligible
(L21)

20. COMPLIANCE WITH CIVIL RIGHTS ACT:

21. 1. Statement of Financial Solvency (HCFA-2572)
2. Ownership/Control Interest Disclosure Stmt (HCFA-1513)
3. Both of the Above :
_____

22. ORIGINAL DATE OF PARTICIPATION **07/11/1969** (L24)

23. LTC AGREEMENT BEGINNING DATE (L41)

24. LTC AGREEMENT ENDING DATE (L25)

25. LTC EXTENSION DATE: (L27)

27. ALTERNATIVE SANCTIONS
A. Suspension of Admissions: (L44)
B. Rescind Suspension Date: (L45)

26. TERMINATION ACTION: (L30)
VOLUNTARY **00**
01-Merger, Closure
02-Dissatisfaction W/ Reimbursement
03-Risk of Involuntary Termination
04-Other Reason for Withdrawal
INVOLUNTARY
05-Fail to Meet Health/Safety
06-Fail to Meet Agreement
OTHER
07-Provider Status Change
00-Active

28. TERMINATION DATE: (L28)

29. INTERMEDIARY/CARRIER NO.
03001 (L31)

30. REMARKS
Posted 11/10/2016 Co.

31. RO RECEIPT OF CMS-1539 (L32)

32. DETERMINATION OF APPROVAL DATE (L33)

DETERMINATION APPROVAL

MDH
Minnesota
Department
of Health

PROTECTING, MAINTAINING AND IMPROVING THE HEALTH OF ALL MINNESOTANS

Electronically delivered
October 24, 2016

Ms. Caroline Portoghese, Administrator
Fairview University Trans Serv
2450 Riverside Avenue South
Minneapolis, MN 55454

RE: Project Number S5170026

Dear Ms. Portoghese:

On October 6, 2016, a standard survey was completed at your facility by the Minnesota Departments of Health and Public Safety to determine if your facility was in compliance with Federal participation requirements for skilled nursing facilities and/or nursing facilities participating in the Medicare and/or Medicaid programs.

This survey found the most serious deficiencies in your facility to be widespread deficiencies that constitute no actual harm with potential for more than minimal harm that is not immediate jeopardy (Level F), as evidenced by the attached CMS-2567 whereby corrections are required. A copy of the Statement of Deficiencies (CMS-2567) is enclosed.

Please note that this notice does not constitute formal notice of imposition of alternative remedies or termination of your provider agreement. Should the Centers for Medicare & Medicaid Services determine that termination or any other remedy is warranted, it will provide you with a separate formal notification of that determination.

This letter provides important information regarding your response to these deficiencies and addresses the following issues:

Opportunity to Correct - the facility is allowed an opportunity to correct identified deficiencies before remedies are imposed;

Electronic Plan of Correction - when a plan of correction will be due and the information to be contained in that document;

Remedies - the type of remedies that will be imposed with the authorization of the Centers for Medicare and Medicaid Services (CMS) if substantial compliance is not attained at the time of a revisit;

Potential Consequences - the consequences of not attaining substantial compliance 3 and 6 months after the survey date; and

Informal Dispute Resolution - your right to request an informal reconsideration to dispute the attached deficiencies.

Please note, it is your responsibility to share the information contained in this letter and the results of this visit with the President of your facility's Governing Body.

DEPARTMENT CONTACT

Questions regarding all documents submitted as a response to the Life Safety Code deficiencies (those preceded by a "K" tag), i.e., the plan of correction, request for waivers, should be directed to:

Mr. Tom Linhoff, Fire Safety Supervisor
Health Care Fire Inspections
Minnesota Department of Public Safety
445 Minnesota Street, Suite 145
St. Paul, Minnesota 55101-5145
Email: tom.linhoff@state.mn.us
Telephone: (651) 430-3012
Fax: (651) 215-0525

OPPORTUNITY TO CORRECT - DATE OF CORRECTION - REMEDIES

As of January 14, 2000, CMS policy requires that facilities will not be given an opportunity to correct before remedies will be imposed when actual harm was cited at the last standard or intervening survey and also cited at the current survey. Your facility does not meet this criterion. Therefore, if your facility has not achieved substantial compliance by November 15, 2016, the Department of Health will impose the following remedy:

- State Monitoring. (42 CFR 488.422)

In addition, the Department of Health is recommending to the CMS Region V Office that if your facility has not achieved substantial compliance by November 15, 2016 the following remedy will be imposed:

- Per instance civil money penalty. (42 CFR 488.430 through 488.444)

ELECTRONIC PLAN OF CORRECTION (ePoC)

An ePoC for the deficiencies must be submitted within **ten calendar days** of your receipt of this letter. Your ePoC must:

- Address how corrective action will be accomplished for those residents found to have

been affected by the deficient practice;

- Address how the facility will identify other residents having the potential to be affected by the same deficient practice;

- Address what measures will be put into place or systemic changes made to ensure that the deficient practice will not recur;

- Indicate how the facility plans to monitor its performance to make sure that solutions are sustained. The facility must develop a plan for ensuring that correction is achieved and sustained. This plan must be implemented, and the corrective action evaluated for its effectiveness. The plan of correction is integrated into the quality assurance system;

- Include dates when corrective action will be completed. The corrective action completion dates must be acceptable to the State. If the plan of correction is unacceptable for any reason, the State will notify the facility. If the plan of correction is acceptable, the State will notify the facility. Facilities should be cautioned that they are ultimately accountable for their own compliance, and that responsibility is not alleviated in cases where notification about the acceptability of their plan of correction is not made timely. The plan of correction will serve as the facility's allegation of compliance; and,

- Submit electronically to acknowledge your receipt of the electronic 2567, your review and your ePoC submission.

If an acceptable ePoC is not received within 10 calendar days from the receipt of this letter, we will recommend to the CMS Region V Office that one or more of the following remedies be imposed:

• Optional denial of payment for new Medicare and Medicaid admissions (42 CFR 488.417 (a));

• Per day civil money penalty (42 CFR 488.430 through 488.444).

Failure to submit an acceptable ePoC could also result in the termination of your facility's Medicare and/or Medicaid agreement.

PRESUMPTION OF COMPLIANCE - CREDIBLE ALLEGATION OF COMPLIANCE

The facility's ePoC will serve as your allegation of compliance upon the Department's acceptance. Your signature at the bottom of the first page of the CMS-2567 form will be used as verification of compliance. In order for your allegation of compliance to be acceptable to the Department, the ePoC must meet the criteria listed in the plan of correction section above. You will be notified by the Minnesota Department of Health, Licensing and Certification Program staff and/or the Department of Public Safety, State Fire Marshal Division staff, if your ePoC for the respective deficiencies (if any) is acceptable.

VERIFICATION OF SUBSTANTIAL COMPLIANCE

Upon receipt of an acceptable ePoC, an onsite revisit of your facility may be conducted to validate that substantial compliance with the regulations has been attained in accordance with your verification. A Post Certification Revisit (PCR) will occur after the date you identified that compliance was achieved in your plan of correction.

If substantial compliance has been achieved, certification of your facility in the Medicare and/or Medicaid program(s) will be continued and remedies will not be imposed. Compliance is certified as of the latest correction date on the approved ePoC, unless it is determined that either correction actually occurred between the latest correction date on the ePoC and the date of the first revisit, or correction occurred sooner than the latest correction date on the ePoC.

Original deficiencies not corrected

If your facility has not achieved substantial compliance, we will impose the remedies described above. If the level of noncompliance worsened to a point where a higher category of remedy may be imposed, we will recommend to the CMS Region V Office that those other remedies be imposed.

Original deficiencies not corrected and new deficiencies found during the revisit

If new deficiencies are identified at the time of the revisit, those deficiencies may be disputed through the informal dispute resolution process. However, the remedies specified in this letter will be imposed for original deficiencies not corrected. If the deficiencies identified at the revisit require the imposition of a higher category of remedy, we will recommend to the CMS Region V Office that those remedies be imposed.

Original deficiencies corrected but new deficiencies found during the revisit

If new deficiencies are found at the revisit, the remedies specified in this letter will be imposed. If the deficiencies identified at the revisit require the imposition of a higher category of remedy, we will recommend to the CMS Region V Office that those remedies be imposed. You will be provided the required notice before the imposition of a new remedy or informed if another date will be set for the imposition of these remedies.

FAILURE TO ACHIEVE SUBSTANTIAL COMPLIANCE BY THE THIRD OR SIXTH MONTH AFTER THE LAST DAY OF THE SURVEY

If substantial compliance with the regulations is not verified by January 6, 2017 (three months after the identification of noncompliance), the CMS Region V Office must deny payment for new admissions as mandated by the Social Security Act (the Act) at Sections 1819(h)(2)(D) and 1919(h)(2)(C) and Federal regulations at 42 CFR Section 488.417(b). This mandatory denial of payments will be based on the failure to comply with deficiencies originally contained in the Statement of Deficiencies, upon the identification of new deficiencies at the time of the revisit, or if deficiencies have been issued as the

result of a complaint visit or other survey conducted after the original statement of deficiencies was issued. This mandatory denial of payment is in addition to any remedies that may still be in effect as of this date.

We will also recommend to the CMS Region V Office and/or the Minnesota Department of Human Services that your provider agreement be terminated by April 6, 2017 (six months after the identification of noncompliance) if your facility does not achieve substantial compliance. This action is mandated by the Social Security Act at Sections 1819(h)(2)(C) and 1919(h)(3)(D) and Federal regulations at 42 CFR Sections 488.412 and 488.456.

INFORMAL DISPUTE RESOLUTION

In accordance with 42 CFR 488.331, you have one opportunity to question cited deficiencies through an informal dispute resolution process. You are required to send your written request, along with the specific deficiencies being disputed, and an explanation of why you are disputing those deficiencies, to:

Nursing Home Informal Dispute Process
Minnesota Department of Health
Health Regulation Division
P.O. Box 64900
St. Paul, Minnesota 55164-0900

This request must be sent within the same ten days you have for submitting an ePoC for the cited deficiencies. All requests for an IDR or IIDR of federal deficiencies must be submitted via the web at: http://www.health.state.mn.us/divs/fpc/profinfo/ltc/ltc_idr.cfm

You must notify MDH at this website of your request for an IDR or IIDR within the 10 calendar day period allotted for submitting an acceptable electronic plan of correction. A copy of the Department's informal dispute resolution policies are posted on the MDH Information Bulletin website at: http://www.health.state.mn.us/divs/fpc/profinfo/infobul.htm

Please note that the failure to complete the informal dispute resolution process will not delay the dates specified for compliance or the imposition of remedies.

Feel free to contact me if you have questions.

Sincerely,

Kamala Fiske-Downing

Kamala Fiske-Downing
Minnesota Department of Health
Licensing and Certification Program
Program Assurance Unit

Health Regulation Division
Telephone: (651) 201-4112 Fax: (651) 215-9697
Email: Kamala.Fiske-Downing@state.mn.us

STATEMENT OF DEFICIENCIES AND PLAN OF CORRECTION	(X1) PROVIDER/SUPPLIER/CLIA IDENTIFICATION NUMBER:	(X2) MULTIPLE CONSTRUCTION	(X3) DATE SURVEY COMPLETED
	245170	A. BUILDING _____ B. WING _____	10/06/2016

NAME OF PROVIDER OR SUPPLIER	STREET ADDRESS, CITY, STATE, ZIP CODE
FAIRVIEW UNIVERSITY TRANS SERV	**2450 RIVERSIDE AVENUE SOUTH MINNEAPOLIS, MN 55454**

(X4) ID PREFIX TAG	SUMMARY STATEMENT OF DEFICIENCIES (EACH DEFICIENCY MUST BE PRECEDED BY FULL REGULATORY OR LSC IDENTIFYING INFORMATION)	ID PREFIX TAG	PROVIDER'S PLAN OF CORRECTION (EACH CORRECTIVE ACTION SHOULD BE CROSS-REFERENCED TO THE APPROPRIATE DEFICIENCY)	(X5) COMPLETION DATE
F 000	INITIAL COMMENTS The facility is enrolled in ePOC and therefore a signature is not required at the bottom of the first page of the CMS-2567 form. Although no plan of correction is required, it is required that you acknowledge receipt of the electronic documents.	F 000		

LABORATORY DIRECTOR'S OR PROVIDER/SUPPLIER REPRESENTATIVE'S SIGNATURE | TITLE | (X6) DATE

Electronically Signed | 11/02/2016

Any deficiency statement ending with an asterisk (*) denotes a deficiency which the institution may be excused from correcting providing it is determined that other safeguards provide sufficient protection to the patients. (See instructions.) Except for nursing homes, the findings stated above are disclosable 90 days following the date of survey whether or not a plan of correction is provided. For nursing homes, the above findings and plans of correction are disclosable 14 days following the date these documents are made available to the facility. If deficiencies are cited, an approved plan of correction is requisite to continued program participation.

STATEMENT OF DEFICIENCIES AND PLAN OF CORRECTION	(X1) PROVIDER/SUPPLIER/CLIA IDENTIFICATION NUMBER:	(X2) MULTIPLE CONSTRUCTION	(X3) DATE SURVEY COMPLETED
	245170	A. BUILDING **01 - MAIN BUILDING 01** B. WING _____	**10/05/2016**

NAME OF PROVIDER OR SUPPLIER	STREET ADDRESS, CITY, STATE, ZIP CODE
FAIRVIEW UNIVERSITY TRANS SERV	**2450 RIVERSIDE AVENUE SOUTH** **MINNEAPOLIS, MN 55454**

(X4) ID PREFIX TAG	SUMMARY STATEMENT OF DEFICIENCIES (EACH DEFICIENCY MUST BE PRECEDED BY FULL REGULATORY OR LSC IDENTIFYING INFORMATION)	ID PREFIX TAG	PROVIDER'S PLAN OF CORRECTION (EACH CORRECTIVE ACTION SHOULD BE CROSS-REFERENCED TO THE APPROPRIATE DEFICIENCY)	(X5) COMPLETION DATE
K 000	INITIAL COMMENTS FIRE SAFETY A Life Safety Code Survey was conducted by the Minnesota Department of Public Safety, State Fire Marshal Division on October 05, 2016. At the time of this survey, UMMC Fairview Transitional Services was found to be not in substantial compliance with the requirements for participation in Medicare/Medicaid at 42 CFR, Subpart 483.70(a), Life Safety from Fire, and the 2000 edition of National Fire Protection Association (NFPA) Standard 101, Life Safety Code (LSC), Chapter 19 Existing Health Care. PLEASE RETURN THE PLAN OF CORRECTION FOR THE FIRE SAFETY DEFICIENCIES TO: Healthcare Fire Inspections State Fire Marshal Division 445 Minnesota St., Suite 145 St. Paul, MN 55101-5145, OR By email to: Marian.Whitney@state.mn.us and Angela.Kappenman@state.mn.us THE PLAN OF CORRECTION FOR EACH DEFICIENCY MUST INCLUDE ALL OF THE FOLLOWING INFORMATION: 1. A description of what has been, or will be, done to correct the deficiency. 2. The actual, or proposed, completion date. 3. The name and/or title of the person responsible for correction and monitoring to	K 000	EPOC	

LABORATORY DIRECTOR'S OR PROVIDER/SUPPLIER REPRESENTATIVE'S SIGNATURE	TITLE	(X6) DATE
Electronically Signed		11/02/2016

Any deficiency statement ending with an asterisk (*) denotes a deficiency which the institution may be excused from correcting providing it is determined that other safeguards provide sufficient protection to the patients. (See instructions.) Except for nursing homes, the findings stated above are disclosable 90 days following the date of survey whether or not a plan of correction is provided. For nursing homes, the above findings and plans of correction are disclosable 14 days following the date these documents are made available to the facility. If deficiencies are cited, an approved plan of correction is requisite to continued program participation.

STATEMENT OF DEFICIENCIES AND PLAN OF CORRECTION	(X1) PROVIDER/SUPPLIER/CLIA IDENTIFICATION NUMBER:	(X2) MULTIPLE CONSTRUCTION	(X3) DATE SURVEY COMPLETED
	245170	A. BUILDING **01 - MAIN BUILDING 01** B. WING _____	**10/05/2016**

NAME OF PROVIDER OR SUPPLIER	STREET ADDRESS, CITY, STATE, ZIP CODE
FAIRVIEW UNIVERSITY TRANS SERV	**2450 RIVERSIDE AVENUE SOUTH MINNEAPOLIS, MN 55454**

(X4) ID PREFIX TAG	SUMMARY STATEMENT OF DEFICIENCIES (EACH DEFICIENCY MUST BE PRECEDED BY FULL REGULATORY OR LSC IDENTIFYING INFORMATION)	ID PREFIX TAG	PROVIDER'S PLAN OF CORRECTION (EACH CORRECTIVE ACTION SHOULD BE CROSS-REFERENCED TO THE APPROPRIATE DEFICIENCY)	(X5) COMPLETION DATE
K 000	Continued From page 1 prevent a reoccurrence of the deficiency. This 5-story building was determined to be of Type II(222) construction. It has a full basement and is fully sprinklered throughout. The facility has a fire alarm system with smoke detection in the corridors and spaces open to the corridors that is monitored for automatic fire department notification. The facility has a capacity of 28 beds and had a census of 13 at the time of the survey. Only the 4th floor is occupied as a skilled nursing facilities. The requirement at 42 CFR, Subpart 483.70(a) NOT MET as evidenced by:	K 000		
K 020 SS=F	NFPA 101 LIFE SAFETY CODE STANDARD Stairways, elevator shafts, light and ventilation shafts, chutes, and other vertical openings between floors are enclosed with construction having a fire resistance rating of at least one hour. An atrium may be used in accordance with 8.2.5, 8.2.5.6, 19.3.1.1 This STANDARD is not met as evidenced by: Based on observation and interview, the facility failed to maintain vertical openings as required by LSC(00) Section 19.3.1.1. This deficient practice could affect all 13 residents. Findings include: On a facility tour between the hours of 9:30 AM and 01:30 PM on October 05, 2016, observation revealed that the resident room ventilation system is served by a vertical riser duct shaft with horizontal ductwork leading from the penthouse to the resident rooms.	K 020	A FSES has been completed that establishes that the facility has an overall level of fire safety equivalent to the required by the Life Safety Code.	10/28/16

STATEMENT OF DEFICIENCIES AND PLAN OF CORRECTION	(X1) PROVIDER/SUPPLIER/CLIA IDENTIFICATION NUMBER:	(X2) MULTIPLE CONSTRUCTION	(X3) DATE SURVEY COMPLETED
	245170	A. BUILDING **01 - MAIN BUILDING 01** B. WING _____	**10/05/2016**

NAME OF PROVIDER OR SUPPLIER	STREET ADDRESS, CITY, STATE, ZIP CODE
FAIRVIEW UNIVERSITY TRANS SERV	**2450 RIVERSIDE AVENUE SOUTH** **MINNEAPOLIS, MN 55454**

(X4) ID PREFIX TAG	SUMMARY STATEMENT OF DEFICIENCIES (EACH DEFICIENCY MUST BE PRECEDED BY FULL REGULATORY OR LSC IDENTIFYING INFORMATION)	ID PREFIX TAG	PROVIDER'S PLAN OF CORRECTION (EACH CORRECTIVE ACTION SHOULD BE CROSS-REFERENCED TO THE APPROPRIATE DEFICIENCY)	(X5) COMPLETION DATE
K 020	Continued From page 2 This deficient practice was verified by the Administrator at the time of the inspection. Note: This deficiency need not be corrected if an FSES can establish that the facility has an overall level of fire safety equivalent to that required by the Life Safety Code.	K 020		

WORKSHEET 4.7.1 COVER SHEET

Fire/Smoke Zone* Evaluation Worksheet for Health Care Facilities

Facility Fairview University Transitional Services Building 01- Main Building

Zone(s) evaluated First Floor North Zone 1 of 18

Evaluator M. Thuringer, CHFM, CHC Date 10 /28 /2016

Complete this worksheet for each zone. Where conditions are the same in several zones, one worksheet can be used for those zones.

*Fire/smoke zone is a space separated from all other spaces by floors, horizontal exits, or smoke barriers.

WORKSHEET 4.7.2 OCCUPANCY RISK PARAMETER FACTORS

Risk Parameters	Risk Factor Values					
1. Patient Mobility (*M*)	Mobility Status	Mobile	Limited Mobility	Not Mobile	Not Movable	
	Risk Factor	1.0	1.6	3.2	4.5	
2. Patient Density (*D*)	No. of Patients	1–5	6–10	11–30	>30	
	Risk Factor	1.0	1.2	1.5	2.0	
3. Zone Location (*L*)	Floor	1st	2nd or 3rd	4th to 6th	7th and Above	Basements
	Risk Factor	1.1	1.2	1.4	1.6	1.6
4. Ratio of Patients to Attendants (*T*)	Patients / Attendant	1–2 / 1	3–5 / 1	6–10 / 1	>10 / 1	One or More* / None
	Risk Factor	1.0	1.1	1.2	1.5	4.0
5. Patient Average Age (*A*)	Age	<65 Years and >1 Year		≥65 Years or ≤1 Year		
	Risk Factor	1.0		1.2		

*A risk factor of 4.0 is charged to any zone that houses patients without any staff in immediate attendance.

WORKSHEET 4.7.3 OCCUPANCY RISK FACTOR CALCULATION

	M		*D*		*L*		*T*		*A*		*F*
Occupancy Risk		×		×	1.1	×		×		=	1.1

WORKSHEET 4.7.4 ADJUSTED OCCUPANCY RISK FACTOR — NEW BUILDINGS

	F		*R*
1.0 ×		=	

WORKSHEET 4.7.5 ADJUSTED OCCUPANCY RISK FACTOR — EXISTING BUILDINGS

	F		*R*
0.6 ×	1.1	=	0.7

(For use with NFPA 101A-2010/NFPA 101-2009) (p. 1 of 4)

FIGURE 4.7 Worksheets for Evaluating Fire/Smoke Zones.

WORKSHEET 4.7.6 SAFETY PARAMETER VALUES

Safety Parameters	Parameter Values						
1. Construction	Combustible Types III, IV, and V				Noncombustible Types I and II		
Floor or Zone	000	111	200	211, 2HH	000	111	222, 322, 442
First	−2	0	−2	0	0	2	2
Second	−7	−2	−4	−2	−2	2	4
Third	−9	−7	−9	−7	−7	2	4
4th and Above	−13	−7	−13	−7	−9	−7	4
2. Interior Finish (Corridors and Exits)	Class C	Class B	Class A				
	−5(0)[f]	0(3)[f]	3				
3. Interior Finish (Rooms)	Class C	Class B	Class A				
	−3(1)[f]	1(3)[f]	3				
4. Corridor Partitions/Walls	None or Incomplete	<½ hr	≥½ hr to <1 hr	≥1 hr			
	−10(0)[a]	0	1(0)[g]	2(0)[a]			
5. Doors to Corridor	No Door	<20 min FPR	≥20 min FPR	≥20 min FPR and Auto Clos.			
	−10	0	1(0)[d]	2(0)[d]			
6. Zone Dimensions	Dead End			No Dead Ends			
	>100 ft	>50 ft to 100 ft	30 ft to 50 ft	>150 ft	100 ft to 150 ft	<100 ft	
	−6(0)[b]	−4(0)[b]	−2(0)[b]	−2(0)[e](0)[h]	0(0)[h,e]	1	
7. Vertical Openings	Open 4 or More Floors	Open 2 or 3 Floors	Enclosed with Indicated Fire Resist.				
			<1 hr	≥1 hr to <2 hr	≥2 hr		
	−14	−10	0	2(0)[e]	3(0)[e]		
8. Hazardous Areas	Double Deficiency		Single Deficiency		No Deficiencies		
	In Zone	Outside Zone	In Zone	In Adjacent Zone			
	−11	−5	−6	−2	0		
9. Smoke Control	No Control	Smoke Barrier Serves Zone	Mech. Assisted Systems by Zone				
	−5(0)[c]	0	3				
10. Emergency Movement Routes	<2 Routes	Multiple Routes			Direct Exit(s)		
		Deficient	W/O Horizontal Exit(s)	Horizontal Exit(s)			
	−8	−2	0	1	5		
11. Manual Fire Alarm	No Manual Fire Alarm		Manual Fire Alarm				
	−4		W/O F.D. Conn.	W/ F.D. Conn.			
			1	2			
12. Smoke Detection and Alarm	None	Corridor Only	Rooms Only	Corridor and Habit. Spaces	Total Spaces in Zone		
	0(3)[g]	2(3)[g]	3(3)[g]	4	5		
13. Automatic Sprinklers	None	Corridor and Habit. Space	Entire Building				
	0	8	10				

[a] Use (0) where Parameter 5 is −10.
[b] Use (0) where Parameter 10 is −8.
[c] Use (0) on floor with fewer than 31 patients (existing buildings only).
[d] Use (0) where Parameter 4 is −10.
[e] Use (0) where Parameter 1 is based on first floor zone or on an unprotected type of construction (columns marked "000" or "200").
[f] Use ( ) if the area of Class B or C interior finish in the corridor and exit or room is protected by automatic sprinklers and Parameter 13 is 0; use ( ) if the room with existing Class C interior finish is protected by automatic sprinklers, Parameter 4 is greater than or equal to 1, and Parameter 13 is 0.
[g] Use this value in addition to Parameter 13 if the entire zone is protected with quick-response automatic sprinklers.
[h] Use (0) where zone area ≤22,500 ft² and distance from any point to reach a door in smoke barrier ≤200 ft.

For SI units, 1 ft = 0.3048 m; 1 ft² = 0.092 m².

(For use with NFPA 101A-2010/NFPA *101*-2009) (p. 2 of 4)

FIGURE 4.7 *Continued*

WORKSHEET 4.7.7 INDIVIDUAL SAFETY EVALUATIONS

Safety Parameters	Containment Safety (S_1)	Extinguishment Safety (S_2)	People Movement Safety (S_3)	General Safety (S_4)
1. Construction	2	2		2
2. Interior Finish (Corr. and Exit)	3		3	3
3. Interior Finish(Rooms)	3			3
4. Corridor Partitions/Walls	2			2
5. Doors to Corridor	2		2	2
6. Zone Dimensions			0	0
7. Vertical Openings	0		0	0
8. Hazardous Areas	0	0		0
9. Smoke Control			0	0
10. Emergency Movement Routes			0	0
11. Manual Fire Alarm		2		2
12. Smoke Detection and Alarm		4	4	4
13. Automatic Sprinklers	10	10	$10 \div 2 = 5$	10
Total Value	$S_1 = 22$	$S_2 = 18$	$S_3 = 14$	$S_4 = 28$

WORKSHEET 4.7.8A MANDATORY SAFETY REQUIREMENTS — NEW HOSPITALS, EXISTING HOSPITALS, OR NEW NURSING HOMES

	Containment (S_a)		Extinguishment (S_b)		People Movement (S_c)	
Zone Location	New	Exist.	New	Exist.	New	Exist.
1st story	11	5	15(12)[a]	4	8(5)[a]	1
2nd or 3rd story[b]	15	9	17(14)[a]	6	10(7)[a]	3
4th story or higher but not high rise	18	9	19(16)[a]	6	11(8)[a]	3
High rise	18	17	19(16)[a]	16	11(8)[a]	7

[a] Use ( ) in zones that do not contain patient sleeping rooms.

[b] For a 2nd story zone location in a *sprinklered* EXISTING hospital, as an alternative to the mandatory safety requirement values set specified in the table, the following mandatory values set shall be permitted to be used: $S_a = 7$, $S_b = 10$, and $S_c = 7$.

WORKSHEET 4.7.8B MANDATORY SAFETY REQUIREMENTS — EXISTING NURSING HOMES

Zone Location	Containment (S_a)	Extinguishment (S_b)	People Movement (S_c)
1st story	0	10	0
2nd story	[illegible]	[illegible]	[illegible]
3rd story	6	14	2
4th story or higher	8	16	2

WORKSHEET 4.7.8C MANDATORY SAFETY REQUIREMENTS — MAJOR REHABILITATION IN NONSPRINKLERED EXISTING HOSPITALS

Zone Location	Containment (S_a)	Extinguishment (S_b)	People Movement (S_c)
1st story	13	17(14)*	8(5)*
2nd or 3rd story	17	19(16)*	10(7)*
4th story or higher	18	19(16)*	11(8)*

*Use ( ) in zones that do not contain patient sleeping rooms.

(For use with NFPA 101A-2010/NFPA 101-2009) (p. 3 of 4)

FIGURE 4.7 *Continued*

WORKSHEET 4.7.9 ZONE FIRE SAFETY EQUIVALENCY EVALUATION

					S_1	S_a	C	Yes	No
Containment Safety (S_1)	minus	Mandatory Containment (S_a)	≥	0	22	0	22	✓	
					S_2	S_b	E		
Extinguishment Safety (S_2)	minus	Mandatory Extinguishment (S_b)	≥	0	18	10	8	✓	
					S_3	S_c	P		
People Movement Safety (S_3)	minus	Mandatory People Movement (S_c)	>	0	14	0	14	✓	
					S_4	R	G		
General Safety (S_4)	minus	Occupancy Risk (R)	≥	0	28	1	27	✓	

WORKSHEET 4.7.10 FACILITY FIRE SAFETY REQUIREMENTS WORKSHEET

Complete one copy of this worksheet for each facility.
For each consideration, select and mark the appropriate column.

		Met	Not Met	Not Applic.
A.	Building utilities conform to the requirements of Section 9.1.	✓		☒
B.	In new facilities only, life-support systems, alarms, emergency communication systems, and illumination of generator set locations are powered as prescribed by 18.5.1.2 and 18.5.1.3.			✓
C.	Heating and air conditioning systems conform with the air conditioning, heating, and ventilating systems requirements within Section 9.2, except for enclosure of vertical openings, which have been considered in Safety Parameter 7 of Worksheet 4.7.6.	✓		☒
D.	Fuel-burning space heaters and portable electrical space heaters are not used.	✓		☒
E.	There are no flue-fed incinerators.	✓		
F.	An evacuation plan is provided and fire drills conducted in accordance with 18.7.1/18.7.2 and 19.7.1/19.7.2.	✓		☒
G.	Smoking regulations have been adopted and implemented in accordance with 18.7.4 and 19.7.4.	✓		☒
H.	Combustibility of draperies, upholstered furniture, mattresses, furnishings, and decorations is limited in accordance with 18.7.5 and 19.7.5.	✓		
I.	Fire extinguishers are provided in accordance with the requirements of 18.3.5.11 and 19.3.5.11.	✓		☒
J.	Exit signs are provided in accordance with the requirements of 18.2.10.1 and 19.2.10.	✓		
K.	Emergency lighting is provided in accordance with 18.2.9.1 or 19.2.9.1.	✓		
L.	Standpipes are provided in all new high-rise buildings as required by 18.4.2.			✓

All references are to NFPA *101, Life Safety Code*.

WORKSHEET 4.7.11 CONCLUSIONS

1. ☑ All of the checks in Worksheet 4.7.9 are in the "Yes" column. The level of fire safety is at least equivalent to that prescribed by the *Life Safety Code*.*
2. ☐ One or more of the checks in Worksheet 4.7.9 are in the "No" column. The level of fire safety is not shown by this system to be equivalent to that prescribed by the *Life Safety Code*.*

* The equivalency covered by this worksheet includes the majority of considerations covered by the *Life Safety Code*. There are some considerations that are not evaluated by this method. These must be considered separately. These additional considerations are covered in Worksheet 4.7.10, the Facility Fire Safety Requirements Worksheet. One copy of this separate worksheet is to be completed for each facility.

(For use with NFPA 101A-2010/NFPA *101*-2009) (p. 4 of 4)

FIGURE 4.7 *Continued*

WORKSHEET 4.7.1 COVER SHEET

Fire/Smoke Zone* Evaluation Worksheet for Health Care Facilities

Facility: Fairview University Transitional Services Building: 01- Main Building

Zone(s) evaluated: First Floor South Zone 2 of 18

Evaluator: M. Thuringer, CHFM, CHC Date: 10 /28/ 2016

Complete this worksheet for each zone. Where conditions are the same in several zones, one worksheet can be used for those zones.

*Fire/smoke zone is a space separated from all other spaces by floors, horizontal exits, or smoke barriers.

WORKSHEET 4.7.2 OCCUPANCY RISK PARAMETER FACTORS

Risk Parameters		Risk Factor Values				
1. Patient Mobility (*M*)	Mobility Status	Mobile	Limited Mobility	Not Mobile	Not Movable	
	Risk Factor	1.0	1.6	3.2	4.5	
2. Patient Density (*D*)	No. of Patients	1–5	6–10	11–30	>30	
	Risk Factor	1.0	1.2	1.5	2.0	
3. Zone Location (*L*)	Floor	1st	2nd or 3rd	4th to 6th	7th and Above	Basements
	Risk Factor	1.1	1.2	1.4	1.6	1.6
4. Ratio of Patients to Attendants (*T*)	Patients / Attendant	1–2 / 1	3–5 / 1	6–10 / 1	>10 / 1	One or More* / None
	Risk Factor	1.0	1.1	1.2	1.5	4.0
5. Patient Average Age (*A*)	Age	<65 Years and >1 Year		≥65 Years or ≤1 Year		
	Risk Factor	1.0		1.2		

*A risk factor of 4.0 is charged to any zone that houses patients without any staff in immediate attendance.

WORKSHEET 4.7.3 OCCUPANCY RISK FACTOR CALCULATION

	M		*D*		*L*		*T*		*A*		*F*
Occupancy Risk		×		×	1.1	×		×		=	1.1

WORKSHEET 4.7.4 ADJUSTED OCCUPANCY RISK FACTOR — NEW BUILDINGS

	F		*R*
1.0 ×		=	

WORKSHEET 4.7.5 ADJUSTED OCCUPANCY RISK FACTOR — EXISTING BUILDINGS

	F		*R*
0.6 ×	1.1	=	0.7

FIGURE 4.7 Worksheets for Evaluating Fire/Smoke Zones.

WORKSHEET 4.7.6 SAFETY PARAMETER VALUES

Safety Parameters	Parameter Values						
1. Construction	Combustible Types III, IV, and V				Noncombustible Types I and II		
Floor or Zone	000	111	200	211, 2HH	000	111	222, 322, 442
First	−2	0	−2	0	0	2	2
Second	−7	−2	−4	−2	−2	2	2
Third	−9	−7	−9	−7	−7	2	4
4th and Above	−13	−7	−13	−7	−9	7	4

2. Interior Finish (Corridors and Exits)	Class C	Class B	Class A			
	−5(0)[f]	0(8)[f]	8			
3. Interior Finish (Rooms)	Class C	Class B				
	−3(1)[f]	1(3)[f]	3			
4. Corridor Partitions/Walls	None or Incomplete	<½ hr	≥½ hr to <1 hr	≥1 hr		
	−10(0)[a]	0	1(0)[a]	2(0)[a]		
5. Doors to Corridor	No Door	<20 min FPR	≥20 min FPR	≥20 min FPR and Auto Clos.		
	−10	0	1(0)[d]	2(0)[d]		
6. Zone Dimensions	Dead End			No Dead Ends >50 ft and Zone Length Is		
	>100 ft	>50 ft to 100 ft	30 ft to 50 ft	≤50 ft	100 ft to 150 ft	<100 ft
	−6(0)[b]	−4(0)[b]	−2(0)[b]	−2(0)[c](0)[h]	0(0)[h]	1
7. Vertical Openings	Open 4 or More Floors	Open 2 or 3 Floors	Enclosed with Indicated Fire Resist.			
			<1 hr	≥1 hr to <2 hr	≥2 hr	
	−14	−10	0	2(0)[e]	3(0)[e]	
8. Hazardous Areas	Double Deficiency		Single Deficiency		No Deficiencies	
	In Zone	Outside Zone	In Zone	In Adjacent Zone		
	−11	−5	−6	−2	0	
9. Smoke Control	No Control	Smoke Barrier Serves Zone	Mech. Assisted Systems by Zone			
	−5(0)[c]	0	3			
10. Emergency Movement Routes	<2 Routes	Multiple Routes			Direct Exit(s)	
		Deficient	W/O Horizontal Exit(s)	Horizontal Exit(s)		
	−8	−2	0	1	5	
11. Manual Fire Alarm	No Manual Fire Alarm		Manual Fire Alarm			
			W/O F.D. Conn.	W/ F.D. Conn.		
	−4		1	2		
12. Smoke Detection and Alarm	None	Corridor Only	Rooms Only	Corridor and Habit. Spaces	Total Spaces in Zone	
	0(3)[g]	2(3)[g]	3(3)[g]	4	5	
13. Automatic Sprinklers	None	Corridor and Habit. Space	Entire Building			
	0	8	10			

[a] Use (0) where Parameter 5 is −10.
[b] Use (0) where Parameter 10 is −8.
[c] Use (0) on floor with fewer than 31 patients (existing buildings only).
[d] Use (0) where Parameter 4 is −10.
[e] Use (0) where Parameter 1 is based on first floor zone or on an unprotected type of construction (columns marked "000" or "200").
[f] Use ( ) if the area of Class B or C interior finish in the corridor and exit or room is protected by automatic sprinklers and Parameter 13 is 0; use ( ) if the room with existing Class C interior finish is protected by automatic sprinklers, Parameter 4 is greater than or equal to 1, and Parameter 13 is 0.
[g] Use this value in addition to Parameter 13 if the entire zone is protected with quick-response automatic sprinklers.
[h] Use (0) where zone area ≤22,500 ft² and distance from any point to reach a door in smoke barrier ≤200 ft.

For SI units, 1 ft = 0.3048 m; 1 ft² = 0.092 m².

(For use with NFPA 101A-2010/NFPA 101-2009) (p. 2 of 4)

FIGURE 4.7 *Continued*

WORKSHEET 4.7.7 INDIVIDUAL SAFETY EVALUATIONS

Safety Parameters	Containment Safety (S_1)	Extinguishment Safety (S_2)	People Movement Safety (S_3)	General Safety (S_4)
1. Construction	2	2		2
2. Interior Finish (Corr. and Exit)	3		3	3
3. Interior Finish(Rooms)	3			3
4. Corridor Partitions/Walls	0			0
5. Doors to Corridor	2		2	2
6. Zone Dimensions			0	0
7. Vertical Openings	0		0	0
8. Hazardous Areas	0	0		0
9. Smoke Control			0	0
10. Emergency Movement Routes			0	0
11. Manual Fire Alarm		2		2
12. Smoke Detection and Alarm		4	4	4
13. Automatic Sprinklers	10	10	10 ÷ 2 = 5	10
Total Value	S_1 = 20	S_2 = 18	S_3 = 14	S_4 = 26

WORKSHEET 4.7.8A MANDATORY SAFETY REQUIREMENTS — NEW HOSPITALS, EXISTING HOSPITALS, OR NEW NURSING HOMES

	Containment (S_a)		Extinguishment (S_b)		People Movement (S_c)	
Zone Location	New	Exist.	New	Exist.	New	Exist.
1st story	11	5	15(12)[a]	4	8(5)[a]	1
2nd or 3rd story[b]	15	9	17(14)[a]	6	10(7)[a]	3
4th story or higher but not high rise	18	9	19(16)[a]	6	11(8)[a]	3
High rise	18	17	19(16)[a]	16	11(8)[a]	7

[a] Use ( ) in zones that do not contain patient sleeping rooms.

[b] For a 2nd story zone location in a *sprinklered* EXISTING hospital, as an alternative to the mandatory safety requirement values set specified in the table, the following mandatory values set shall be permitted to be used: $S_a = 7$, $S_b = 10$, and $S_c = 7$.

WORKSHEET 4.7.8B MANDATORY SAFETY REQUIREMENTS — EXISTING NURSING HOMES

Zone Location	Containment (S_a)	Extinguishment (S_b)	People Movement (S_c)
1st story	0	10	0
2nd story	[illegible]	[illegible]	[illegible]
3rd story	6	14	2
4th story or higher	8	16	2

WORKSHEET 4.7.8C MANDATORY SAFETY REQUIREMENTS — MAJOR REHABILITATION IN NONSPRINKLERED EXISTING HOSPITALS

Zone Location	Containment (S_a)	Extinguishment (S_b)	People Movement (S_c)
1st story	13	17(14)*	8(5)*
2nd or 3rd story	17	19(16)*	10(7)*
4th story or higher	18	19(16)*	11(8)*

*Use ( ) in zones that do not contain patient sleeping rooms.

(For use with NFPA 101A-2010/NFPA *101*-2009) (p. 3 of 4)

FIGURE 4.7 *Continued*

WORKSHEET 4.7.9 ZONE FIRE SAFETY EQUIVALENCY EVALUATION

					S_1		S_a		C	Yes	No
Containment Safety (S_1)	minus	Mandatory Containment (S_a)	≥	0	20	–	0	=	20	✓	
					S_2		S_b		E		
Extinguishment Safety (S_2)	minus	Mandatory Extinguishment (S_b)	≥	0	18	–	10	=	8	✓	
					S_3		S_c		P		
People Movement Safety (S_3)	minus	Mandatory People Movement (S_c)	≥	0	14	–	0	=	14	✓	
					S_4		R		G		
General Safety (S_4)	minus	Occupancy Risk (R)	≥	0	26	–	1	=	25	✓	

WORKSHEET 4.7.10 FACILITY FIRE SAFETY REQUIREMENTS WORKSHEET

Complete one copy of this worksheet for each facility.
For each consideration, select and mark the appropriate column.

		Met	Not Met	Not Applic.
A.	Building utilities conform to the requirements of Section 9.1.	✓		X
B.	In new facilities only, life-support systems, alarms, emergency communication systems, and illumination of generator set locations are powered as prescribed by 18.5.1.2 and 18.5.1.3.			✓
C.	Heating and air conditioning systems conform with the air conditioning, heating, and ventilating systems requirements within Section 9.2, except for enclosure of vertical openings, which have been considered in Safety Parameter 7 of Worksheet 4.7.6.	✓		X
D.	Fuel-burning space heaters and portable electrical space heaters are not used.	✓		X
E.	There are no flue-fed incinerators.	✓		
F.	An evacuation plan is provided and fire drills conducted in accordance with 18.7.1/18.7.2 and 19.7.1/19.7.2.	✓		X
G.	Smoking regulations have been adopted and implemented in accordance with 18.7.4 and 19.7.4.	✓		X
H.	Combustibility of draperies, upholstered furniture, mattresses, furnishings, and decorations is limited in accordance with 18.7.5 and 19.7.5.	✓		
I.	Fire extinguishers are provided in accordance with the requirements of 18.3.5.11 and 19.3.5.11.	✓		X
J.	Exit signs are provided in accordance with the requirements of 18.2.10.1 and 19.2.10.	✓		
K.	Emergency lighting is provided in accordance with 18.2.9.1 or 19.2.9.1.	✓		
L.	Standpipes are provided in all new high-rise buildings as required by 18.4.2.			✓

All references are to NFPA *101, Life Safety Code*.

WORKSHEET 4.7.11 CONCLUSIONS

1. ☑ All of the checks in Worksheet 4.7.9 are in the "Yes" column. The level of fire safety is at least equivalent to that prescribed by the *Life Safety Code*.*
2. ☐ One or more of the checks in Worksheet 4.7.9 are in the "No" column. The level of fire safety is not shown by this system to be equivalent to that prescribed by the *Life Safety Code*.*

* The equivalency covered by this worksheet includes the majority of considerations covered by the *Life Safety Code*. There are some considerations that are not evaluated by this method. These must be considered separately. These additional considerations are covered in Worksheet 4.7.10, the Facility Fire Safety Requirements Worksheet. One copy of this separate worksheet is to be completed for each facility.

(For use with NFPA 101A-2010/NFPA *101*-2009) (p. 4 of 4)

FIGURE 4.7 *Continued*

WORKSHEET 4.7.1 COVER SHEET

Fire/Smoke Zone* Evaluation Worksheet for Health Care Facilities

Facility Fairview University Transitional Services Building 01- Main Building

Zone(s) evaluated Second Floor North Zone 3 of 18

Evaluator M. Thuringer, CHFM, CHC Date 10/28/2016

Complete this worksheet for each zone. Where conditions are the same in several zones, one worksheet can be used for those zones.

*Fire/smoke zone is a space separated from all other spaces by floors, horizontal exits, or smoke barriers.

WORKSHEET 4.7.2 OCCUPANCY RISK PARAMETER FACTORS

Risk Parameters	Risk Factor Values					
1. Patient Mobility (*M*)	Mobility Status	Mobile	Limited Mobility	Not Mobile	Not Movable	
	Risk Factor	**1.0**	1.6	3.2	4.5	
2. Patient Density (*D*)	No. of Patients	1–5	6–10	11–30	>30	
	Risk Factor	1.0	**1.2**	1.5	2.0	
3. Zone Location (*L*)	Floor	1st	2nd or 3rd	4th to 6th	7th and Above	Basements
	Risk Factor	1.1	**1.2**	1.4	1.6	1.6
4. Ratio of Patients to Attendants (*T*)	Patients / Attendant	1–2 / 1	3–5 / 1	6–10 / 1	>10 / 1	One or More* / None
	Risk Factor	1.0	**1.1**	1.2	1.5	4.0
5. Patient Average Age (*A*)	Age	<65 Years and >1 Year		≥65 Years or ≤1 Year		
	Risk Factor	**1.0**		1.2		

*A risk factor of 4.0 is charged to any zone that houses patients without any staff in immediate attendance.

WORKSHEET 4.7.3 OCCUPANCY RISK FACTOR CALCULATION

	M		*D*		*L*		*T*		*A*		*F*
Occupancy Risk	1.0	×	1.2	×	1.2	×	1.1	×	1.0	=	1.6

WORKSHEET 4.7.4 ADJUSTED OCCUPANCY RISK FACTOR — NEW BUILDINGS

	F		*R*
1.0 ×		=	

WORKSHEET 4.7.5 ADJUSTED OCCUPANCY RISK FACTOR — EXISTING BUILDINGS

	F		*R*
0.5 ×	1.6	=	1.0

(For use with NFPA 101A-2010/NFPA *101*-2009)

(p. 1 of 4)

FIGURE 4.7 Worksheets for Evaluating Fire/Smoke Zones.

WORKSHEET 4.7.6 SAFETY PARAMETER VALUES

Safety Parameters	Parameter Values						
1. Construction	Combustible Types III, IV, and V				Noncombustible Types I and II		
Floor or Zone	000	111	200	211, 2HH	000	111	222, 322, 442
First	−2	0	−2	0	0	2	2
Second	−7	−2	−4	−2	−2	2	4
Third	−9	−7	−9	−7	−7	2	4
4th and Above	−13	−7	−13	−7	−9	−7	4
2. Interior Finish (Corridors and Exits)	Class C	Class B	Class A				
	−5(0)[f]	0(3)[f]	3				
3. Interior Finish (Rooms)	Class C	Class B	Class A				
	−3(1)[f]	1(3)[f]	3				
4. Corridor Partitions/Walls	None or Incomplete	<½ hr	>½ hr to <1 hr	≥1 hr			
	−10(0)[a]	0	1(0)[a]	2(0)[a]			
5. Doors to Corridor	No Door	<20 min FPR	≥20 min FPR	≥20 min FPR and Auto Clos.			
	−10	0	1(0)[d]	2(0)[d]			
6. Zone Dimensions	Dead End			No Dead Ends >30 ft and Zone Length Is			
	>100 ft	>50 ft to 100 ft	30 ft to 50 ft	>150 ft	100 ft to 150 ft	≤100 ft	
	−6(0)[b]	−4(0)[b]	−2(0)[b]	−2(0)[c](0)[b]	0(0)[b]	1	
7. Vertical Openings	Open 4 or More Floors	Open 2 or 3 Floors	Enclosed with Indicated Fire Resist.				
			<1 hr	≥1 hr to <2 hr	≥2 hr		
	−14	−10	0	2(0)[c]	3(0)[c]		
8. Hazardous Areas	Double Deficiency		Single Deficiency		No Deficiencies		
	In Zone	Outside Zone	In Zone	In Adjacent Zone			
	−11	−5	−6	−2	0		
9. Smoke Control	No Control	Smoke Barrier Serves Zone	Mech. Assisted Systems by Zone				
	−5(0)[c]	0	3				
10. Emergency Movement Routes	<2 Routes	Multiple Routes			Direct Exit(s)		
		Deficient	W/O Horizontal Exit(s)	Horizontal Exit(s)			
	−8	−2	0	1	5		
11. Manual Fire Alarm	No Manual Fire Alarm		Manual Fire Alarm				
			W/O F.D. Conn.	W/ F.D. Conn.			
	−4		1	2			
12. Smoke Detection and Alarm	None	Corridor Only	Rooms Only	Corridor and Habit. Spaces	Total Spaces in Zone		
	0(3)[g]	2(3)[g]	3(3)[g]	4	5		
13. Automatic Sprinklers	None	Corridor and Habit. Space	Entire Building				
	0	8	10				

[a] Use (0) where Parameter 5 is −10.
[b] Use (0) where Parameter 10 is −8.
[c] Use (0) on floor with fewer than 31 patients (existing buildings only).
[d] Use (0) where Parameter 4 is −10.
[e] Use (0) where Parameter 1 is based on first floor zone or on an unprotected type of construction (columns marked "000" or "200").
[f] Use ( ) if the area of Class B or C interior finish in the corridor and exit or room is protected by automatic sprinklers and Parameter 13 is 0; use ( ) if the room with existing Class C interior finish is protected by automatic sprinklers, Parameter 4 is greater than or equal to 1, and Parameter 13 is 0.
[g] Use this value in addition to Parameter 13 if the entire zone is protected with quick-response automatic sprinklers.
[h] Use (0) where zone area ≤22,500 ft² and distance from any point to reach a door in smoke barrier ≤200 ft.

For SI units, 1 ft = 0.3048 m; 1 ft² = 0.092 m².

(For use with NFPA 101A-2010/NFPA *101*-2009) (p. 2 of 4)

FIGURE 4.7 *Continued*

WORKSHEET 4.7.7 INDIVIDUAL SAFETY EVALUATIONS

Safety Parameters	Containment Safety (S_1)	Extinguishment Safety (S_2)	People Movement Safety (S_3)	General Safety (S_4)
1. Construction	4	4		4
2. Interior Finish (Corr. and Exit)	3		3	3
3. Interior Finish(Rooms)	3			3
4. Corridor Partitions/Walls	2			2
5. Doors to Corridor	1		1	1
6. Zone Dimensions			1	1
7. Vertical Openings	-10		-10	-10
8. Hazardous Areas	0	0		0
9. Smoke Control			0	0
10. Emergency Movement Routes			0	0
11. Manual Fire Alarm		2		2
12. Smoke Detection and Alarm		4	4	4
13. Automatic Sprinklers	10	10	10 ÷ 2 = 5	10
Total Value	$S_1 = 13$	$S_2 = 20$	$S_3 = 4$	$S_4 = 20$

WORKSHEET 4.7.8A MANDATORY SAFETY REQUIREMENTS — NEW HOSPITALS, EXISTING HOSPITALS, OR NEW NURSING HOMES

	Containment (S_a)		Extinguishment (S_b)		People Movement (S_c)	
Zone Location	New	Exist.	New	Exist.	New	Exist.
1st story	11	5	15(12)[a]	4	8(5)[a]	1
2nd or 3rd story[b]	15	9	17(14)[a]	6	10(7)[a]	3
4th story or higher but not high rise	18	9	19(16)[a]	6	11(8)[a]	3
High rise	18	17	19(16)[a]	16	11(8)[a]	7

[a] Use ( ) in zones that do not contain patient sleeping rooms.

[b] For a 2nd story zone location in a *sprinklered* EXISTING hospital, as an alternative to the mandatory safety requirement values set specified in the table, the following mandatory values set shall be permitted to be used: $S_a = 7$, $S_b = 10$, and $S_c = 7$.

WORKSHEET 4.7.8B MANDATORY SAFETY REQUIREMENTS — EXISTING NURSING HOMES

Zone Location	Containment (S_a)	Extinguishment (S_b)	People Movement (S_c)
1st story	2	10	2
2nd story			
3rd story			
4th story or higher	8	16	2

WORKSHEET 4.7.8C MANDATORY SAFETY REQUIREMENTS — MAJOR REHABILITATION IN NONSPRINKLERED EXISTING HOSPITALS

Zone Location	Containment (S_a)	Extinguishment (S_b)	People Movement (S_c)
1st story	13	17(14)*	8(5)*
2nd or 3rd story	17	19(16)*	10(7)*
4th story or higher	18	19(16)*	11(8)*

*Use ( ) in zones that do not contain patient sleeping rooms.

(For use with NFPA 101A-2010/NFPA *101*-2009) (p. 3 of 4)

FIGURE 4.7 *Continued*

WORKSHEET 4.7.9 ZONE FIRE SAFETY EQUIVALENCY EVALUATION

					S_1		S_a		C	Yes	No
Containment Safety (S_1)	minus	Mandatory Containment (S_a)	≥	0	13	–	2	=	11	✓	
					S_2		S_b		E		
Extinguishment Safety (S_2)	minus	Mandatory Extinguishment (S_b)	≥	0	20	–	10	=	10	✓	
					S_3		S_c		P		
People Movement Safety (S_3)	minus	Mandatory People Movement (S_c)	>	0	4	–	2	=	2	✓	
					S_4		R		G		
General Safety (S_4)	minus	Occupancy Risk (R)	≥	0	20	–	1	=	19	✓	

WORKSHEET 4.7.10 FACILITY FIRE SAFETY REQUIREMENTS WORKSHEET

Complete one copy of this worksheet for each facility. For each consideration, select and mark the appropriate column.		Met	Not Met	Not Applic.
A.	Building utilities conform to the requirements of Section 9.1.	✓		X
B.	In new facilities only, life-support systems, alarms, emergency communication systems, and illumination of generator set locations are powered as prescribed by 18.5.1.2 and 18.5.1.3.			✓
C.	Heating and air conditioning systems conform with the air conditioning, heating, and ventilating systems requirements within Section 9.2, except for enclosure of vertical openings, which have been considered in Safety Parameter 7 of Worksheet 4.7.6.	✓		X
D.	Fuel-burning space heaters and portable electrical space heaters are not used.	✓		X
E.	There are no flue-fed incinerators.	✓		
F.	An evacuation plan is provided and fire drills conducted in accordance with 18.7.1/18.7.2 and 19.7.1/19.7.2.	✓		X
G.	Smoking regulations have been adopted and implemented in accordance with 18.7.4 and 19.7.4.	✓		X
H.	Combustibility of draperies, upholstered furniture, mattresses, furnishings, and decorations is limited in accordance with 18.7.5 and 19.7.5.	✓		
I.	Fire extinguishers are provided in accordance with the requirements of 18.3.5.11 and 19.3.5.11.	✓		X
J.	Exit signs are provided in accordance with the requirements of 18.2.10.1 and 19.2.10.	✓		
K.	Emergency lighting is provided in accordance with 18.2.9.1 or 19.2.9.1.	✓		
L.	Standpipes are provided in all new high-rise buildings as required by 18.4.2.			✓

All references are to NFPA *101, Life Safety Code.*

WORKSHEET 4.7.11 CONCLUSIONS

1. ☑ All of the checks in Worksheet 4.7.9 are in the "Yes" column. The level of fire safety is at least equivalent to that prescribed by the *Life Safety Code.**
2. ☐ One or more of the checks in Worksheet 4.7.9 are in the "No" column. The level of fire safety is not shown by this system to be equivalent to that prescribed by the *Life Safety Code.**

* The equivalency covered by this worksheet includes the majority of considerations covered by the *Life Safety Code.* There are some considerations that are not evaluated by this method. These must be considered separately. These additional considerations are covered in Worksheet 4.7.10, the Facility Fire Safety Requirements Worksheet. One copy of this separate worksheet is to be completed for each facility.

(For use with NFPA 101A-2010/NFPA *101*-2009) (p. 4 of 4)

FIGURE 4.7 *Continued*

WORKSHEET 4.7.1 COVER SHEET

Fire/Smoke Zone* Evaluation Worksheet for Health Care Facilities

Facility: Fairview University Transitional Services Building: 01- Main Building
Zone(s) evaluated: Second Floor South Zone 4 of 18
Evaluator: M. Thuringer, CHFM, CHC Date: 10 /28 /2016

Complete this worksheet for each zone. Where conditions are the same in several zones, one worksheet can be used for those zones.

*Fire/smoke zone is a space separated from all other spaces by floors, horizontal exits, or smoke barriers.

WORKSHEET 4.7.2 OCCUPANCY RISK PARAMETER FACTORS

Risk Parameters		Risk Factor Values				
1. Patient Mobility (*M*)	Mobility Status	Mobile	Limited Mobility	Not Mobile	Not Movable	
	Risk Factor	**1.0**	1.6	3.2	4.5	
2. Patient Density (*D*)	No. of Patients	1–5	6–10	11–30	>30	
	Risk Factor	1.0	**1.2**	1.5	2.0	
3. Zone Location (*L*)	Floor	1st	2nd or 3rd	4th to 6th	7th and Above	Basements
	Risk Factor	1.1	1.2	1.4	1.6	1.6
4. Ratio of Patients to Attendants (*T*)	Patients / Attendant	1–2 / 1	3–5 / 1	6–10 / 1	>10 / 1	One or More* / None
	Risk Factor	1.0	**1.1**	1.2	1.5	4.0
5. Patient Average Age (*A*)	Age	<65 Years and >1 Year		≥65 Years or ≤1 Year		
	Risk Factor	**1.0**		1.2		

*A risk factor of 4.0 is charged to any zone that houses patients without any staff in immediate attendance.

WORKSHEET 4.7.3 OCCUPANCY RISK FACTOR CALCULATION

	M		*D*		*L*		*T*		*A*		*F*
Occupancy Risk	1.0	×	1.2	×	1.2	×	1.1	×	1.0	=	1.6

WORKSHEET 4.7.4 ADJUSTED OCCUPANCY RISK FACTOR — NEW BUILDINGS

	F		*R*
1.0 ×		=	

WORKSHEET 4.7.5 ADJUSTED OCCUPANCY RISK FACTOR — EXISTING BUILDINGS

	F		*R*
0.6 ×	1.6	=	1.0

(For use with NFPA 101A-2010/NFPA 101-2009) (p. 1 of 4)

FIGURE 4.7 Worksheets for Evaluating Fire/Smoke Zones.

WORKSHEET 4.7.6 SAFETY PARAMETER VALUES

Safety Parameters	Parameter Values						
1. Construction	Combustible Types III, IV, and V				Noncombustible Types I and II		
Floor or Zone	000	111	200	211, 2HH	000	111	222, 322, 442
First	−2	0	−2	0	0	2	2
Second	−7	−2	−4	−2	−2	2	4
Third	−9	−7	−9	−7	−7	2	4
4th and Above	−13	−7	−13	−7	−9	−7	4
2. Interior Finish (Corridors and Exits)	Class C	Class B	Class A				
	−5(0)[f]	0(3)[f]	3				
3. Interior Finish (Rooms)	Class C	Class B	Class A				
	−3(1)[f]	1(3)[f]	3				
4. Corridor Partitions/Walls	None or Incomplete	<½ hr	≥½ hr to <1 hr	≥1 hr			
	−10(0)[a]	0	1(0)[a]	2(0)[a]			
5. Doors to Corridor	No Door	<20 min FPR	≥20 min FPR	≥20 min FPR and Auto Clos.			
	−10	0	1(0)[d]	2(0)[d]			
6. Zone Dimensions	Dead End			No Dead Ends >30 ft and Zone Length Is			
	>100 ft	>50 ft to 100 ft	30 ft to 50 ft	>150 ft	100 ft to 150 ft	≤100 ft	
	−6(0)[b]	−4(0)[b]	−2(0)[b]	−2(0)[c](0)[h]	0(0)[h]	1	
7. Vertical Openings	Open 4 or More Floors	Open 2 or 3 Floors	Enclosed with Indicated Fire Resist.				
			<1 hr	≥1 hr to <2 hr	≥2 hr		
	−14	−10	0	2(0)[c]	3(0)[c]		
8. Hazardous Areas	Double Deficiency		Single Deficiency		No Deficiencies		
	In Zone	Outside Zone	In Zone	In Adjacent Zone			
	−11	−5	−6	−2	0		
9. Smoke Control	No Control	Smoke Barrier Serves Zone	Mech. Assisted Systems by Zone				
	−5(0)[c]	0	3				
10. Emergency Movement Routes	<2 Routes	Multiple Routes			Direct Exit(s)		
		Deficient	W/O Horizontal Exit(s)	Horizontal Exit(s)			
	−8	−2	0	1	5		
11. Manual Fire Alarm	No Manual Fire Alarm		Manual Fire Alarm				
			W/O F.D. Conn.	W/ F.D. Conn.			
	−4		1	2			
12. Smoke Detection and Alarm	None	Corridor Only	Rooms Only	Corridor and Habit. Spaces	Total Spaces in Zone		
	0(3)[g]	2(3)[g]	3(3)[g]	4	5		
13. Automatic Sprinklers	None	Corridor and Habit. Space	Entire Building				
	0	8	10				

[a] Use (0) where Parameter 5 is −10.
[b] Use (0) where Parameter 10 is −8.
[c] Use (0) on floor with fewer than 31 patients (existing buildings only).
[d] Use (0) where Parameter 4 is −10.
[e] Use (0) where Parameter 1 is based on first floor zone or on an unprotected type of construction (columns marked "000" or "200").
[f] Use ( ) if the area of Class B or C interior finish in the corridor and exit or room is protected by automatic sprinklers and Parameter 13 is 0; use ( ) if the room with existing Class C interior finish is protected by automatic sprinklers, Parameter 4 is greater than or equal to 1, and Parameter 13 is 0.
[g] Use this value in addition to Parameter 13 if the entire zone is protected with quick-response automatic sprinklers.
[h] Use (0) where zone area ≤22,500 ft² and distance from any point to reach a door in smoke barrier ≤200 ft.

For SI units, 1 ft = 0.3048 m; 1 ft² = 0.092 m².

(For use with NFPA 101A-2010/NFPA 101-2009)

(p. 2 of 4)

FIGURE 4.7 *Continued*

WORKSHEET 4.7.7 INDIVIDUAL SAFETY EVALUATIONS

Safety Parameters	Containment Safety (S_1)	Extinguishment Safety (S_2)	People Movement Safety (S_3)	General Safety (S_4)
1. Construction	4	4		4
2. Interior Finish (Corr. and Exit)	3		3	3
3. Interior Finish(Rooms)	3			3
4. Corridor Partitions/Walls	2			2
5. Doors to Corridor	1		1	1
6. Zone Dimensions			1	1
7. Vertical Openings	-10		-10	-10
8. Hazardous Areas	0	0		0
9. Smoke Control			0	0
10. Emergency Movement Routes			0	0
11. Manual Fire Alarm		2		2
12. Smoke Detection and Alarm		4	4	4
13. Automatic Sprinklers	10	10	10 ÷ 2 = 5	10
Total Value	S_1 = 13	S_2 = 20	S_3 = 4	S_4 = 20

WORKSHEET 4.7.8A MANDATORY SAFETY REQUIREMENTS — NEW HOSPITALS, EXISTING HOSPITALS, OR NEW NURSING HOMES

	Containment (S_a)		Extinguishment (S_b)		People Movement (S_c)	
Zone Location	New	Exist.	New	Exist.	New	Exist.
1st story	11	5	15(12)[a]	4	8(5)[a]	1
2nd or 3rd story[b]	15	9	17(14)[a]	6	10(7)[a]	3
4th story or higher but not high rise	18	9	19(16)[a]	6	11(8)[a]	3
High rise	18	17	19(16)[a]	16	11(8)[a]	7

[a] Use ( ) in zones that do not contain patient sleeping rooms.

[b] For a 2nd story zone location in a *sprinklered* EXISTING hospital, as an alternative to the mandatory safety requirement values set specified in the table, the following mandatory values set shall be permitted to be used: $S_a = 7$, $S_b = 10$, and $S_c = 7$.

WORKSHEET 4.7.8B MANDATORY SAFETY REQUIREMENTS — EXISTING NURSING HOMES

Zone Location	Containment (S_a)	Extinguishment (S_b)	People Movement (S_c)
1st story 2nd story 3rd story	2	10	2
4th story or higher	8	16	2

WORKSHEET 4.7.8C MANDATORY SAFETY REQUIREMENTS — MAJOR REHABILITATION IN NONSPRINKLERED EXISTING HOSPITALS

Zone Location	Containment (S_a)	Extinguishment (S_b)	People Movement (S_c)
1st story	13	17(14)*	8(5)*
2nd or 3rd story	17	19(16)*	10(7)*
4th story or higher	18	19(16)*	11(8)*

*Use ( ) in zones that do not contain patient sleeping rooms.

(For use with NFPA 101A-2010/NFPA *101*-2009) (p. 3 of 4)

FIGURE 4.7 *Continued*

WORKSHEET 4.7.9 ZONE FIRE SAFETY EQUIVALENCY EVALUATION

					S_1	S_a	C	Yes	No
Containment Safety (S_1)	minus	Mandatory Containment (S_a)	≥	0	13	2	11	✓	
					S_2	S_b	E		
Extinguishment Safety (S_2)	minus	Mandatory Extinguishment (S_b)	≥	0	20	10	10	✓	
					S_3	S_c	P		
People Movement Safety (S_3)	minus	Mandatory People Movement (S_c)	>	0	4	2	2	✓	
					S_4	R	G		
General Safety (S_4)	minus	Occupancy Risk (R)	≥	0	20	1	19	✓	

WORKSHEET 4.7.10 FACILITY FIRE SAFETY REQUIREMENTS WORKSHEET

Complete one copy of this worksheet for each facility.
For each consideration, select and mark the appropriate column.

		Met	Not Met	Not Applic.
A.	Building utilities conform to the requirements of Section 9.1.	✓		X
B.	In new facilities only, life-support systems, alarms, emergency communication systems, and illumination of generator set locations are powered as prescribed by 18.5.1.2 and 18.5.1.3.			✓
C.	Heating and air conditioning systems conform with the air conditioning, heating, and ventilating systems requirements within Section 9.2, except for enclosure of vertical openings, which have been considered in Safety Parameter 7 of Worksheet 4.7.6.	✓		X
D.	Fuel-burning space heaters and portable electrical space heaters are not used.	✓		X
E.	There are no flue-fed incinerators.	✓		
F.	An evacuation plan is provided and fire drills conducted in accordance with 18.7.1/18.7.2 and 19.7.1/19.7.2.	✓		X
G.	Smoking regulations have been adopted and implemented in accordance with 18.7.4 and 19.7.4.	✓		X
H.	Combustibility of draperies, upholstered furniture, mattresses, furnishings, and decorations is limited in accordance with 18.7.5 and 19.7.5.	✓		
I.	Fire extinguishers are provided in accordance with the requirements of 18.3.5.11 and 19.3.5.11.	✓		X
J.	Exit signs are provided in accordance with the requirements of 18.2.10.1 and 19.2.10.	✓		
K.	Emergency lighting is provided in accordance with 18.2.9.1 or 19.2.9.1.	✓		
L.	Standpipes are provided in all new high-rise buildings as required by 18.4.2.			✓

All references are to NFPA *101, Life Safety Code.*

WORKSHEET 4.7.11 CONCLUSIONS

1. ☑ All of the checks in Worksheet 4.7.9 are in the "Yes" column. The level of fire safety is at least equivalent to that prescribed by the *Life Safety Code.**
2. ☐ One or more of the checks in Worksheet 4.7.9 are in the "No" column. The level of fire safety is not shown by this system to be equivalent to that prescribed by the *Life Safety Code.**

* The equivalency covered by this worksheet includes the majority of considerations covered by the *Life Safety Code.* There are some considerations that are not evaluated by this method. These must be considered separately. These additional considerations are covered in Worksheet 4.7.10, the Facility Fire Safety Requirements Worksheet. One copy of this separate worksheet is to be completed for each facility.

(For use with NFPA 101A-2010/NFPA *101*-2009) (p. 4 of 4)

FIGURE 4.7 *Continued*

WORKSHEET 4.7.1 COVER SHEET

Fire/Smoke Zone* Evaluation Worksheet for Health Care Facilities

Facility: Fairview University Transitional Services Building: 01- Main Building

Zone(s) evaluated: Second Floor East Zone 5 of 18

Evaluator: M. Thuringer, CHFM, CHC Date: 10 /28/ 2016

Complete this worksheet for each zone. Where conditions are the same in several zones, one worksheet can be used for those zones.

*Fire/smoke zone is a space separated from all other spaces by floors, horizontal exits, or smoke barriers.

WORKSHEET 4.7.2 OCCUPANCY RISK PARAMETER FACTORS

Risk Parameters	Risk Factor Values					
1. Patient Mobility (*M*)	Mobility Status	Mobile	Limited Mobility	Not Mobile	Not Movable	
	Risk Factor	**1.0**	1.6	3.2	4.5	
2. Patient Density (*D*)	No. of Patients	1–5	6–10	11–30	>30	
	Risk Factor	1.0	**1.2**	1.5	2.0	
3. Zone Location (*L*)	Floor	1st	2nd or 3rd	4th to 6th	7th and Above	Basements
	Risk Factor	1.1	**1.2**	1.4	1.6	1.6
4. Ratio of Patients to Attendants (*T*)	Patients / Attendant	1–2 / 1	3–5 / 1	6–10 / 1	>10 / 1	One or More* / None
	Risk Factor	1.0	**1.1**	1.2	1.5	4.0
5. Patient Average Age (*A*)	Age	<65 Years and >1 Year		≥65 Years or ≤1 Year		
	Risk Factor	**1.0**		1.2		

*A risk factor of 4.0 is charged to any zone that houses patients without any staff in immediate attendance.

WORKSHEET 4.7.3 OCCUPANCY RISK FACTOR CALCULATION

Occupancy Risk	*M*	×	*D*	×	*L*	×	*T*	×	*A*	=	*F*
	1.0		1.2		1.2		1.1		1.0		1.6

WORKSHEET 4.7.4 ADJUSTED OCCUPANCY RISK FACTOR — NEW BUILDINGS

	F		*R*
1.0 ×		=	

WORKSHEET 4.7.5 ADJUSTED OCCUPANCY RISK FACTOR — EXISTING BUILDINGS

	F		*R*
0.6 ×	1.6	=	1.0

(For use with NFPA 101A-2010/NFPA 101-2009)

(p. 1 of 4)

FIGURE 4.7 Worksheets for Evaluating Fire/Smoke Zones.

WORKSHEET 4.7.6 SAFETY PARAMETER VALUES

Safety Parameters	Parameter Values						
1. Construction	Combustible Types III, IV, and V				Noncombustible Types I and II		
Floor or Zone	000	111	200	211, 2HH	000	111	222, 322, 442
First	−2	0	−2	0	0	2	2
Second	−7	−2	−4	−2	−2	2	4
Third	−9	−7	−9	−7	−7	2	4
4th and Above	−13	−7	−13	−7	−9	−7	4
2. Interior Finish (Corridors and Exits)	Class C	Class B	Class A				
	−5(0)[f]	0(3)[f]	3				
3. Interior Finish (Rooms)	Class C	Class B	Class A				
	−3(1)[f]	1(3)[f]	3				
4. Corridor Partitions/Walls	None or Incomplete	<½ hr	≥½ hr to <1 hr	≥1 hr			
	−10(0)[a]	0	1(0)[a]	2(0)[a]			
5. Doors to Corridor	No Door	<20 min FPR	≥20 min FPR	≥20 min FPR and Auto Clos.			
	−10	0	1(0)[d]	2(0)[d]			
6. Zone Dimensions	Dead End			No Dead Ends >30 ft and Zone Length Is			
	>100 ft	>50 ft to 100 ft	30 ft to 50 ft	≥150 ft	100 ft to 150 ft	<100 ft	
	−6(0)[b]	−4(0)[b]	−2(0)[b]	−2(0)[c](0)[h]	0(0)[h]	1	
7. Vertical Openings	Open 4 or More Floors	Open 2 or 3 Floors	Enclosed with Indicated Fire Resist.				
			<1 hr	≥1 hr to <2 hr	≥2 hr		
	−14	−10	0	2(0)[e]	3(0)[e]		
8. Hazardous Areas	Double Deficiency		Single Deficiency		No Deficiencies		
	In Zone	Outside Zone	In Zone	In Adjacent Zone			
	−11	−5	−6	−2	0		
9. Smoke Control	No Control	Smoke Barrier Serves Zone	Mech. Assisted Systems by Zone				
	−5(0)[c]	0	3				
10. Emergency Movement Routes	<2 Routes	Multiple Routes			Direct Exit(s)		
		Deficient	W/O Horizontal Exit(s)	Horizontal Exit(s)			
	−8	−2	0	1	5		
11. Manual Fire Alarm	No Manual Fire Alarm		Manual Fire Alarm				
	−4		W/O F.D. Conn.	W/ F.D. Sign.			
			1	2			
12. Smoke Detection and Alarm	None	Corridor Only	Rooms Only	Corridor and Habit. Spaces	Total Spaces in Zone		
	0(3)[g]	2(3)[g]	3(3)[g]	4	5		
13. Automatic Sprinklers	None	Corridor and Habit. Space	Entire Building				
	0	8	10				

[a] Use (0) where Parameter 5 is −10.
[b] Use (0) where Parameter 10 is −8.
[c] Use (0) on floor with fewer than 31 patients (existing buildings only).
[d] Use (0) where Parameter 4 is −10.
[e] Use (0) where Parameter 1 is based on first floor zone or on an unprotected type of construction (columns marked "000" or "200").
[f] Use ( ) if the area of Class B or C interior finish in the corridor and exit or room is protected by automatic sprinklers and Parameter 13 is 0; use ( ) if the room with existing Class C interior finish is protected by automatic sprinklers, Parameter 4 is greater than or equal to 1, and Parameter 13 is 0.
[g] Use this value in addition to Parameter 13 if the entire zone is protected with quick-response automatic sprinklers.
[h] Use (0) where zone area ≤22,500 ft² and distance from any point to reach a door in smoke barrier ≤200 ft.

For SI units, 1 ft = 0.3048 m; 1 ft² = 0.092 m².

(For use with NFPA 101A-2010/NFPA *101*-2009) (p. 2 of 4)

FIGURE 4.7 *Continued*

WORKSHEET 4.7.7 INDIVIDUAL SAFETY EVALUATIONS

Safety Parameters	Containment Safety (S_1)	Extinguishment Safety (S_2)	People Movement Safety (S_3)	General Safety (S_4)
1. Construction	4	4		4
2. Interior Finish (Corr. and Exit)	3		3	3
3. Interior Finish(Rooms)	3			3
4. Corridor Partitions/Walls	2			2
5. Doors to Corridor	1		1	1
6. Zone Dimensions			1	1
7. Vertical Openings	-10		-10	-10
8. Hazardous Areas	0	0		0
9. Smoke Control			0	0
10. Emergency Movement Routes			0	0
11. Manual Fire Alarm		2		2
12. Smoke Detection and Alarm		4	4	4
13. Automatic Sprinklers	10	10	10 ÷ 2 = 5	10
Total Value	S_1 = 13	S_2 = 20	S_3 = 4	S_4 = 20

WORKSHEET 4.7.8A MANDATORY SAFETY REQUIREMENTS — NEW HOSPITALS, EXISTING HOSPITALS, OR NEW NURSING HOMES

	Containment (S_a)		Extinguishment (S_b)		People Movement (S_c)	
Zone Location	New	Exist.	New	Exist.	New	Exist.
1st story	11	5	15(12)[a]	4	8(5)[a]	1
2nd or 3rd story[b]	15	9	17(14)[a]	6	10(7)[a]	3
4th story or higher but not high rise	18	9	19(16)[a]	6	11(8)[a]	3
High rise	18	17	19(16)[a]	16	11(8)[a]	7

[a] Use ( ) in zones that do not contain patient sleeping rooms.

[b] For a 2nd story zone location in a *sprinklered* EXISTING hospital, as an alternative to the mandatory safety requirement values set specified in the table, the following mandatory values set shall be permitted to be used: $S_a = 7$, $S_b = 10$, and $S_c = 7$.

WORKSHEET 4.7.8B MANDATORY SAFETY REQUIREMENTS — EXISTING NURSING HOMES

Zone Location	Containment (S_a)	Extinguishment (S_b)	People Movement (S_c)
1st story 2nd story 3rd story 4th story or higher	2 8	10 16	2 2

WORKSHEET 4.7.8C MANDATORY SAFETY REQUIREMENTS — MAJOR REHABILITATION IN NONSPRINKLERED EXISTING HOSPITALS

Zone Location	Containment (S_a)	Extinguishment (S_b)	People Movement (S_c)
1st story	13	17(14)*	8(5)*
2nd or 3rd story	17	19(16)*	10(7)*
4th story or higher	18	19(16)*	11(8)*

*Use ( ) in zones that do not contain patient sleeping rooms.

(For use with NFPA 101A-2010/NFPA *101*-2009) (p. 3 of 4)

FIGURE 4.7 *Continued*

WORKSHEET 4.7.9 ZONE FIRE SAFETY EQUIVALENCY EVALUATION

						Yes	No
Containment Safety (S_1)	minus	Mandatory Containment (S_a)	≥	0	S_1 13 − S_a 2 = C 11	✓	
Extinguishment Safety (S_2)	minus	Mandatory Extinguishment (S_b)	≥	0	S_2 20 − S_b 10 = E 10	✓	
People Movement Safety (S_3)	minus	Mandatory People Movement (S_c)	≥	0	S_3 4 − S_c 2 = P 2	✓	
General Safety (S_4)	minus	Occupancy Risk (R)	≥	0	S_4 20 − R 1 = G 19	✓	

WORKSHEET 4.7.10 FACILITY FIRE SAFETY REQUIREMENTS WORKSHEET

Complete one copy of this worksheet for each facility.
For each consideration, select and mark the appropriate column.

		Met	Not Met	Not Applic.
A.	Building utilities conform to the requirements of Section 9.1.	✓		X
B.	In new facilities only, life-support systems, alarms, emergency communication systems, and illumination of generator set locations are powered as prescribed by 18.5.1.2 and 18.5.1.3.			✓
C.	Heating and air conditioning systems conform with the air conditioning, heating, and ventilating systems requirements within Section 9.2, except for enclosure of vertical openings, which have been considered in Safety Parameter 7 of Worksheet 4.7.6.	✓		X
D.	Fuel-burning space heaters and portable electrical space heaters are not used.	✓		X
E.	There are no flue-fed incinerators.	✓		
F.	An evacuation plan is provided and fire drills conducted in accordance with 18.7.1/18.7.2 and 19.7.1/19.7.2.	✓		X
G.	Smoking regulations have been adopted and implemented in accordance with 18.7.4 and 19.7.4.	✓		X
H.	Combustibility of draperies, upholstered furniture, mattresses, furnishings, and decorations is limited in accordance with 18.7.5 and 19.7.5.	✓		
I.	Fire extinguishers are provided in accordance with the requirements of 18.3.5.11 and 19.3.5.11.	✓		X
J.	Exit signs are provided in accordance with the requirements of 18.2.10.1 and 19.2.10.	✓		
K.	Emergency lighting is provided in accordance with 18.2.9.1 or 19.2.9.1.	✓		
L.	Standpipes are provided in all new high-rise buildings as required by 18.4.2.			✓

All references are to NFPA *101, Life Safety Code.*

WORKSHEET 4.7.11 CONCLUSIONS

1. ☑ All of the checks in Worksheet 4.7.9 are in the "Yes" column. The level of fire safety is at least equivalent to that prescribed by the *Life Safety Code.**
2. ☐ One or more of the checks in Worksheet 4.7.9 are in the "No" column. The level of fire safety is not shown by this system to be equivalent to that prescribed by the *Life Safety Code.**

* The equivalency covered by this worksheet includes the majority of considerations covered by the *Life Safety Code.* There are some considerations that are not evaluated by this method. These must be considered separately. These additional considerations are covered in Worksheet 4.7.10, the Facility Fire Safety Requirements Worksheet. One copy of this separate worksheet is to be completed for each facility.

(For use with NFPA 101A-2010/NFPA *101*-2009) (p. 4 of 4)

FIGURE 4.7 *Continued*

WORKSHEET 4.7.1 COVER SHEET

Fire/Smoke Zone* Evaluation Worksheet for Health Care Facilities

Facility: Fairview University Transitional Services Building: 01- Main Building

Zone(s) evaluated: Second Floor West Zone 6 of 18

Evaluator: M. Thuringer, CHFM, CHC Date: 10 /28/ 2016

Complete this worksheet for each zone. Where conditions are the same in several zones, one worksheet can be used for those zones.

*Fire/smoke zone is a space separated from all other spaces by floors, horizontal exits, or smoke barriers.

WORKSHEET 4.7.2 OCCUPANCY RISK PARAMETER FACTORS

Risk Parameters		Risk Factor Values				
1. Patient Mobility (*M*)	Mobility Status	Mobile	Limited Mobility	Not Mobile	Not Movable	
	Risk Factor	**1.0**	1.6	3.2	4.5	
2. Patient Density (*D*)	No. of Patients	1–5	6–10	11–30	>30	
	Risk Factor	1.0	**1.2**	1.5	2.0	
3. Zone Location (*L*)	Floor	1st	2nd or 3rd	4th to 6th	7th and Above	Basements
	Risk Factor	1.1	**1.2**	1.4	1.6	1.6
4. Ratio of Patients to Attendants (*T*)	Patients / Attendant	1–2 / 1	3–5 / 1	6–10 / 1	>10 / 1	One or More* / None
	Risk Factor	1.0	**1.1**	1.2	1.5	4.0
5. Patient Average Age (*A*)	Age	<65 Years and >1 Year		≥65 Years or ≤1 Year		
	Risk Factor	**1.0**		1.2		

*A risk factor of 4.0 is charged to any zone that houses patients without any staff in immediate attendance.

WORKSHEET 4.7.3 OCCUPANCY RISK FACTOR CALCULATION

	M		*D*		*L*		*T*		*A*		*F*
Occupancy Risk	1.0	×	1.2	×	1.2	×	1.1	×	1.0	=	1.6

WORKSHEET 4.7.4 ADJUSTED OCCUPANCY RISK FACTOR — NEW BUILDINGS

	F		*R*
1.0 ×		=	

WORKSHEET 4.7.5 ADJUSTED OCCUPANCY RISK FACTOR — EXISTING BUILDINGS

	F		*R*
0.6 ×	1.6	=	1.0

(For use with NFPA 101A-2010/NFPA 101-2009) (p. 1 of 4)

FIGURE 4.7 Worksheets for Evaluating Fire/Smoke Zones.

WORKSHEET 4.7.6 SAFETY PARAMETER VALUES

Safety Parameters	Parameter Values						
1. Construction	Combustible Types III, IV, and V				Noncombustible Types I and II		
Floor or Zone	000	111	200	211, 2HH	000	111	222, 322, 442
First	−2	0	−2	0	0	2	2
Second	−7	−2	−4	−2	−2	2	4
Third	−9	−7	−9	−7	−7	2	4
4th and Above	−13	−7	−13	−7	−9	−7	4
2. Interior Finish (Corridors and Exits)	Class C	Class B	Class A				
	−5(0)[f]	0(3)[f]	3				
3. Interior Finish (Rooms)	Class C	Class B	Class A				
	−3(1)[f]	1(3)[f]	3				
4. Corridor Partitions/Walls	None or Incomplete	<½ hr	>½ hr to <1 hr	≥1 hr			
	−10(0)[a]	0	1(0)[a]	2(0)[a]			
5. Doors to Corridor	No Door	<20 min FPR	≥20 min FPR	≥20 min FPR and Auto Clos.			
	−10	0	1(0)[d]	2(0)[d]			
6. Zone Dimensions	Dead End			No Dead Ends >30 ft and Zone Length Is			
	>100 ft	>50 ft to 100 ft	30 ft to 50 ft	>150 ft	100 ft to 150 ft	<100 ft	
	−6(0)[b]	−4(0)[b]	−2(0)[b]	−2(0)[c](0)[h]	0(0)[h]	1	
7. Vertical Openings	Open 4 or More Floors	Open 2 or 3 Floors	Enclosed with Indicated Fire Resist.				
			<1 hr	≥1 hr to <2 hr	≥2 hr		
	−14	−10	0	2(0)[e]	3(0)[e]		
8. Hazardous Areas	Double Deficiency		Single Deficiency		No Deficiencies		
	In Zone	Outside Zone	In Zone	In Adjacent Zone			
	−11	−5	−6	−2	0		
9. Smoke Control	No Control	Smoke Barrier Serves Zone	Mech. Assisted Systems by Zone				
	−5(0)[c]	0	3				
10. Emergency Movement Routes	<2 Routes	Multiple Routes			Direct Exit(s)		
		Deficient	W/O Horizontal Exit(s)	Horizontal Exit(s)			
	−8	−2	0	1	5		
11. Manual Fire Alarm	No Manual Fire Alarm		Manual Fire Alarm				
			W/O F.D. Conn.	W/ F.D. Conn.			
	−4		1	2			
12. Smoke Detection and Alarm	None	Corridor Only	Rooms Only	Corridor and Habit. Spaces	Total Spaces in Zone		
	0(3)[g]	2(3)[g]	3(3)[g]	4	5		
13. Automatic Sprinklers	None	Corridor and Habit. Space	Entire Building				
	0	8	10				

[a] Use (0) where Paramater 5 is −10.
[b] Use (0) where Parameter 10 is −8.
[c] Use (0) on floor with fewer than 31 patients (existing buildings only).
[d] Use (0) where Parameter 4 is −10.
[e] Use (0) where Parameter 1 is based on first floor zone or on an unprotected type of construction (columns marked "000" or "200").
[f] Use ( ) if the area of Class B or C interior finish in the corridor and exit or room is protected by automatic sprinklers and Parameter 13 is 0; use ( ) if the room with existing Class C interior finish is protected by automatic sprinklers, Parameter 4 is greater than or equal to 1, and Parameter 13 is 0.
[g] Use this value in addition to Parameter 13 if the entire zone is protected with quick-response automatic sprinklers.
[h] Use (0) where zone area ≤22,500 ft² and distance from any point to reach a door in smoke barrier ≤200 ft.

For SI units, 1 ft = 0.3048 m; 1 ft² = 0.092 m².

(For use with NFPA 101A-2010/NFPA *101*-2009)

(p. 2 of 4)

FIGURE 4.7 ***Continued***

WORKSHEET 4.7.7 INDIVIDUAL SAFETY EVALUATIONS

Safety Parameters	Containment Safety (S_1)	Extinguishment Safety (S_2)	People Movement Safety (S_3)	General Safety (S_4)
1. Construction	4	4		4
2. Interior Finish (Corr. and Exit)	3		3	3
3. Interior Finish (Rooms)	3			3
4. Corridor Partitions/Walls	2			2
5. Doors to Corridor	1		1	1
6. Zone Dimensions			1	1
7. Vertical Openings	-10		-10	-10
8. Hazardous Areas	0	0		0
9. Smoke Control			0	0
10. Emergency Movement Routes			0	0
11. Manual Fire Alarm		2		2
12. Smoke Detection and Alarm		4	4	4
13. Automatic Sprinklers	10	10	10 ÷ 2 = 5	10
Total Value	$S_1 = 13$	$S_2 = 20$	$S_3 = 4$	$S_4 = 20$

WORKSHEET 4.7.8A MANDATORY SAFETY REQUIREMENTS — NEW HOSPITALS, EXISTING HOSPITALS, OR NEW NURSING HOMES

	Containment (S_a)		Extinguishment (S_b)		People Movement (S_c)	
Zone Location	New	Exist.	New	Exist.	New	Exist.
1st story	11	5	15(12)[a]	4	8(5)[a]	1
2nd or 3rd story[b]	15	9	17(14)[a]	6	10(7)[a]	3
4th story or higher but not high rise	18	9	19(16)[a]	6	11(8)[a]	3
High rise	18	17	19(16)[a]	16	11(8)[a]	7

[a] Use ( ) in zones that do not contain patient sleeping rooms.

[b] For a 2nd story zone location in a *sprinklered* EXISTING hospital, as an alternative to the mandatory safety requirement values set specified in the table, the following mandatory values set shall be permitted to be used: $S_a = 7$, $S_b = 10$, and $S_c = 7$.

WORKSHEET 4.7.8B MANDATORY SAFETY REQUIREMENTS — EXISTING NURSING HOMES

Zone Location	Containment (S_a)	Extinguishment (S_b)	People Movement (S_c)
1st story 2nd story 3rd story 4th story or higher	2 8	10 16	2 2

WORKSHEET 4.7.8C MANDATORY SAFETY REQUIREMENTS — MAJOR REHABILITATION IN NONSPRINKLERED EXISTING HOSPITALS

Zone Location	Containment (S_a)	Extinguishment (S_b)	People Movement (S_c)
1st story	13	17(14)*	8(5)*
2nd or 3rd story	17	19(16)*	10(7)*
4th story or higher	18	19(16)*	11(8)*

*Use ( ) in zones that do not contain patient sleeping rooms.

(For use with NFPA 101A-2010/NFPA *101*-2009) (p. 3 of 4)

FIGURE 4.7 *Continued*

WORKSHEET 4.7.9 ZONE FIRE SAFETY EQUIVALENCY EVALUATION

									Yes	No
Containment Safety (S_1)	minus	Mandatory Containment (S_a)	≥	0	S_1 13	– S_a 2	= C 11		✓	
Extinguishment Safety (S_2)	minus	Mandatory Extinguishment (S_b)	≥	0	S_2 20	– S_b 10	= E 10		✓	
People Movement Safety (S_3)	minus	Mandatory People Movement (S_c)	≥	0	S_3 4	– S_c 2	= P 2		✓	
General Safety (S_4)	minus	Occupancy Risk (R)	≥	0	S_4 20	– R 1	= G 19		✓	

WORKSHEET 4.7.10 FACILITY FIRE SAFETY REQUIREMENTS WORKSHEET

Complete one copy of this worksheet for each facility.
For each consideration, select and mark the appropriate column.

		Met	Not Met	Not Applic.
A.	Building utilities conform to the requirements of Section 9.1.	✓		
B.	In new facilities only, life-support systems, alarms, emergency communication systems, and illumination of generator set locations are powered as prescribed by 18.5.1.2 and 18.5.1.3.			✓
C.	Heating and air conditioning systems conform with the air conditioning, heating, and ventilating systems requirements within Section 9.2, except for enclosure of vertical openings, which have been considered in Safety Parameter 7 of Worksheet 4.7.6.	✓		
D.	Fuel-burning space heaters and portable electrical space heaters are not used.	✓		
E.	There are no flue-fed incinerators.	✓		
F.	An evacuation plan is provided and fire drills conducted in accordance with 18.7.1/18.7.2 and 19.7.1/19.7.2.	✓		
G.	Smoking regulations have been adopted and implemented in accordance with 18.7.4 and 19.7.4.	✓		
H.	Combustibility of draperies, upholstered furniture, mattresses, furnishings, and decorations is limited in accordance with 18.7.5 and 19.7.5.	✓		
I.	Fire extinguishers are provided in accordance with the requirements of 18.3.5.11 and 19.3.5.11.	✓		
J.	Exit signs are provided in accordance with the requirements of 18.2.10.1 and 19.2.10.	✓		
K.	Emergency lighting is provided in accordance with 18.2.9.1 or 19.2.9.1.	✓		
L.	Standpipes are provided in all new high-rise buildings as required by 18.4.2.			✓

All references are to NFPA *101, Life Safety Code.*

WORKSHEET 4.7.11 CONCLUSIONS

1. ☑ All of the checks in Worksheet 4.7.9 are in the "Yes" column. The level of fire safety is at least equivalent to that prescribed by the *Life Safety Code.**
2. ☐ One or more of the checks in Worksheet 4.7.9 are in the "No" column. The level of fire safety is not shown by this system to be equivalent to that prescribed by the *Life Safety Code.**

* The equivalency covered by this worksheet includes the majority of considerations covered by the *Life Safety Code*. There are some considerations that are not evaluated by this method. These must be considered separately. These additional considerations are covered in Worksheet 4.7.10, the Facility Fire Safety Requirements Worksheet. One copy of this separate worksheet is to be completed for each facility.

(For use with NFPA 101A-2010/NFPA *101*-2009) (p. 4 of 4)

FIGURE 4.7 *Continued*

WORKSHEET 4.7.1 COVER SHEET

Fire/Smoke Zone* Evaluation Worksheet for Health Care Facilities

Facility: Fairview University Transitional Services Building: 01- Main Building

Zone(s) evaluated: Third Floor North Zone 7 of 18

Evaluator: M. Thuringer, CHFM, CHC Date: 10/28/2016

Complete this worksheet for each zone. Where conditions are the same in several zones, one worksheet can be used for those zones.

*Fire/smoke zone is a space separated from all other spaces by floors, horizontal exits, or smoke barriers.

WORKSHEET 4.7.2 OCCUPANCY RISK PARAMETER FACTORS

Risk Parameters	Risk Factor Values					
1. Patient Mobility (*M*)	Mobility Status	Mobile	Limited Mobility	Not Mobile	Not Movable	
	Risk Factor	1.0	1.6	3.2	4.5	
2. Patient Density (*D*)	No. of Patients	1–5	6–10	11–30	>30	
	Risk Factor	1.0	1.2	1.5	2.0	
3. Zone Location (*L*)	Floor	1st	2nd or 3rd	4th to 6th	7th and Above	Basements
	Risk Factor	1.1	1.2	1.4	1.6	1.6
4. Ratio of Patients to Attendants (*T*)	Patients / Attendant	1–2 / 1	3–5 / 1	6–10 / 1	>10 / 1	One or More* / None
	Risk Factor	1.0	1.1	1.2	1.5	4.0
5. Patient Average Age (*A*)	Age	<65 Years and >1 Year		≥65 Years or ≤1 Year		
	Risk Factor	1.0		1.2		

*A risk factor of 4.0 is charged to any zone that houses patients without any staff in immediate attendance.

WORKSHEET 4.7.3 OCCUPANCY RISK FACTOR CALCULATION

	M		*D*		*L*		*T*		*A*		*F*
Occupancy Risk		×		×	1.2	×		×		=	1.2

WORKSHEET 4.7.4 ADJUSTED OCCUPANCY RISK FACTOR — NEW BUILDINGS

	F		*R*
1.0 ×		=	

WORKSHEET 4.7.5 ADJUSTED OCCUPANCY RISK FACTOR — EXISTING BUILDINGS

	F		*R*
0.6 ×	1.2	=	0.7

(For use with NFPA 101A-2010/NFPA 101-2009)

(p. 1 of 4)

FIGURE 4.7 Worksheets for Evaluating Fire/Smoke Zones.

WORKSHEET 4.7.6 SAFETY PARAMETER VALUES

Safety Parameters	Parameter Values						
1. Construction	Combustible Types III, IV, and V				Noncombustible Types I and II		
Floor or Zone	000	111	200	211, 2HH	000	111	222, 322, 442
First	−2	0	−2	0	0	2	2
Second	−7	−2	−4	−2	−2	2	4
Third	−9	−7	−9	−7	−7	2	4
4th and Above	−13	−7	−13	−7	−9	−7	4
2. Interior Finish (Corridors and Exits)	Class C	Class B	Class A				
	−5(0)[f]	0(3)[f]	3				
3. Interior Finish (Rooms)	Class C	Class B	Class A				
	−3(1)[f]	1(3)[f]	3				
4. Corridor Partitions/Walls	None or Incomplete	<½ hr	≥½ hr to <1 hr	≥1 hr			
	−10(0)[a]	0	1(0)[a]	2(0)[a]			
5. Doors to Corridor	No Door	<20 min FPR	≥20 min FPR	≥20 min FPR and Auto Clos.			
	−10	0	1(0)[d]	2(0)[d]			
6. Zone Dimensions	Dead End			No Dead Ends >30 ft and Zone Length Is			
	>100 ft	>50 ft to 100 ft	30 ft to 50 ft	>150 ft	100 ft to 150 ft	≤100 ft	
	−6(0)[b]	−4(0)[b]	−2(0)[b]	−2(0)[c](0)[h]	0(0)[h]	1	
7. Vertical Openings	Open 4 or More Floors	Open 2 or 3 Floors	Enclosed with Indicated Fire Resist.				
			<1 hr	≥1 hr to <2 hr	≥2 hr		
	−14	−10	0	2(0)[c]	3(0)[c]		
8. Hazardous Areas	Double Deficiency		Single Deficiency		No Deficiencies		
	In Zone	Outside Zone	In Zone	In Adjacent Zone			
	−11	−5	−6	−2	0		
9. Smoke Control	No Control	Smoke Barrier Serves Zone	Mech. Assisted Systems by Zone				
	−5(0)[c]	0	3				
10. Emergency Movement Routes	<2 Routes	Multiple Routes			Direct Exit(s)		
		Deficient	W/O Horizontal Exit(s)	Horizontal Exit(s)			
	−8	−2	0	1	5		
11. Manual Fire Alarm	No Manual Fire Alarm		Manual Fire Alarm				
	−4		W/O F.D. Conn.	W/ F.D. Conn.			
			1	2			
12. Smoke Detection and Alarm	None	Corridor Only	Rooms Only	Corridor and Habit. Spaces	Total Spaces in Zone		
	0(3)[g]	2(3)[g]	3(3)[g]	4	5		
13. Automatic Sprinklers	None	Corridor and Habit. Space	Entire Building				
	0	8	10				

[a] Use (0) where Parameter 5 is −10.
[b] Use (0) where Parameter 10 is −8.
[c] Use (0) on floor with fewer than 31 patients (existing buildings only).
[d] Use (0) where Parameter 4 is −10.
[e] Use (0) where Parameter 1 is based on first floor zone or on an unprotected type of construction (columns marked "000" or "200").
[f] Use ( ) if the area of Class B or C interior finish in the corridor and exit or room is protected by automatic sprinklers and Parameter 13 is 0; use ( ) if the room with existing Class C interior finish is protected by automatic sprinklers, Parameter 4 is greater than or equal to 1, and Parameter 13 is 0.
[g] Use this value in addition to Parameter 13 if the entire zone is protected with quick-response automatic sprinklers.
[h] Use (0) where zone area ≤22,500 ft² and distance from any point to reach a door in smoke barrier ≤200 ft.

For SI units, 1 ft = 0.3048 m; 1 ft² = 0.092 m².

(For use with NFPA 101A-2010/NFPA 101-2009)

(p. 2 of 4)

FIGURE 4.7 *Continued*

WORKSHEET 4.7.7 INDIVIDUAL SAFETY EVALUATIONS

Safety Parameters	Containment Safety (S_1)	Extinguishment Safety (S_2)	People Movement Safety (S_3)	General Safety (S_4)
1. Construction	4	4		4
2. Interior Finish (Corr. and Exit)	3		3	3
3. Interior Finish(Rooms)	3			3
4. Corridor Partitions/Walls	2			2
5. Doors to Corridor	1		1	1
6. Zone Dimensions			1	1
7. Vertical Openings	-10		-10	-10
8. Hazardous Areas	0	0		0
9. Smoke Control			0	0
10. Emergency Movement Routes			0	0
11. Manual Fire Alarm		2		2
12. Smoke Detection and Alarm		4	4	4
13. Automatic Sprinklers	10	10	10 ÷ 2 = 5	10
Total Value	S_1 = 13	S_2 = 20	S_3 = 4	S_4 = 20

WORKSHEET 4.7.8A MANDATORY SAFETY REQUIREMENTS — NEW HOSPITALS, EXISTING HOSPITALS, OR NEW NURSING HOMES

	Containment (S_a)		Extinguishment (S_b)		People Movement (S_c)	
Zone Location	New	Exist.	New	Exist.	New	Exist.
1st story	11	5	15(12)[a]	4	8(5)[a]	1
2nd or 3rd story[b]	15	9	17(14)[a]	6	10(7)[a]	3
4th story or higher but not high rise	18	9	19(16)[a]	6	11(8)[a]	3
High rise	18	17	19(16)[a]	16	11(8)[a]	7

[a] Use ( ) in zones that do not contain patient sleeping rooms.

[b] For a 2nd story zone location in a *sprinklered* EXISTING hospital, as an alternative to the mandatory safety requirement values set specified in the table, the following mandatory values set shall be permitted to be used: $S_a = 7$, $S_b = 10$, and $S_c = 7$.

WORKSHEET 4.7.8B MANDATORY SAFETY REQUIREMENTS — EXISTING NURSING HOMES

Zone Location	Containment (S_a)	Extinguishment (S_b)	People Movement (S_c)
1st story	9	10	0
2nd story	6	14	2
3rd story			
4th story or higher	9	16	2

WORKSHEET 4.7.8C MANDATORY SAFETY REQUIREMENTS — MAJOR REHABILITATION IN NONSPRINKLERED EXISTING HOSPITALS

Zone Location	Containment (S_a)	Extinguishment (S_b)	People Movement (S_c)
1st story	13	17(14)*	8(5)*
2nd or 3rd story	17	19(16)*	10(7)*
4th story or higher	18	19(16)*	11(8)*

*Use ( ) in zones that do not contain patient sleeping rooms.

(For use with NFPA 101A-2010/NFPA *101*-2009) (p. 3 of 4)

FIGURE 4.7 *Continued*

WORKSHEET 4.7.9 ZONE FIRE SAFETY EQUIVALENCY EVALUATION

									Yes	No
Containment Safety (S_1)	minus	Mandatory Containment (S_a)	≥	0	S_1 13	–	S_a 6	= C 7		
Extinguishment Safety (S_2)	minus	Mandatory Extinguishment (S_b)	≥	0	S_2 20	–	S_b 14	= E 6		
People Movement Safety (S_3)	minus	Mandatory People Movement (S_c)	≥	0	S_3 4	–	S_c 2	= P 2		
General Safety (S_4)	minus	Occupancy Risk (R)	≥	0	S_4 20	–	R 1	= G 19		

WORKSHEET 4.7.10 FACILITY FIRE SAFETY REQUIREMENTS WORKSHEET

Complete one copy of this worksheet for each facility.
For each consideration, select and mark the appropriate column.

		Met	Not Met	Not Applic.
A.	Building utilities conform to the requirements of Section 9.1.	✓		X
B.	In new facilities only, life-support systems, alarms, emergency communication systems, and illumination of generator set locations are powered as prescribed by 18.5.1.2 and 18.5.1.3.			✓
C.	Heating and air conditioning systems conform with the air conditioning, heating, and ventilating systems requirements within Section 9.2, except for enclosure of vertical openings, which have been considered in Safety Parameter 7 of Worksheet 4.7.6.	✓		X
D.	Fuel-burning space heaters and portable electrical space heaters are not used.	✓		X
E.	There are no flue-fed incinerators.	✓		
F.	An evacuation plan is provided and fire drills conducted in accordance with 18.7.1/18.7.2 and 19.7.1/19.7.2.	✓		X
G.	Smoking regulations have been adopted and implemented in accordance with 18.7.4 and 19.7.4.	✓		X
H.	Combustibility of draperies, upholstered furniture, mattresses, furnishings, and decorations is limited in accordance with 18.7.5 and 19.7.5.	✓		
I.	Fire extinguishers are provided in accordance with the requirements of 18.3.5.11 and 19.3.5.11.	✓		X
J.	Exit signs are provided in accordance with the requirements of 18.2.10.1 and 19.2.10.	✓		
K.	Emergency lighting is provided in accordance with 18.2.9.1 or 19.2.9.1.	✓		
L.	Standpipes are provided in all new high-rise buildings as required by 18.4.2.			✓

All references are to NFPA *101, Life Safety Code*.

WORKSHEET 4.7.11 CONCLUSIONS

1. ☑ All of the checks in Worksheet 4.7.9 are in the "Yes" column. The level of fire safety is at least equivalent to that prescribed by the *Life Safety Code*.*
2. ☐ One or more of the checks in Worksheet 4.7.9 are in the "No" column. The level of fire safety is not shown by this system to be equivalent to that prescribed by the *Life Safety Code*.*

* The equivalency covered by this worksheet includes the majority of considerations covered by the *Life Safety Code*. There are some considerations that are not evaluated by this method. These must be considered separately. These additional considerations are covered in Worksheet 4.7.10, the Facility Fire Safety Requirements Worksheet. One copy of this separate worksheet is to be completed for each facility.

(For use with NFPA 101A-2010/NFPA *101*-2009) (p. 4 of 4)

FIGURE 4.7 *Continued*

WORKSHEET 4.7.1 COVER SHEET

Fire/Smoke Zone* Evaluation Worksheet for Health Care Facilities

Facility: Fairview University Transitional Services Building: 01-Main Building
Zone(s) evaluated: Third Floor South Zone 8 of 18
Evaluator: M. Thuringer, CHFM, CHC Date: 10/ 28/ 2016

Complete this worksheet for each zone. Where conditions are the same in several zones, one worksheet can be used for those zones.

*Fire/smoke zone is a space separated from all other spaces by floors, horizontal exits, or smoke barriers.

WORKSHEET 4.7.2 OCCUPANCY RISK PARAMETER FACTORS

Risk Parameters		Risk Factor Values				
1. Patient Mobility (*M*)	Mobility Status	Mobile	Limited Mobility	Not Mobile	Not Movable	
	Risk Factor	1.0	1.6	3.2	4.5	
2. Patient Density (*D*)	No. of Patients	1–5	6–10	11–30	>30	
	Risk Factor	1.0	1.2	1.5	2.0	
3. Zone Location (*L*)	Floor	1st	2nd or 3rd	4th to 6th	7th and Above	Basements
	Risk Factor	1.1	1.2	1.4	1.6	1.6
4. Ratio of Patients to Attendants (*T*)	Patients / Attendant	1–2 / 1	3–5 / 1	6–10 / 1	>10 / 1	One or More* / None
	Risk Factor	1.0	1.1	1.2	1.5	4.0
5. Patient Average Age (*A*)	Age	<65 Years and >1 Year		≥65 Years or ≤1 Year		
	Risk Factor	1.0		1.2		

*A risk factor of 4.0 is charged to any zone that houses patients without any staff in immediate attendance.

WORKSHEET 4.7.3 OCCUPANCY RISK FACTOR CALCULATION

	M		*D*		*L*		*T*		*A*		*F*
Occupancy Risk		×		×	1.2	×		×		=	1.2

WORKSHEET 4.7.4 ADJUSTED OCCUPANCY RISK FACTOR — NEW BUILDINGS

	F		*R*
1.0 ×		=	

WORKSHEET 4.7.5 ADJUSTED OCCUPANCY RISK FACTOR — EXISTING BUILDINGS

	F		*R*
0.6 ×	1.2	=	0.7

(For use with NFPA 101A-2010/NFPA 101-2009)

(p. 1 of 4)

FIGURE 4.7 Worksheets for Evaluating Fire/Smoke Zones.

WORKSHEET 4.7.6 SAFETY PARAMETER VALUES

Safety Parameters	Parameter Values						
1. Construction	Combustible Types III, IV, and V				Noncombustible Types I and II		
Floor or Zone	000	111	200	211, 2HH	000	111	222, 322, 442
First	−2	0	−2	0	0	2	2
Second	−7	−2	−4	−2	−2	2	4
Third	−9	−7	−9	−7	−7	2	4
4th and Above	−13	−7	−13	−7	−9	7	4

2. Interior Finish (Corridors and Exits)	Class C	Class B	Class A		
	−5(0)[f]	0(3)[f]	3		
3. Interior Finish (Rooms)	Class C	Class B	Class A		
	−3(1)[f]	1(3)[f]	3		
4. Corridor Partitions/Walls	None or Incomplete	<½ hr	≥½ hr to <1 hr	≥1 hr	
	−10(0)[a]	0	1(0)[a]	2(0)[a]	
5. Doors to Corridor	No Door	<20 min FPR	≥20 min FPR	≥20 min FPR and Auto Clos.	
	−10	0	1(0)[d]	2(0)[d]	

6. Zone Dimensions	Dead End			No Dead Ends >30 ft and Zone Length Is		
	>100 ft	>50 ft to 100 ft	30 ft to 50 ft	>150 ft	100 ft to 150 ft	≤100 ft
	−6(0)[b]	−4(0)[b]	−2(0)[b]	−2(0)[c](0)[h]	0(0)[h]	1

7. Vertical Openings	Open 4 or More Floors	Open 2 or 3 Floors	Enclosed with Indicated Fire Resist.		
			<1 hr	≥1 hr to <2 hr	≥2 hr
	−14	−10	0	2(0)[c]	3(0)[c]

8. Hazardous Areas	Double Deficiency		Single Deficiency		No Deficiencies
	In Zone	Outside Zone	In Zone	In Adjacent Zone	
	−11	−5	−6	−2	0

9. Smoke Control	No Control	Smoke Barrier Serves Zone	Mech. Assisted Systems by Zone	
	−5(0)[e]	0	3	

10. Emergency Movement Routes	<2 Routes		Multiple Routes		Direct Exit(s)
		Deficient	W/O Horizontal Exit(s)	Horizontal Exit(s)	
	−8	−2	0	1	5

11. Manual Fire Alarm	No Manual Fire Alarm	Manual Fire Alarm		
		W/O F.D. Conn.	W/F.D. Conn.	
	−4	1	2	

12. Smoke Detection and Alarm	None	Corridor Only	Rooms Only	Corridor and Habit. Spaces	Total Spaces in Zone
	0(3)[g]	2(3)[g]	3(3)[g]	4	5

13. Automatic Sprinklers	None	Corridor and Habit. Space	Entire Building	
	0	8	10	

[a] Use (0) where Parameter 5 is −10.
[b] Use (0) where Parameter 10 is −8.
[c] Use (0) on floor with fewer than 31 patients (existing buildings only).
[d] Use (0) where Parameter 4 is −10.
[e] Use (0) where Parameter 1 is based on first floor zone or on an unprotected type of construction (columns marked "000" or "200").
[f] Use ( ) if the area of Class B or C interior finish in the corridor and exit or room is protected by automatic sprinklers and Parameter 13 is 0; use ( ) if the room with existing Class C interior finish is protected by automatic sprinklers, Parameter 4 is greater than or equal to 1, and Parameter 13 is 0.
[g] Use this value in addition to Parameter 13 if the entire zone is protected with quick-response automatic sprinklers.
[h] Use (0) where zone area ≤22,500 ft² and distance from any point to reach a door in smoke barrier ≤200 ft.

For SI units, 1 ft = 0.3048 m; 1 ft² = 0.092 m².

(For use with NFPA 101A-2010/NFPA *101*-2009)

(p. 2 of 4)

FIGURE 4.7 *Continued*

WORKSHEET 4.7.7 INDIVIDUAL SAFETY EVALUATIONS

Safety Parameters	Containment Safety (S_1)	Extinguishment Safety (S_2)	People Movement Safety (S_3)	General Safety (S_4)
1. Construction	4	4		4
2. Interior Finish (Corr. and Exit)	3		3	3
3. Interior Finish(Rooms)	3			3
4. Corridor Partitions/Walls	0			0
5. Doors to Corridor	1		1	1
6. Zone Dimensions			1	1
7. Vertical Openings	-10		-10	-10
8. Hazardous Areas	0	0		0
9. Smoke Control			0	0
10. Emergency Movement Routes			0	0
11. Manual Fire Alarm		2		2
12. Smoke Detection and Alarm		4	4	4
13. Automatic Sprinklers	10	10	10 ÷ 2 = 5	10
Total Value	S_1 = 11	S_2 = 20	S_3 = 4	S_4 = 18

WORKSHEET 4.7.8A MANDATORY SAFETY REQUIREMENTS — NEW HOSPITALS, EXISTING HOSPITALS, OR NEW NURSING HOMES

	Containment (S_a)		Extinguishment (S_b)		People Movement (S_c)	
Zone Location	New	Exist.	New	Exist.	New	Exist.
1st story	11	5	15(12)[a]	4	8(5)[a]	1
2nd or 3rd story[b]	15	9	17(14)[a]	6	10(7)[a]	3
4th story or higher but not high rise	18	9	19(16)[a]	6	11(8)[a]	3
High rise	18	17	19(16)[a]	16	11(8)[a]	7

[a] Use ( ) in zones that do not contain patient sleeping rooms.

[b] For a 2nd story zone location in a *sprinklered* EXISTING hospital, as an alternative to the mandatory safety requirement values set specified in the table, the following mandatory values set shall be permitted to be used: $S_a = 7$, $S_b = 10$, and $S_c = 7$.

WORKSHEET 4.7.8B MANDATORY SAFETY REQUIREMENTS — EXISTING NURSING HOMES

Zone Location	Containment (S_a)	Extinguishment (S_b)	People Movement (S_c)
1st story	0	10	0
2nd story			
3rd story	6	14	2
4th story or higher			

WORKSHEET 4.7.8C MANDATORY SAFETY REQUIREMENTS — MAJOR REHABILITATION IN NONSPRINKLERED EXISTING HOSPITALS

Zone Location	Containment (S_a)	Extinguishment (S_b)	People Movement (S_c)
1st story	13	17(14)*	8(5)*
2nd or 3rd story	17	19(16)*	10(7)*
4th story or higher	18	19(16)*	11(8)*

*Use ( ) in zones that do not contain patient sleeping rooms.

(For use with NFPA 101A-2010/NFPA *101*-2009) (p. 3 of 4)

FIGURE 4.7 *Continued*

WORKSHEET 4.7.9 ZONE FIRE SAFETY EQUIVALENCY EVALUATION

									Yes	No
Containment Safety (S_1)	minus	Mandatory Containment (S_a)	≥	0	S_1 11	– S_a 6	= C 5		✓	
Extinguishment Safety (S_2)	minus	Mandatory Extinguishment (S_b)	≥	0	S_2 20	– S_b 14	= E 6		✓	
People Movement Safety (S_3)	minus	Mandatory People Movement (S_c)	≥	0	S_3 4	– S_c 2	= P 2		✓	
General Safety (S_4)	minus	Occupancy Risk (R)	≥	0	S_4 18	– R 1	= G 17		✓	

WORKSHEET 4.7.10 FACILITY FIRE SAFETY REQUIREMENTS WORKSHEET

Complete one copy of this worksheet for each facility.
For each consideration, select and mark the appropriate column.

		Met	Not Met	Not Applic.
A.	Building utilities conform to the requirements of Section 9.1.	✓		X
B.	In new facilities only, life-support systems, alarms, emergency communication systems, and illumination of generator set locations are powered as prescribed by 18.5.1.2 and 18.5.1.3.			✓
C.	Heating and air conditioning systems conform with the air conditioning, heating, and ventilating systems requirements within Section 9.2, except for enclosure of vertical openings, which have been considered in Safety Parameter 7 of Worksheet 4.7.6.	✓		X
D.	Fuel-burning space heaters and portable electrical space heaters are not used.	✓		X
E.	There are no flue-fed incinerators.	✓		
F.	An evacuation plan is provided and fire drills conducted in accordance with 18.7.1/18.7.2 and 19.7.1/19.7.2.	✓		X
G.	Smoking regulations have been adopted and implemented in accordance with 18.7.4 and 19.7.4.	✓		X
H.	Combustibility of draperies, upholstered furniture, mattresses, furnishings, and decorations is limited in accordance with 18.7.5 and 19.7.5.	✓		
I.	Fire extinguishers are provided in accordance with the requirements of 18.3.5.11 and 19.3.5.11.	✓		X
J.	Exit signs are provided in accordance with the requirements of 18.2.10.1 and 19.2.10.	✓		
K.	Emergency lighting is provided in accordance with 18.2.9.1 or 19.2.9.1.	✓		
L.	Standpipes are provided in all new high-rise buildings as required by 18.4.2.			✓

All references are to NFPA *101, Life Safety Code*.

WORKSHEET 4.7.11 CONCLUSIONS

1. ☑ All of the checks in Worksheet 4.7.9 are in the "Yes" column. The level of fire safety is at least equivalent to that prescribed by the *Life Safety Code*.*
2. ☐ One or more of the checks in Worksheet 4.7.9 are in the "No" column. The level of fire safety is not shown by this system to be equivalent to that prescribed by the *Life Safety Code*.*

* The equivalency covered by this worksheet includes the majority of considerations covered by the *Life Safety Code*. There are some considerations that are not evaluated by this method. These must be considered separately. These additional considerations are covered in Worksheet 4.7.10, the Facility Fire Safety Requirements Worksheet. One copy of this separate worksheet is to be completed for each facility.

(For use with NFPA 101A-2010/NFPA *101*-2009) (p. 4 of 4)

FIGURE 4.7 *Continued*

WORKSHEET 4.7.1 COVER SHEET

Fire/Smoke Zone* Evaluation Worksheet for Health Care Facilities

Facility Fairview University Transitional Services Building 01- Main Building

Zone(s) evaluated Third Floor East Zone 9 of 18

Evaluator M. Thuringer, CHFM, CHC Date 10/28/2016

Complete this worksheet for each zone. Where conditions are the same in several zones, one worksheet can be used for those zones.

*Fire/smoke zone is a space separated from all other spaces by floors, horizontal exits, or smoke barriers.

WORKSHEET 4.7.2 OCCUPANCY RISK PARAMETER FACTORS

Risk Parameters	Risk Factor Values					
1. Patient Mobility (*M*)	Mobility Status	Mobile	Limited Mobility	Not Mobile	Not Movable	
	Risk Factor	1.0	1.6	3.2	4.5	
2. Patient Density (*D*)	No. of Patients	1–5	6–10	11–30	>30	
	Risk Factor	1.0	1.2	1.5	2.0	
3. Zone Location (*L*)	Floor	1st	2nd or 3rd	4th to 6th	7th and Above	Basements
	Risk Factor	1.1	1.2	1.4	1.6	1.6
4. Ratio of Patients to Attendants (*T*)	Patients / Attendant	1–2 / 1	3–5 / 1	6–10 / 1	>10 / 1	One or More* / None
	Risk Factor	1.0	1.1	1.2	1.5	4.0
5. Patient Average Age (*A*)	Age	<65 Years and >1 Year		≥65 Years or ≤1 Year		
	Risk Factor	1.0		1.2		

*A risk factor of 4.0 is charged to any zone that houses patients without any staff in immediate attendance.

WORKSHEET 4.7.3 OCCUPANCY RISK FACTOR CALCULATION

	M		*D*		*L*		*T*		*A*		*F*
Occupancy Risk		×		×	1.2	×		×		=	1.2

WORKSHEET 4.7.4 ADJUSTED OCCUPANCY RISK FACTOR — NEW BUILDINGS

	F		*R*
1.0 ×		=	

WORKSHEET 4.7.5 ADJUSTED OCCUPANCY RISK FACTOR — EXISTING BUILDINGS

	F		*R*
0.6 ×	1.2	=	0.7

(For use with NFPA 101A-2010/NFPA *101*-2009) (p. 1 of 4)

FIGURE 4.7 Worksheets for Evaluating Fire/Smoke Zones.

WORKSHEET 4.7.6 SAFETY PARAMETER VALUES

Safety Parameters	Parameter Values						
1. Construction	Combustible Types III, IV, and V				Noncombustible Types I and II		
Floor or Zone	000	111	200	211, 2HH	000	111	222, 322, 442
First	−2	0	−2	0	0	2	2
Second	−7	−2	−4	−2	−2	2	4
Third	−9	−7	−9	−7	−7	2	4
4th and Above	−13	−7	−13	−7	−9	−7	4
2. Interior Finish (Corridors and Exits)	Class C	Class B	Class A				
	−5(0)[f]	0(3)[f]	3				
3. Interior Finish (Rooms)	Class C	Class B	Class A				
	−3(1)[f]	1(3)[f]	3				
4. Corridor Partitions/Walls	None or Incomplete	<½ hr	≥½ hr to <1 hr	≥1 hr			
	−10(0)[a]	0	1(0)[a]	2(0)[a]			
5. Doors to Corridor	No Door	<20 min FPR	≥20 min FPR	≥20 min FPR and Auto Clos.			
	−10	0	1(0)[d]	2(0)[d]			
6. Zone Dimensions	Dead End			No Dead Ends >30 ft and Zone Length Is			
	>100 ft	>50 ft to 100 ft	30 ft to 50 ft	≥150 ft	100 ft to 150 ft	<100 ft	
	−6(0)[b]	−4(0)[b]	−2(0)[b]	−2(0)[c](0)[h]	0(0)[h]	1	
7. Vertical Openings	Open 4 or More Floors	Open 2 or 3 Floors	Enclosed with Indicated Fire Resist.				
			<1 hr	≥1 hr to <2 hr	≥2 hr		
	−14	−10	0	2(0)[e]	3(0)[e]		
8. Hazardous Areas	Double Deficiency		Single Deficiency		No Deficiencies		
	In Zone	Outside Zone	In Zone	In Adjacent Zone			
	−11	−5	−6	−2	0		
9. Smoke Control	No Control	Smoke Barrier Serves Zone	Mech. Assisted Systems by Zone				
	−5(0)[c]	0	3				
10. Emergency Movement Routes	<2 Routes	Multiple Routes			Direct Exit(s)		
		Deficient	W/O Horizontal Exit(s)	Horizontal Exit(s)			
	−8	−2	0	1	5		
11. Manual Fire Alarm	No Manual Fire Alarm		Manual Fire Alarm				
			W/O F.D. Conn.	W/ F.D. Conn.			
	−4		1	2			
12. Smoke Detection and Alarm	None	Corridor Only	Rooms Only	Corridor and Habit. Spaces	Total Spaces in Zone		
	0(3)[g]	2(3)[g]	3(3)[g]	4	5		
13. Automatic Sprinklers	None	Corridor and Habit. Space	Entire Building				
	0	8	10				

[a] Use (0) where Parameter 5 is −10.

[b] Use (0) where Parameter 10 is −8.

[c] Use (0) on floor with fewer than 31 patients (existing buildings only).

[d] Use (0) where Parameter 4 is −10.

[e] Use (0) where Parameter 1 is based on first floor zone or on an unprotected type of construction (columns marked "000" or "200").

[f] Use ( ) if the area of Class B or C interior finish in the corridor and exit or room is protected by automatic sprinklers and Parameter 13 is 0; use ( ) if the room with existing Class C interior finish is protected by automatic sprinklers, Parameter 4 is greater than or equal to 1, and Parameter 13 is 0.

[g] Use this value in addition to Parameter 13 if the entire zone is protected with quick-response automatic sprinklers.

[h] Use (0) where zone area ≤22,500 ft² and distance from any point to reach a door in smoke barrier ≤200 ft.

For SI units, 1 ft = 0.3048 m; 1 ft² = 0.092 m².

(For use with NFPA 101A-2010/NFPA *101*-2009) (p. 2 of 4)

FIGURE 4.7 *Continued*

WORKSHEET 4.7.7 INDIVIDUAL SAFETY EVALUATIONS

Safety Parameters	Containment Safety (S_1)	Extinguishment Safety (S_2)	People Movement Safety (S_3)	General Safety (S_4)
1. Construction	4	4		4
2. Interior Finish (Corr. and Exit)	3		3	3
3. Interior Finish(Rooms)	3			3
4. Corridor Partitions/Walls	2			2
5. Doors to Corridor	1		1	1
6. Zone Dimensions			1	1
7. Vertical Openings	-10		-10	-10
8. Hazardous Areas	0	0		0
9. Smoke Control			0	0
10. Emergency Movement Routes			0	0
11. Manual Fire Alarm		2		2
12. Smoke Detection and Alarm		4	4	4
13. Automatic Sprinklers	10	10	10 ÷ 2 = 5	10
Total Value	S_1 = 13	S_2 = 20	S_3 = 4	S_4 = 20

WORKSHEET 4.7.8A MANDATORY SAFETY REQUIREMENTS — NEW HOSPITALS, EXISTING HOSPITALS, OR NEW NURSING HOMES

	Containment (S_a)		Extinguishment (S_b)		People Movement (S_c)	
Zone Location	New	Exist.	New	Exist.	New	Exist.
1st story	11	5	15(12)[a]	4	8(5)[a]	1
2nd or 3rd story[b]	15	9	17(14)[a]	6	10(7)[a]	3
4th story or higher but not high rise	18	9	19(16)[a]	6	11(8)[a]	3
High rise	18	17	19(16)[a]	16	11(8)[a]	7

[a] Use ( ) in zones that do not contain patient sleeping rooms.

[b] For a 2nd story zone location in a *sprinklered* EXISTING hospital, as an alternative to the mandatory safety requirement values set specified in the table, the following mandatory values set shall be permitted to be used: $S_a = 7$, $S_b = 10$, and $S_c = 7$.

WORKSHEET 4.7.8B MANDATORY SAFETY REQUIREMENTS — EXISTING NURSING HOMES

Zone Location	Containment (S_a)	Extinguishment (S_b)	People Movement (S_c)
1st story	0	10	0
2nd story	~~7~~	~~10~~	~~3~~
3rd story	6	14	2
4th story or higher	~~8~~	~~14~~	~~3~~

WORKSHEET 4.7.8C MANDATORY SAFETY REQUIREMENTS — MAJOR REHABILITATION IN NONSPRINKLERED EXISTING HOSPITALS

Zone Location	Containment (S_a)	Extinguishment (S_b)	People Movement (S_c)
1st story	13	17(14)*	8(5)*
2nd or 3rd story	17	19(16)*	10(7)*
4th story or higher	18	19(16)*	11(8)*

*Use ( ) in zones that do not contain patient sleeping rooms.

(For use with NFPA 101A-2010/NFPA *101*-2009) (p. 3 of 4)

FIGURE 4.7 *Continued*

WORKSHEET 4.7.9 ZONE FIRE SAFETY EQUIVALENCY EVALUATION

										Yes	No
Containment Safety (S_1)	minus	Mandatory Containment (S_a)	≥	0	S_1 13	–	S_a 6	= C 7		✓	
Extinguishment Safety (S_2)	minus	Mandatory Extinguishment (S_b)	≥	0	S_2 20	–	S_b 14	= E 6		✓	
People Movement Safety (S_3)	minus	Mandatory People Movement (S_c)	>	0	S_3 4	–	S_c 2	= P 2		✓	
General Safety (S_4)	minus	Occupancy Risk (R)	≥	0	S_4 20	–	R 1	= G 19		✓	

WORKSHEET 4.7.10 FACILITY FIRE SAFETY REQUIREMENTS WORKSHEET

Complete one copy of this worksheet for each facility.
For each consideration, select and mark the appropriate column.

		Met	Not Met	Not Applic.
A.	Building utilities conform to the requirements of Section 9.1.	✓		
B.	In new facilities only, life-support systems, alarms, emergency communication systems, and illumination of generator set locations are powered as prescribed by 18.5.1.2 and 18.5.1.3.			✓
C.	Heating and air conditioning systems conform with the air conditioning, heating, and ventilating systems requirements within Section 9.2, except for enclosure of vertical openings, which have been considered in Safety Parameter 7 of Worksheet 4.7.6.	✓		
D.	Fuel-burning space heaters and portable electrical space heaters are not used.	✓		
E.	There are no flue-fed incinerators.	✓		
F.	An evacuation plan is provided and fire drills conducted in accordance with 18.7.1/18.7.2 and 19.7.1/19.7.2.	✓		
G.	Smoking regulations have been adopted and implemented in accordance with 18.7.4 and 19.7.4.	✓		
H.	Combustibility of draperies, upholstered furniture, mattresses, furnishings, and decorations is limited in accordance with 18.7.5 and 19.7.5.	✓		
I.	Fire extinguishers are provided in accordance with the requirements of 18.3.5.11 and 19.3.5.11.	✓		
J.	Exit signs are provided in accordance with the requirements of 18.2.10.1 and 19.2.10.	✓		
K.	Emergency lighting is provided in accordance with 18.2.9.1 or 19.2.9.1.	✓		
L.	Standpipes are provided in all new high-rise buildings as required by 18.4.2.			✓

All references are to NFPA *101, Life Safety Code.*

WORKSHEET 4.7.11 CONCLUSIONS

1. ☑ All of the checks in Worksheet 4.7.9 are in the "Yes" column. The level of fire safety is at least equivalent to that prescribed by the *Life Safety Code.**
2. ☐ One or more of the checks in Worksheet 4.7.9 are in the "No" column. The level of fire safety is not shown by this system to be equivalent to that prescribed by the *Life Safety Code.**

* The equivalency covered by this worksheet includes the majority of considerations covered by the *Life Safety Code*. There are some considerations that are not evaluated by this method. These must be considered separately. These additional considerations are covered in Worksheet 4.7.10, the Facility Fire Safety Requirements Worksheet. One copy of this separate worksheet is to be completed for each facility.

(For use with NFPA 101A-2010/NFPA *101*-2009) (p. 4 of 4)

FIGURE 4.7 *Continued*

WORKSHEET 4.7.1 COVER SHEET

Fire/Smoke Zone* Evaluation Worksheet for Health Care Facilities

Facility: Fairview University Transitional Services Building: 01- Main Building

Zone(s) evaluated: Third Floor West Zone 10 of 18

Evaluator: M. Thuringer, CHFM, CHC Date: 10 /28/ 2016

Complete this worksheet for each zone. Where conditions are the same in several zones, one worksheet can be used for those zones.

*Fire/smoke zone is a space separated from all other spaces by floors, horizontal exits, or smoke barriers.

WORKSHEET 4.7.2 OCCUPANCY RISK PARAMETER FACTORS

Risk Parameters		Risk Factor Values				
1. Patient Mobility (*M*)	Mobility Status	Mobile	Limited Mobility	Not Mobile	Not Movable	
	Risk Factor	1.0	1.6	3.2	4.5	
2. Patient Density (*D*)	No. of Patients	1–5	6–10	11–30	>30	
	Risk Factor	1.0	1.2	1.5	2.0	
3. Zone Location (*L*)	Floor	1st	2nd or 3rd	4th to 6th	7th and Above	Basements
	Risk Factor	1.1	**1.2**	1.4	1.6	1.6
4. Ratio of Patients to Attendants (*T*)	Patients / Attendant	1–2 / 1	3–5 / 1	6–10 / 1	>10 / 1	One or More* / None
	Risk Factor	1.0	1.1	1.2	1.5	4.0
5. Patient Average Age (*A*)	Age	<65 Years and >1 Year		≥65 Years or ≤1 Year		
	Risk Factor	1.0		1.2		

*A risk factor of 4.0 is charged to any zone that houses patients without any staff in immediate attendance.

WORKSHEET 4.7.3 OCCUPANCY RISK FACTOR CALCULATION

	M		*D*		*L*		*T*		*A*		*F*
Occupancy Risk		×		×	1.2	×		×		=	1.2

WORKSHEET 4.7.4 ADJUSTED OCCUPANCY RISK FACTOR — NEW BUILDINGS

F		*R*
1.0 ×		=

WORKSHEET 4.7.5 ADJUSTED OCCUPANCY RISK FACTOR — EXISTING BUILDINGS

F		*R*
0.6 ×	1.2	= 0.7

(For use with NFPA 101A-2010/NFPA 101-2009)

(p. 1 of 4)

FIGURE 4.7 Worksheets for Evaluating Fire/Smoke Zones.

WORKSHEET 4.7.6 SAFETY PARAMETER VALUES

Safety Parameters	Parameter Values						
1. Construction	Combustible Types III, IV, and V				Noncombustible Types I and II		
Floor or Zone	000	111	200	211, 2HH	000	111	222, 322, 442
First	−2	0	−2	0	0	2	2
Second	−7	−2	−4	−2	−2	2	4
Third	−9	−7	−9	−7	−7	2	4
4th and Above	−13	−7	−13	−7	−9	−7	4
2. Interior Finish (Corridors and Exits)	Class C	Class B	Class A				
	−5(0)[f]	0(3)[f]	3				
3. Interior Finish (Rooms)	Class C	Class B	Class A				
	−3(1)[f]	1(3)[f]	3				
4. Corridor Partitions/Walls	None or Incomplete	<½ hr	>½ hr to <1 hr	≥1 hr			
	−10(0)[a]	0	1(0)[a]	2(0)[a]			
5. Doors to Corridor	No Door	<20 min FPR	≥20 min FPR	≥20 min FPR and Auto Clos.			
	−10	0	1(0)[d]	2(0)[d]			
6. Zone Dimensions	Dead End			No Dead Ends >30 ft and Zone Length Is			
	>100 ft	>50 ft to 100 ft	30 ft to 50 ft	>150 ft	100 ft to 150 ft	≤100 ft	
	−6(0)[b]	−4(0)[b]	−2(0)[b]	−2(0)[c](0)[h]	0(0)[h]	1	
7. Vertical Openings	Open 4 or More Floors	Open 2 or 3 Floors	Enclosed with Indicated Fire Resist.				
			<1 hr	≥1 hr to <2 hr	≥2 hr		
	−14	−10	0	2(0)[e]	3(0)[e]		
8. Hazardous Areas	Double Deficiency		Single Deficiency		No Deficiencies		
	In Zone	Outside Zone	In Zone	In Adjacent Zone			
	−11	−5	−6	−2	0		
9. Smoke Control	No Control	Smoke Barrier Serves Zone	Mech. Assisted Systems by Zone				
	−5(0)[c]	0	3				
10. Emergency Movement Routes	<2 Routes	Multiple Routes			Direct Exit(s)		
		Deficient	W/O Horizontal Exit(s)	Horizontal Exit(s)			
	−8	−2	0	1	5		
11. Manual Fire Alarm	No Manual Fire Alarm		Manual Fire Alarm				
			W/O F.D. Conn.	W/ F.D. Conn.			
	−4		1	2			
12. Smoke Detection and Alarm	None	Corridor Only	Rooms Only	Corridor and Habit. Spaces	Total Spaces in Zone		
	0(3)[g]	2(3)[g]	3(3)[g]	4	5		
13. Automatic Sprinklers	None	Corridor and Habit. Space	Entire Building				
	0	8	10				

[a] Use (0) where Parameter 5 is −10.
[b] Use (0) where Parameter 10 is −8.
[c] Use (0) on floor with fewer than 31 patients (existing buildings only).
[d] Use (0) where Parameter 4 is −10.
[e] Use (0) where Parameter 1 is based on first floor zone or on an unprotected type of construction (columns marked "000" or "200").
[f] Use ( ) if the area of Class B or C interior finish in the corridor and exit or room is protected by automatic sprinklers and Parameter 13 is 0; use ( ) if the room with existing Class C interior finish is protected by automatic sprinklers, Parameter 4 is greater than or equal to 1, and Parameter 13 is 0.
[g] Use this value in addition to Parameter 13 if the entire zone is protected with quick-response automatic sprinklers.
[h] Use (0) where zone area ≤22,500 ft² and distance from any point to reach a door in smoke barrier ≤200 ft.

For SI units, 1 ft = 0.3048 m; 1 ft² = 0.092 m².

(For use with NFPA 101A-2010/NFPA *101*-2009) (p. 2 of 4)

FIGURE 4.7 *Continued*

WORKSHEET 4.7.7 INDIVIDUAL SAFETY EVALUATIONS

Safety Parameters	Containment Safety (S_1)	Extinguishment Safety (S_2)	People Movement Safety (S_3)	General Safety (S_4)
1. Construction	4	4		4
2. Interior Finish (Corr. and Exit)	3		3	3
3. Interior Finish(Rooms)	3			3
4. Corridor Partitions/Walls	2			2
5. Doors to Corridor	1		1	1
6. Zone Dimensions			1	1
7. Vertical Openings	-10		-10	-10
8. Hazardous Areas	0	0		0
9. Smoke Control			0	0
10. Emergency Movement Routes			0	0
11. Manual Fire Alarm		2		2
12. Smoke Detection and Alarm		4	4	4
13. Automatic Sprinklers	10	10	10 ÷ 2 = 5	10
Total Value	S_1 = 13	S_2 = 20	S_3 = 4	S_4 = 20

WORKSHEET 4.7.8A MANDATORY SAFETY REQUIREMENTS — NEW HOSPITALS, EXISTING HOSPITALS, OR NEW NURSING HOMES

	Containment (S_a)		Extinguishment (S_b)		People Movement (S_c)	
Zone Location	New	Exist.	New	Exist.	New	Exist.
1st story	11	5	15(12)[a]	4	8(5)[a]	1
2nd or 3rd story[b]	15	9	17(14)[a]	6	10(7)[a]	3
4th story or higher but not high rise	18	9	19(16)[a]	6	11(8)[a]	3
High rise	18	17	19(16)[a]	16	11(8)[a]	7

[a] Use ( ) in zones that do not contain patient sleeping rooms.

[b] For a 2nd story zone location in a *sprinklered* EXISTING hospital, as an alternative to the mandatory safety requirement values set specified in the table, the following mandatory values set shall be permitted to be used: $S_a = 7$, $S_b = 10$, and $S_c = 7$.

WORKSHEET 4.7.8B MANDATORY SAFETY REQUIREMENTS — EXISTING NURSING HOMES

Zone Location	Containment (S_a)	Extinguishment (S_b)	People Movement (S_c)
1st story	0	10	0
2nd story			
3rd story	6	14	2
4th story or higher			

WORKSHEET 4.7.8C MANDATORY SAFETY REQUIREMENTS — MAJOR REHABILITATION IN NONSPRINKLERED EXISTING HOSPITALS

Zone Location	Containment (S_a)	Extinguishment (S_b)	People Movement (S_c)
1st story	13	17(14)*	8(5)*
2nd or 3rd story	17	19(16)*	10(7)*
4th story or higher	18	19(16)*	11(8)*

*Use ( ) in zones that do not contain patient sleeping rooms.

(For use with NFPA 101A-2010/NFPA *101*-2009) (p. 3 of 4)

FIGURE 4.7 *Continued*

WORKSHEET 4.7.9 ZONE FIRE SAFETY EQUIVALENCY EVALUATION

						Yes	No
Containment Safety (S_1)	minus	Mandatory Containment (S_a)	≥	0	S_1 13 − S_a 6 = C 7	✓	
Extinguishment Safety (S_2)	minus	Mandatory Extinguishment (S_b)	≥	0	S_2 20 − S_b 14 = E 6	✓	
People Movement Safety (S_3)	minus	Mandatory People Movement (S_c)	≥	0	S_3 4 − S_c 2 = P 2	✓	
General Safety (S_4)	minus	Occupancy Risk (R)	≥	0	S_4 20 − R 1 = G 19	✓	

WORKSHEET 4.7.10 FACILITY FIRE SAFETY REQUIREMENTS WORKSHEET

Complete one copy of this worksheet for each facility.
For each consideration, select and mark the appropriate column.

		Met	Not Met	Not Applic.
A.	Building utilities conform to the requirements of Section 9.1.	✓		X
B.	In new facilities only, life-support systems, alarms, emergency communication systems, and illumination of generator set locations are powered as prescribed by 18.5.1.2 and 18.5.1.3.			✓
C.	Heating and air conditioning systems conform with the air conditioning, heating, and ventilating systems requirements within Section 9.2, except for enclosure of vertical openings, which have been considered in Safety Parameter 7 of Worksheet 4.7.6.	✓		X
D.	Fuel-burning space heaters and portable electrical space heaters are not used.	✓		X
E.	There are no flue-fed incinerators.	✓		
F.	An evacuation plan is provided and fire drills conducted in accordance with 18.7.1/18.7.2 and 19.7.1/19.7.2.	✓		X
G.	Smoking regulations have been adopted and implemented in accordance with 18.7.4 and 19.7.4.	✓		X
H.	Combustibility of draperies, upholstered furniture, mattresses, furnishings, and decorations is limited in accordance with 18.7.5 and 19.7.5.	✓		
I.	Fire extinguishers are provided in accordance with the requirements of 18.3.5.11 and 19.3.5.11.	✓		X
J.	Exit signs are provided in accordance with the requirements of 18.2.10.1 and 19.2.10.	✓		
K.	Emergency lighting is provided in accordance with 18.2.9.1 or 19.2.9.1.	✓		
L.	Standpipes are provided in all new high-rise buildings as required by 18.4.2.			✓

All references are to NFPA *101, Life Safety Code.*

WORKSHEET 4.7.11 CONCLUSIONS

1. ☑ All of the checks in Worksheet 4.7.9 are in the "Yes" column. The level of fire safety is at least equivalent to that prescribed by the *Life Safety Code.**
2. ☐ One or more of the checks in Worksheet 4.7.9 are in the "No" column. The level of fire safety is not shown by this system to be equivalent to that prescribed by the *Life Safety Code.**

* The equivalency covered by this worksheet includes the majority of considerations covered by the *Life Safety Code.* There are some considerations that are not evaluated by this method. These must be considered separately. These additional considerations are covered in Worksheet 4.7.10, the Facility Fire Safety Requirements Worksheet. One copy of this separate worksheet is to be completed for each facility.

(For use with NFPA 101A-2010/NFPA *101*-2009) (p. 4 of 4)

FIGURE 4.7 *Continued*

WORKSHEET 4.7.1 COVER SHEET

Fire/Smoke Zone* Evaluation Worksheet for Health Care Facilities

Facility: Fairview University Transitional Services — Building: 01- Main Building
Zone(s) evaluated: Fourth Floor North — Zone 11 of 18
Evaluator: M. Thuringer, CHFM, CHC — Date: 10/28/2016

Complete this worksheet for each zone. Where conditions are the same in several zones, one worksheet can be used for those zones.

*Fire/smoke zone is a space separated from all other spaces by floors, horizontal exits, or smoke barriers.

WORKSHEET 4.7.2 OCCUPANCY RISK PARAMETER FACTORS

Risk Parameters		Risk Factor Values				
1. Patient Mobility (*M*)	Mobility Status	Mobile	Limited Mobility	Not Mobile		Not Movable
	Risk Factor	1.0	1.6	**3.2**		4.5
2. Patient Density (*D*)	No. of Patients	1–5	6–10	11–30		>30
	Risk Factor	**1.0**	1.2	1.5		2.0
3. Zone Location (*L*)	Floor	1st	2nd or 3rd	4th to 6th	7th and Above	Basements
	Risk Factor	1.1	1.2	**1.4**	1.6	1.6
4. Ratio of Patients to Attendants (*T*)	Patients / Attendant	1–2 / 1	3–5 / 1	6–10 / 1	>10 / 1	One or More* / None
	Risk Factor	1.0	**1.1**	1.2	1.5	4.0
5. Patient Average Age (*A*)	Age	<65 Years and >1 Year		≥65 Years or ≤1 Year		
	Risk Factor	1.0		**1.2**		

*A risk factor of 4.0 is charged to any zone that houses patients without any staff in immediate attendance.

WORKSHEET 4.7.3 OCCUPANCY RISK FACTOR CALCULATION

	M		*D*		*L*		*T*		*A*		*F*
Occupancy Risk	3.2	×	1.0	×	1.4	×	1.1	×	1.2	=	5.9

WORKSHEET 4.7.4 ADJUSTED OCCUPANCY RISK FACTOR — NEW BUILDINGS

	F		*R*
1.0 ×		=	

WORKSHEET 4.7.5 ADJUSTED OCCUPANCY RISK FACTOR — EXISTING BUILDINGS

	F		*R*
0.6 ×	5.9	=	3.5

(For use with NFPA 101A-2010/NFPA 101-2009) (p. 1 of 4)

FIGURE 4.7 Worksheets for Evaluating Fire/Smoke Zones.

WORKSHEET 4.7.6 SAFETY PARAMETER VALUES

Safety Parameters	Parameter Values						
1. Construction	Combustible Types III, IV, and V				Noncombustible Types I and II		
Floor or Zone	000	111	200	211, 2HH	000	111	222, 322, 442
First	−2	0	−2	0	0	2	2
Second	−7	−2	−4	−2	−2	2	4
Third	−9	−7	−9	−7	−7	2	4
4th and Above	−13	−7	−13	−7	−9	−7	4
2. Interior Finish (Corridors and Exits)	Class C	Class B	Class A				
	−5(0)[f]	0(3)[f]	3				
3. Interior Finish (Rooms)	Class C	Class B	Class A				
	−3(1)[f]	1(3)[f]	3				
4. Corridor Partitions/Walls	None or Incomplete	<½ hr	≥½ hr to <1 hr	≥1 hr			
	−10(0)[a]	0	1(0)[a]	2(0)[a]			
5. Doors to Corridor	No Door	<20 min FPR	≥20 min FPR	≥20 min FPR and Auto Clos.			
	−10	0	1(0)[d]	2(0)[d]			
6. Zone Dimensions	Dead End			No Dead Ends >30 ft and Zone Length Is			
	>100 ft	>50 ft to 100 ft	30 ft to 50 ft	>150 ft	100 ft to 150 ft	<100 ft	
	−6(0)[b]	−4(0)[b]	−2(0)[b]	−2(0)[c](0)[h]	0(0)[h]	1	
7. Vertical Openings	Open 4 or More Floors	Open 2 or 3 Floors	Enclosed with Indicated Fire Resist.				
			<1 hr	≥1 hr to <2 hr	≥2 hr		
	−14	−10	0	2(0)[e]	3(0)[e]		
8. Hazardous Areas	Double Deficiency		Single Deficiency		No Deficiencies		
	In Zone	Outside Zone	In Zone	In Adjacent Zone			
	−11	−5	−6	−2	0		
9. Smoke Control	No Control	Smoke Barrier Serves Zone	Mech. Assisted Systems by Zone				
	−5(0)[c]	0	3				
10. Emergency Movement Routes	<2 Routes	Multiple Routes			Direct Exit(s)		
		Deficient	W/O Horizontal Exit(s)	Horizontal Exit(s)			
	−8	−2	0	1	5		
11. Manual Fire Alarm	No Manual Fire Alarm		Manual Fire Alarm				
			W/O F.D. Conn.	W/ F.D. Conn.			
	−4		1	2			
12. Smoke Detection and Alarm	None	Corridor Only	Rooms Only	Corridor and Habit. Spaces	Total Spaces in Zone		
	0(3)[g]	2(3)[g]	3(3)[g]	4	5		
13. Automatic Sprinklers	None	Corridor and Habit. Space	Entire Building				
	0	8	10				

[a] Use (0) where Parameter 5 is −10.
[b] Use (0) where Parameter 10 is −8.
[c] Use (0) on floor with fewer than 31 patients (existing buildings only).
[d] Use (0) where Parameter 4 is −10.
[e] Use (0) where Parameter 1 is based on first floor zone or on an unprotected type of construction (columns marked "000" or "200").
[f] Use ( ) if the area of Class B or C interior finish in the corridor and exit or room is protected by automatic sprinklers and Parameter 13 is 0; use ( ) if the room with existing Class C interior finish is protected by automatic sprinklers, Parameter 4 is greater than or equal to 1, and Parameter 13 is 0.
[g] Use this value in addition to Parameter 13 if the entire zone is protected with quick-response automatic sprinklers.
[h] Use (0) where zone area ≤22,500 ft² and distance from any point to reach a door in smoke barrier ≤200 ft.

For SI units, 1 ft = 0.3048 m; 1 ft² = 0.092 m².

(For use with NFPA 101A-2010/NFPA 101-2009) (p. 2 of 4)

FIGURE 4.7 *Continued*

WORKSHEET 4.7.7 INDIVIDUAL SAFETY EVALUATIONS

Safety Parameters	Containment Safety (S_1)	Extinguishment Safety (S_2)	People Movement Safety (S_3)	General Safety (S_4)
1. Construction	4	4		4
2. Interior Finish (Corr. and Exit)	3		3	3
3. Interior Finish(Rooms)	3			3
4. Corridor Partitions/Walls	2			2
5. Doors to Corridor	1		1	1
6. Zone Dimensions			0	0
7. Vertical Openings	-10		-10	-10
8. Hazardous Areas	0	0		0
9. Smoke Control			0	0
10. Emergency Movement Routes			0	0
11. Manual Fire Alarm		2		2
12. Smoke Detection and Alarm		4	4	4
13. Automatic Sprinklers	10	10	10 ÷ 2 = 5	10
Total Value	S_1 = 13	S_2 = 20	S_3 = 3	S_4 = 19

WORKSHEET 4.7.8A MANDATORY SAFETY REQUIREMENTS — NEW HOSPITALS, EXISTING HOSPITALS, OR NEW NURSING HOMES

	Containment (S_a)		Extinguishment (S_b)		People Movement (S_c)	
Zone Location	New	Exist.	New	Exist.	New	Exist.
1st story	11	5	15(12)[a]	4	8(5)[a]	1
2nd or 3rd story[b]	15	9	17(14)[a]	6	10(7)[a]	3
4th story or higher but not high rise	18	9	19(16)[a]	6	11(8)[a]	3
High rise	18	17	19(16)[a]	16	11(8)[a]	7

[a] Use ( ) in zones that do not contain patient sleeping rooms.

[b] For a 2nd story zone location in a *sprinklered* EXISTING hospital, as an alternative to the mandatory safety requirement values set specified in the table, the following mandatory values set shall be permitted to be used: $S_a = 7$, $S_b = 10$, and $S_c = 7$.

WORKSHEET 4.7.8B MANDATORY SAFETY REQUIREMENTS — EXISTING NURSING HOMES

Zone Location	Containment (S_a)	Extinguishment (S_b)	People Movement (S_c)
1st story	0	10	0
2nd story	2	10	2
3rd story	8	16	2
4th story or higher	8	16	2

WORKSHEET 4.7.8C MANDATORY SAFETY REQUIREMENTS — MAJOR REHABILITATION IN NONSPRINKLERED EXISTING HOSPITALS

Zone Location	Containment (S_a)	Extinguishment (S_b)	People Movement (S_c)
1st story	13	17(14)*	8(5)*
2nd or 3rd story	17	19(16)*	10(7)*
4th story or higher	18	19(16)*	11(8)*

*Use ( ) in zones that do not contain patient sleeping rooms.

(For use with NFPA 101A-2010/NFPA 101-2009) (p. 3 of 4)

FIGURE 4.7 *Continued*

WORKSHEET 4.7.9 ZONE FIRE SAFETY EQUIVALENCY EVALUATION

									Yes	No
Containment Safety (S_1)	minus	Mandatory Containment (S_a)	≥	0	S_1 13	– S_a 8	= C 5			
Extinguishment Safety (S_2)	minus	Mandatory Extinguishment (S_b)	≥	0	S_2 20	– S_b 16	= E 4			
People Movement Safety (S_3)	minus	Mandatory People Movement (S_c)	≥	0	S_3 3	– S_c 2	= P 1			
General Safety (S_4)	minus	Occupancy Risk (R)	≥	0	S_4 19	– R 2	= G 17			

WORKSHEET 4.7.10 FACILITY FIRE SAFETY REQUIREMENTS WORKSHEET

Complete one copy of this worksheet for each facility.
For each consideration, select and mark the appropriate column.

		Met	Not Met	Not Applic.
A.	Building utilities conform to the requirements of Section 9.1.	✓		X
B.	In new facilities only, life-support systems, alarms, emergency communication systems, and illumination of generator set locations are powered as prescribed by 18.5.1.2 and 18.5.1.3.			✓
C.	Heating and air conditioning systems conform with the air conditioning, heating, and ventilating systems requirements within Section 9.2, except for enclosure of vertical openings, which have been considered in Safety Parameter 7 of Worksheet 4.7.6.	✓		X
D.	Fuel-burning space heaters and portable electrical space heaters are not used.	✓		X
E.	There are no flue-fed incinerators.	✓		
F.	An evacuation plan is provided and fire drills conducted in accordance with 18.7.1/18.7.2 and 19.7.1/19.7.2.	✓		X
G.	Smoking regulations have been adopted and implemented in accordance with 18.7.4 and 19.7.4.	✓		X
H.	Combustibility of draperies, upholstered furniture, mattresses, furnishings, and decorations is limited in accordance with 18.7.5 and 19.7.5.	✓		
I.	Fire extinguishers are provided in accordance with the requirements of 18.3.5.11 and 19.3.5.11.	✓		X
J.	Exit signs are provided in accordance with the requirements of 18.2.10.1 and 19.2.10.	✓		
K.	Emergency lighting is provided in accordance with 18.2.9.1 or 19.2.9.1.	✓		
L.	Standpipes are provided in all new high-rise buildings as required by 18.4.2.			✓

All references are to NFPA *101, Life Safety Code.*

WORKSHEET 4.7.11 CONCLUSIONS

1. ☑ All of the checks in Worksheet 4.7.9 are in the "Yes" column. The level of fire safety is at least equivalent to that prescribed by the *Life Safety Code.**
2. ☐ One or more of the checks in Worksheet 4.7.9 are in the "No" column. The level of fire safety is not shown by this system to be equivalent to that prescribed by the *Life Safety Code.**

* The equivalency covered by this worksheet includes the majority of considerations covered by the *Life Safety Code*. There are some considerations that are not evaluated by this method. These must be considered separately. These additional considerations are covered in Worksheet 4.7.10, the Facility Fire Safety Requirements Worksheet. One copy of this separate worksheet is to be completed for each facility.

(For use with NFPA 101A-2010/NFPA *101*-2009) (p. 4 of 4)

FIGURE 4.7 *Continued*

WORKSHEET 4.7.1 COVER SHEET

Fire/Smoke Zone* Evaluation Worksheet for Health Care Facilities

Facility: Fairview University Transitional Services Building: 01-Main Building

Zone(s) evaluated: Fourth Floor South Zone 12 of 18

Evaluator: M. Thuringer, CHFM, CHC Date: 10/28/2016

Complete this worksheet for each zone. Where conditions are the same in several zones, one worksheet can be used for those zones.

*Fire/smoke zone is a space separated from all other spaces by floors, horizontal exits, or smoke barriers.

WORKSHEET 4.7.2 OCCUPANCY RISK PARAMETER FACTORS

Risk Parameters	Risk Factor Values					
1. Patient Mobility (*M*)	Mobility Status	Mobile	Limited Mobility	Not Mobile	Not Movable	
	Risk Factor	1.0	**1.6**	3.2	4.5	
2. Patient Density (*D*)	No. of Patients	1–5	6–10	11–30	>30	
	Risk Factor	**1.0**	1.2	1.5	2.0	
3. Zone Location (*L*)	Floor	1st	2nd or 3rd	4th to 6th	7th and Above	Basements
	Risk Factor	1.1	1.2	**1.4**	1.6	1.6
4. Ratio of Patients to Attendants (*T*)	Patients / Attendant	1–2 / 1	3–5 / 1	6–10 / 1	>10 / 1	One or More* / None
	Risk Factor	1.0	**1.1**	1.2	1.5	4.0
5. Patient Average Age (*A*)	Age	<65 Years and >1 Year		≥65 Years or ≤1 Year		
	Risk Factor	1.0		**1.2**		

*A risk factor of 4.0 is charged to any zone that houses patients without any staff in immediate attendance.

WORKSHEET 4.7.3 OCCUPANCY RISK FACTOR CALCULATION

	M		*D*		*L*		*T*		*A*		*F*
Occupancy Risk	1.6	×	1.0	×	1.4	×	1.1	×	1.2	=	3.0

WORKSHEET 4.7.4 ADJUSTED OCCUPANCY RISK FACTOR — NEW BUILDINGS

	F		*R*
1.0 ×		=	

WORKSHEET 4.7.5 ADJUSTED OCCUPANCY RISK FACTOR — EXISTING BUILDINGS

	F		*R*
0.5 ×	3.0	=	1.8

(For use with NFPA 101A-2010/NFPA 101-2009)

(p. 1 of 4)

FIGURE 4.7 Worksheets for Evaluating Fire/Smoke Zones.

WORKSHEET 4.7.6 SAFETY PARAMETER VALUES

Safety Parameters	Parameter Values						
1. Construction	Combustible Types III, IV, and V				Noncombustible Types I and II		
Floor or Zone	000	111	200	211, 2HH	000	111	222, 322, 442
First	−2	0	−2	0	0	2	2
Second	−7	−2	−4	−2	−2	2	4
Third	−9	−7	−9	−7	−7	2	4
4th and Above	−13	−7	−13	−7	−9	−7	4
2. Interior Finish (Corridors and Exits)	Class C	Class B	Class A				
	−5(0)[f]	0(3)[f]	3				
3. Interior Finish (Rooms)	Class C	Class B	Class A				
	−3(1)[f]	1(3)[f]	3				
4. Corridor Partitions/Walls	None or Incomplete	<½ hr	≥½ hr to <1 hr	≥1 hr			
	−10(0)[a]	0	1(0)[a]	2(0)[a]			
5. Doors to Corridor	No Door	<20 min FPR	≥20 min FPR	≥20 min FPR and Auto Clos.			
	−10	0	1(0)[d]	2(0)[d]			
6. Zone Dimensions	Dead End			No Dead Ends >30 ft and Zone Length Is			
	>100 ft	>50 ft to 100 ft	30 ft to 50 ft	>150 ft	100 ft to 150 ft	≤100 ft	
	−6(0)[b]	−4(0)[b]	−2(0)[b]	−2(0)[e](0)[h]	0(0)[h]	1	
7. Vertical Openings	Open 4 or More Floors	Open 2 or 3 Floors	Enclosed with Indicated Fire Resist.				
			<1 hr	≥1 hr to <2 hr	≥2 hr		
	−14	−10	0	2(0)[e]	3(0)[e]		
8. Hazardous Areas	Double Deficiency		Single Deficiency		No Deficiencies		
	In Zone	Outside Zone	In Zone	In Adjacent Zone			
	−11	−5	−6	−2	0		
9. Smoke Control	No Control	Smoke Barrier Serves Zone	Mech. Assisted Systems by Zone				
	−5(0)[c]	0	3				
10. Emergency Movement Routes	<2 Routes	Multiple Routes			Direct Exit(s)		
		Deficient	W/O Horizontal Exit(s)	Horizontal Exit(s)			
	−8	−2	0	1	5		
11. Manual Fire Alarm	No Manual Fire Alarm		Manual Fire Alarm				
			W/O F.D. Conn.	W/ F.D. Conn.			
	−4		1	2			
12. Smoke Detection and Alarm	None	Corridor Only	Rooms Only	Corridor and Habit. Spaces	Total Spaces in Zone		
	0(3)[g]	2(3)[g]	3(3)[g]	4	5		
13. Automatic Sprinklers	None	Corridor and Habit. Space	Entire Building				
	0	8	10				

[a] Use (0) where Parameter 5 is −10.

[b] Use (0) where Parameter 10 is −8.

[c] Use (0) on floor with fewer than 31 patients (existing buildings only).

[d] Use (0) where Parameter 4 is −10.

[e] Use (0) where Parameter 1 is based on first floor zone or on an unprotected type of construction (columns marked "000" or "200").

[f] Use ( ) if the area of Class B or C interior finish in the corridor and exit or room is protected by automatic sprinklers and Parameter 13 is 0; use ( ) if the room with existing Class C interior finish is protected by automatic sprinklers, Parameter 4 is greater than or equal to 1, and Parameter 13 is 0.

[g] Use this value in addition to Parameter 13 if the entire zone is protected with quick-response automatic sprinklers.

[h] Use (0) where zone area ≤22,500 ft² and distance from any point to reach a door in smoke barrier ≤200 ft.

For SI units, 1 ft = 0.3048 m; 1 ft² = 0.092 m².

(For use with NFPA 101A-2010/NFPA 101-2009)

(p. 2 of 4)

FIGURE 4.7 *Continued*

WORKSHEET 4.7.7 INDIVIDUAL SAFETY EVALUATIONS

Safety Parameters	Containment Safety (S_1)	Extinguishment Safety (S_2)	People Movement Safety (S_3)	General Safety (S_4)
1. Construction	4	4		4
2. Interior Finish (Corr. and Exit)	3		3	3
3. Interior Finish(Rooms)	3			3
4. Corridor Partitions/Walls	2			2
5. Doors to Corridor	1		1	1
6. Zone Dimensions			1	1
7. Vertical Openings	-10		-10	-10
8. Hazardous Areas	0	0		0
9. Smoke Control			0	0
10. Emergency Movement Routes			0	0
11. Manual Fire Alarm		2		2
12. Smoke Detection and Alarm		4	4	4
13. Automatic Sprinklers	10	10	10 ÷ 2 = 5	10
Total Value	S_1 = 13	S_2 = 20	S_3 = 4	S_4 = 20

WORKSHEET 4.7.8A MANDATORY SAFETY REQUIREMENTS — NEW HOSPITALS, EXISTING HOSPITALS, OR NEW NURSING HOMES

	Containment (S_a)		Extinguishment (S_b)		People Movement (S_c)	
Zone Location	New	Exist.	New	Exist.	New	Exist.
1st story	11	5	15(12)[a]	4	8(5)[a]	1
2nd or 3rd story[b]	15	9	17(14)[a]	6	10(7)[a]	3
4th story or higher but not high rise	18	9	19(16)[a]	6	11(8)[a]	3
High rise	18	17	19(16)[a]	16	11(8)[a]	7

[a] Use ( ) in zones that do not contain patient sleeping rooms.

[b] For a 2nd story zone location in a *sprinklered* EXISTING hospital, as an alternative to the mandatory safety requirement values set specified in the table, the following mandatory values set shall be permitted to be used: $S_a = 7$, $S_b = 10$, and $S_c = 7$.

WORKSHEET 4.7.8B MANDATORY SAFETY REQUIREMENTS — EXISTING NURSING HOMES

Zone Location	Containment (S_a)	Extinguishment (S_b)	People Movement (S_c)
1st story	0	10	0
2nd story	2	10	2
3rd story	[illegible]	[illegible]	[illegible]
4th story or higher	8	16	2

WORKSHEET 4.7.8C MANDATORY SAFETY REQUIREMENTS — MAJOR REHABILITATION IN NONSPRINKLERED EXISTING HOSPITALS

Zone Location	Containment (S_a)	Extinguishment (S_b)	People Movement (S_c)
1st story	13	17(14)*	8(5)*
2nd or 3rd story	17	19(16)*	10(7)*
4th story or higher	18	19(16)*	11(8)*

*Use ( ) in zones that do not contain patient sleeping rooms.

(For use with NFPA 101A-2010/NFPA *101*-2009) (p. 3 of 4)

FIGURE 4.7 *Continued*

WORKSHEET 4.7.9 ZONE FIRE SAFETY EQUIVALENCY EVALUATION

						Yes	No
Containment Safety (S_1)	minus	Mandatory Containment (S_a)	≥	0	S_1 13 − S_a 8 = C 5	✓	
Extinguishment Safety (S_2)	minus	Mandatory Extinguishment (S_b)	≥	0	S_2 20 − S_b 16 = E 4	✓	
People Movement Safety (S_3)	minus	Mandatory People Movement (S_c)	≥	0	S_3 4 − S_c 2 = P 2	✓	
General Safety (S_4)	minus	Occupancy Risk (R)	≥	0	S_4 20 − R 2 = G 15	✓	

WORKSHEET 4.7.10 FACILITY FIRE SAFETY REQUIREMENTS WORKSHEET

Complete one copy of this worksheet for each facility.
For each consideration, select and mark the appropriate column.

		Met	Not Met	Not Applic.
A.	Building utilities conform to the requirements of Section 9.1.	✓		☒
B.	In new facilities only, life-support systems, alarms, emergency communication systems, and illumination of generator set locations are powered as prescribed by 18.5.1.2 and 18.5.1.3.			✓
C.	Heating and air conditioning systems conform with the air conditioning, heating, and ventilating systems requirements within Section 9.2, except for enclosure of vertical openings, which have been considered in Safety Parameter 7 of Worksheet 4.7.6.	✓		☒
D.	Fuel-burning space heaters and portable electrical space heaters are not used.	✓		☒
E.	There are no flue-fed incinerators.	✓		
F.	An evacuation plan is provided and fire drills conducted in accordance with 18.7.1/18.7.2 and 19.7.1/19.7.2.	✓		☒
G.	Smoking regulations have been adopted and implemented in accordance with 18.7.4 and 19.7.4.	✓		☒
H.	Combustibility of draperies, upholstered furniture, mattresses, furnishings, and decorations is limited in accordance with 18.7.5 and 19.7.5.	✓		
I.	Fire extinguishers are provided in accordance with the requirements of 18.3.5.11 and 19.3.5.11.	✓		☒
J.	Exit signs are provided in accordance with the requirements of 18.2.10.1 and 19.2.10.	✓		
K.	Emergency lighting is provided in accordance with 18.2.9.1 or 19.2.9.1.	✓		
L.	Standpipes are provided in all new high-rise buildings as required by 18.4.2.			✓

All references are to NFPA *101, Life Safety Code*.

WORKSHEET 4.7.11 CONCLUSIONS

1. ☑ All of the checks in Worksheet 4.7.9 are in the "Yes" column. The level of fire safety is at least equivalent to that prescribed by the *Life Safety Code*.*
2. ☐ One or more of the checks in Worksheet 4.7.9 are in the "No" column. The level of fire safety is not shown by this system to be equivalent to that prescribed by the *Life Safety Code*.*

* The equivalency covered by this worksheet includes the majority of considerations covered by the *Life Safety Code*. There are some considerations that are not evaluated by this method. These must be considered separately. These additional considerations are covered in Worksheet 4.7.10, the Facility Fire Safety Requirements Worksheet. One copy of this separate worksheet is to be completed for each facility.

(For use with NFPA 101A-2010/NFPA 101-2009) (p. 4 of 4)

FIGURE 4.7 *Continued*

WORKSHEET 4.7.1 COVER SHEET

Fire/Smoke Zone* Evaluation Worksheet for Health Care Facilities

Facility: Fairview University Transitional Services — Building: 01- Main Building
Zone(s) evaluated: Fourth Floor East — Zone 13 of 18
Evaluator: M. Thuringer, CHFM, CHC — Date: 10 /28/ 2016

Complete this worksheet for each zone. Where conditions are the same in several zones, one worksheet can be used for those zones.

*Fire/smoke zone is a space separated from all other spaces by floors, horizontal exits, or smoke barriers.

WORKSHEET 4.7.2 OCCUPANCY RISK PARAMETER FACTORS

Risk Parameters		Risk Factor Values				
1. Patient Mobility (*M*)	Mobility Status	Mobile	Limited Mobility	Not Mobile		Not Movable
	Risk Factor	1.0	1.6	**3.2**		4.5
2. Patient Density (*D*)	No. of Patients	1–5	6–10	11–30		>30
	Risk Factor	1.0	1.2	**1.5**		2.0
3. Zone Location (*L*)	Floor	1st	2nd or 3rd	4th to 6th	7th and Above	Basements
	Risk Factor	1.1	1.2	**1.4**	1.6	1.6
4. Ratio of Patients to Attendants (*T*)	Patients / Attendant	1–2 / 1	3–5 / 1	6–10 / 1	>10 / 1	One or More* / None
	Risk Factor	1.0	**1.1**	1.2	1.5	4.0
5. Patient Average Age (*A*)	Age	<65 Years and >1 Year		≥65 Years or ≤1 Year		
	Risk Factor	1.0		**1.2**		

*A risk factor of 4.0 is charged to any zone that houses patients without any staff in immediate attendance.

WORKSHEET 4.7.3 OCCUPANCY RISK FACTOR CALCULATION

	M		*D*		*L*		*T*		*A*		*F*
Occupancy Risk	3.2	×	1.5	×	1.4	×	1.1	×	1.2	=	8.9

WORKSHEET 4.7.4 ADJUSTED OCCUPANCY RISK FACTOR — NEW BUILDINGS

	F		*R*
1.0 ×		=	

WORKSHEET 4.7.5 ADJUSTED OCCUPANCY RISK FACTOR — EXISTING BUILDINGS

	F		*R*
0.6 ×	8.9	=	5.3

(For use with NFPA 101A-2010/NFPA *101*-2009) (p. 1 of 4)

FIGURE 4.7 Worksheets for Evaluating Fire/Smoke Zones.

WORKSHEET 4.7.6 SAFETY PARAMETER VALUES

Safety Parameters	Parameter Values						
1. Construction	Combustible Types III, IV, and V				Noncombustible Types I and II		
Floor or Zone	000	111	200	211, 2HH	000	111	222, 322, 442
First	−2	0	−2	0	0	2	2
Second	−7	−2	−4	−2	−2	2	4
Third	−9	−7	−9	−7	−7	2	4
4th and Above	−13	−7	−13	−7	−9	−7	4
2. Interior Finish (Corridors and Exits)	Class C	Class B	Class A				
	−5(0)[f]	0(3)[f]	3				
3. Interior Finish (Rooms)	Class C	Class B					
	−3(1)[f]	1(3)[f]	3				
4. Corridor Partitions/Walls	None or Incomplete	<½ hr	>½ hr to <1 hr	≥1 hr			
	−10(0)[a]	0	1(0)[a]	2(0)[a]			
5. Doors to Corridor	No Door	<20 min FPR	≥20 min FPR	≥20 min FPR and Auto Clos.			
	−10	0	1(0)[d]	2(0)[d]			
6. Zone Dimensions	Dead End			No Dead Ends >30 ft and Zone Length Is			
	>100 ft	>50 ft to 100 ft	30 ft to 50 ft	>150 ft	100 ft to 150 ft	<100 ft	
	−6(0)[b]	−4(0)[b]	−2(0)[b]	−2(0)[c](0)[h]	0(0)[h]	1	
7. Vertical Openings	Open 4 or More Floors	Open 2 or 3 Floors	Enclosed with Indicated Fire Resist.				
			<1 hr	≥1 hr to <2 hr	≥2 hr		
	−14	−10	0	2(0)[c]	3(0)[c]		
8. Hazardous Areas	Double Deficiency		Single Deficiency		No Deficiencies		
	In Zone	Outside Zone	In Zone	In Adjacent Zone			
	−11	−5	−6	−2	0		
9. Smoke Control	No Control	Smoke Barrier Serves Zone	Mech. Assisted Systems by Zone				
	−5(0)[c]	0	3				
10. Emergency Movement Routes	<2 Routes	Multiple Routes			Direct Exit(s)		
		Deficient	W/O Horizontal Exit(s)	Horizontal Exit(s)			
	−8	−2	0	1	5		
11. Manual Fire Alarm	No Manual Fire Alarm		Manual Fire Alarm				
			W/O F.D. Conn.	W/ F.D. Conn.			
	−4		1	2			
12. Smoke Detection and Alarm	None	Corridor Only	Rooms Only	Corridor and Habit. Spaces	Total Spaces in Zone		
	0(3)[g]	2(3)[g]	3(3)[g]	4	5		
13. Automatic Sprinklers	None	Corridor and Habit. Space	Entire Building				
	0	8	10				

[a] Use (0) where Parameter 5 is −10.

[b] Use (0) where Parameter 10 is −8.

[c] Use (0) on floor with fewer than 31 patients (existing buildings only).

[d] Use (0) where Parameter 4 is −10.

[e] Use (0) where Parameter 1 is based on first floor zone or on an unprotected type of construction (columns marked "000" or "200").

[f] Use ( ) if the area of Class B or C interior finish in the corridor and exit or room is protected by automatic sprinklers and Parameter 13 is 0; use ( ) if the room with existing Class C interior finish is protected by automatic sprinklers, Parameter 4 is greater than or equal to 1, and Parameter 13 is 0.

[g] Use this value in addition to Parameter 13 if the entire zone is protected with quick-response automatic sprinklers.

[h] Use (0) where zone area ≤22,500 ft² and distance from any point to reach a door in smoke barrier ≤200 ft.

For SI units, 1 ft = 0.3048 m; 1 ft² = 0.092 m².

(For use with NFPA 101A:2010/NFPA *101*-2009) (p. 2 of 4)

FIGURE 4.7 *Continued*

WORKSHEET 4.7.7 INDIVIDUAL SAFETY EVALUATIONS

Safety Parameters	Containment Safety (S_1)	Extinguishment Safety (S_2)	People Movement Safety (S_3)	General Safety (S_4)
1. Construction	4	4		4
2. Interior Finish (Corr. and Exit)	3		3	3
3. Interior Finish(Rooms)	3			3
4. Corridor Partitions/Walls	2			2
5. Doors to Corridor	1		1	1
6. Zone Dimensions			1	1
7. Vertical Openings	-10		-10	-10
8. Hazardous Areas	0	0		0
9. Smoke Control			0	0
10. Emergency Movement Routes			0	0
11. Manual Fire Alarm		2		2
12. Smoke Detection and Alarm		4	4	4
13. Automatic Sprinklers	10	10	10 ÷ 2 = 5	10
Total Value	S_1 = 13	S_2 = 20	S_3 = 4	S_4 = 20

WORKSHEET 4.7.8A MANDATORY SAFETY REQUIREMENTS — NEW HOSPITALS, EXISTING HOSPITALS, OR NEW NURSING HOMES

	Containment (S_a)		Extinguishment (S_b)		People Movement (S_c)	
Zone Location	New	Exist.	New	Exist.	New	Exist.
1st story	11	5	15(12)[a]	4	8(5)[a]	1
2nd or 3rd story[b]	15	9	17(14)[a]	6	10(7)[a]	3
4th story or higher but not high rise	18	9	19(16)[a]	6	11(8)[a]	3
High rise	18	17	19(16)[a]	16	11(8)[a]	7

[a] Use ( ) in zones that do not contain patient sleeping rooms.

[b] For a 2nd story zone location in a *sprinklered* EXISTING hospital, as an alternative to the mandatory safety requirement values set specified in the table, the following mandatory values set shall be permitted to be used: $S_a = 7$, $S_b = 10$, and $S_c = 7$.

WORKSHEET 4.7.8B MANDATORY SAFETY REQUIREMENTS — EXISTING NURSING HOMES

Zone Location	Containment (S_a)	Extinguishment (S_b)	People Movement (S_c)
1st story	0	10	0
2nd story	2	10	2
3rd story	6	14	6
4th story or higher	8	16	2

WORKSHEET 4.7.8C MANDATORY SAFETY REQUIREMENTS — MAJOR REHABILITATION IN NONSPRINKLERED EXISTING HOSPITALS

Zone Location	Containment (S_a)	Extinguishment (S_b)	People Movement (S_c)
1st story	13	17(14)*	8(5)*
2nd or 3rd story	17	19(16)*	10(7)*
4th story or higher	18	19(16)*	11(8)*

*Use ( ) in zones that do not contain patient sleeping rooms.

(For use with NFPA 101A-2010/NFPA 101-2009) (p. 3 of 4)

FIGURE 4.7 *Continued*

WORKSHEET 4.7.9 ZONE FIRE SAFETY EQUIVALENCY EVALUATION

									Yes	No
Containment Safety (S_1)	minus	Mandatory Containment (S_a)	≥	0	S_1 13	– S_a 8	= C 5		✓	
Extinguishment Safety (S_2)	minus	Mandatory Extinguishment (S_b)	>	0	S_2 20	– S_b 16	= E 4		✓	
People Movement Safety (S_3)	minus	Mandatory People Movement (S_c)	>	0	S_3 4	– S_c 2	= P 2		✓	
General Safety (S_4)	minus	Occupancy Risk (R)	≥	0	S_4 20	– R 5	= G 15		✓	

WORKSHEET 4.7.10 FACILITY FIRE SAFETY REQUIREMENTS WORKSHEET

Complete one copy of this worksheet for each facility.
For each consideration, select and mark the appropriate column.

		Met	Not Met	Not Applic.
A.	Building utilities conform to the requirements of Section 9.1.	✓		X
B.	In new facilities only, life-support systems, alarms, emergency communication systems, and illumination of generator set locations are powered as prescribed by 18.5.1.2 and 18.5.1.3.			✓
C.	Heating and air conditioning systems conform with the air conditioning, heating, and ventilating systems requirements within Section 9.2, except for enclosure of vertical openings, which have been considered in Safety Parameter 7 of Worksheet 4.7.6.	✓		X
D.	Fuel-burning space heaters and portable electrical space heaters are not used.	✓		X
E.	There are no flue-fed incinerators.	✓		
F.	An evacuation plan is provided and fire drills conducted in accordance with 18.7.1/18.7.2 and 19.7.1/19.7.2.	✓		X
G.	Smoking regulations have been adopted and implemented in accordance with 18.7.4 and 19.7.4.	✓		X
H.	Combustibility of draperies, upholstered furniture, mattresses, furnishings, and decorations is limited in accordance with 18.7.5 and 19.7.5.	✓		
I.	Fire extinguishers are provided in accordance with the requirements of 18.3.5.11 and 19.3.5.11.	✓		X
J.	Exit signs are provided in accordance with the requirements of 18.2.10.1 and 19.2.10.	✓		
K.	Emergency lighting is provided in accordance with 18.2.9.1 or 19.2.9.1.	✓		
L.	Standpipes are provided in all new high-rise buildings as required by 18.4.2.			✓

All references are to NFPA *101, Life Safety Code.*

WORKSHEET 4.7.11 CONCLUSIONS

1. ☑ All of the checks in Worksheet 4.7.9 are in the "Yes" column. The level of fire safety is at least equivalent to that prescribed by the *Life Safety Code.**
2. ☐ One or more of the checks in Worksheet 4.7.9 are in the "No" column. The level of fire safety is not shown by this system to be equivalent to that prescribed by the *Life Safety Code.**

* The equivalency covered by this worksheet includes the majority of considerations covered by the *Life Safety Code.* There are some considerations that are not evaluated by this method. These must be considered separately. These additional considerations are covered in Worksheet 4.7.10, the Facility Fire Safety Requirements Worksheet. One copy of this separate worksheet is to be completed for each facility.

(For use with NFPA 101A-2010/NFPA *101*-2009) (p. 4 of 4)

FIGURE 4.7 *Continued*

WORKSHEET 4.7.1 COVER SHEET

Fire/Smoke Zone* Evaluation Worksheet for Health Care Facilities

Facility Fairview University Transitional Services Building 01- Main Building
Zone(s) evaluated Fourth floor West Zone 14 of 18
Evaluator M. Thuringer, CHFM, CHC Date 10/28/2016

Complete this worksheet for each zone. Where conditions are the same in several zones, one worksheet can be used for those zones.

*Fire/smoke zone is a space separated from all other spaces by floors, horizontal exits, or smoke barriers.

WORKSHEET 4.7.2 OCCUPANCY RISK PARAMETER FACTORS

Risk Parameters		Risk Factor Values				
1. Patient Mobility (*M*)	Mobility Status	Mobile	Limited Mobility	Not Mobile	Not Movable	
	Risk Factor	1.0	1.6	**3.2**	4.5	
2. Patient Density (*D*)	No. of Patients	1–5	6–10	11–30	>30	
	Risk Factor	1.0	1.2	**1.5**	2.0	
3. Zone Location (*L*)	Floor	1st	2nd or 3rd	4th to 6th	7th and Above	Basements
	Risk Factor	1.1	1.2	**1.4**	1.6	1.6
4. Ratio of Patients to Attendants (*T*)	Patients / Attendant	1–2 / 1	3–5 / 1	6–10 / 1	>10 / 1	One or More* / None
	Risk Factor	1.0	**1.1**	1.2	1.5	4.0
5. Patient Average Age (*A*)	Age	<65 Years and >1 Year		≥65 Years or ≤1 Year		
	Risk Factor	1.0		**1.2**		

*A risk factor of 4.0 is charged to any zone that houses patients without any staff in immediate attendance.

WORKSHEET 4.7.3 OCCUPANCY RISK FACTOR CALCULATION

	M		*D*		*L*		*T*		*A*		*F*
Occupancy Risk	3.2	×	1.5	×	1.4	×	1.1	×	1.2	=	8.9

WORKSHEET 4.7.4 ADJUSTED OCCUPANCY RISK FACTOR — NEW BUILDINGS

	F		*R*
1.0 ×		=	

WORKSHEET 4.7.5 ADJUSTED OCCUPANCY RISK FACTOR — EXISTING BUILDINGS

	F		*R*
0.6 ×	8.9	=	5.3

(For use with NFPA 101A-2010/NFPA 101-2009) (p. 1 of 4)

FIGURE 4.7 Worksheets for Evaluating Fire/Smoke Zones.

WORKSHEET 4.7.6 SAFETY PARAMETER VALUES

Safety Parameters	Parameter Values						
1. Construction	Combustible Types III, IV, and V				Noncombustible Types I and II		
Floor or Zone	000	111	200	211, 2HH	000	111	222, 322, 442
First	−2	0	−2	0	0	2	2
Second	−7	−2	−4	−2	−2	2	4
Third	−9	−7	−9	−7	−7	2	4
4th and Above	−13	−7	−13	−7	−9	−7	4
2. Interior Finish (Corridors and Exits)	Class C	Class B	Class A				
	−5(0)[f]	0(3)[f]	3				
3. Interior Finish (Rooms)	Class C	Class B	Class A				
	−3(1)[f]	1(3)[f]	3				
4. Corridor Partitions/Walls	None or Incomplete	<½ hr	≥½ hr to <1 hr	≥1 hr			
	−10(0)[a]	0	1(0)[a]	2(0)[a]			
5. Doors to Corridor	No Door	<20 min FPR	≥20 min FPR	≥20 min FPR and Auto Clos.			
	−10	0	1(0)[d]	2(0)[d]			
6. Zone Dimensions	Dead End			No Dead Ends >30 ft and Zone Length Is			
	>100 ft	>50 ft to 100 ft	30 ft to 50 ft	>150 ft	100 ft to 150 ft	<100 ft	
	−6(0)[b]	−4(0)[b]	−2(0)[b]	−2(0)[c](0)[b]	0(0)[b]	1	
7. Vertical Openings	Open 4 or More Floors	Open 2 or 3 Floors	Enclosed with Indicated Fire Resist.				
			<1 hr	≥1 hr to <2 hr	≥2 hr		
	−14	−10	0	2(0)[e]	3(0)[e]		
8. Hazardous Areas	Double Deficiency		Single Deficiency		No Deficiencies		
	In Zone	Outside Zone	In Zone	In Adjacent Zone			
	−11	−5	−6	−2	0		
9. Smoke Control	No Control	Smoke Barrier Serves Zone	Mech. Assisted Systems by Zone				
	−5(0)[c]	0	3				
10. Emergency Movement Routes	<2 Routes	Multiple Routes			Direct Exit(s)		
		Deficient	W/O Horizontal Exit(s)	Horizontal Exit(s)			
	−8	−2	0	1	5		
11. Manual Fire Alarm	No Manual Fire Alarm	Manual Fire Alarm					
			W/O F.D. Conn.	W/ F.D. Conn.			
	−4		1	2			
12. Smoke Detection and Alarm	None	Corridor Only	Rooms Only	Corridor and Habit. Spaces	Total Spaces in Zone		
	0(3)[g]	2(3)[g]	3(3)[g]	4	5		
13. Automatic Sprinklers	None	Corridor and Habit. Space	Entire Building				
	0	8	10				

[a] Use (0) where Parameter 5 is −10.
[b] Use (0) where Parameter 10 is −8.
[c] Use (0) on floor with fewer than 31 patients (existing buildings only).
[d] Use (0) where Parameter 4 is −10.
[e] Use (0) where Parameter 1 is based on first floor zone or on an unprotected type of construction (columns marked "000" or "200").
[f] Use ( ) if the area of Class B or C interior finish in the corridor and exit or room is protected by automatic sprinklers and Parameter 13 is 0; use ( ) if the room with existing Class C interior finish is protected by automatic sprinklers, Parameter 4 is greater than or equal to 1, and Parameter 13 is 0.
[g] Use this value in addition to Parameter 13 if the entire zone is protected with quick-response automatic sprinklers.
[h] Use (0) where zone area ≤22,500 ft² and distance from any point to reach a door in smoke barrier ≤200 ft.

For SI units, 1 ft = 0.3048 m; 1 ft² = 0.092 m².

(For use with NFPA 101A-2010/NFPA *101*-2009) (p. 2 of 4)

FIGURE 4.7 *Continued*

WORKSHEET 4.7.7 INDIVIDUAL SAFETY EVALUATIONS

Safety Parameters	Containment Safety (S_1)	Extinguishment Safety (S_2)	People Movement Safety (S_3)	General Safety (S_4)
1. Construction	4	4		4
2. Interior Finish (Corr. and Exit)	3		3	3
3. Interior Finish(Rooms)	3			3
4. Corridor Partitions/Walls	2			2
5. Doors to Corridor	1		1	1
6. Zone Dimensions			0	0
7. Vertical Openings	-10		-10	-10
8. Hazardous Areas	0	0		0
9. Smoke Control			0	0
10. Emergency Movement Routes			0	0
11. Manual Fire Alarm		2		2
12. Smoke Detection and Alarm		4	4	4
13. Automatic Sprinklers	10	10	10 ÷ 2 = 5	10
Total Value	S_1 = 13	S_2 = 20	S_3 = 3	S_4 = 19

WORKSHEET 4.7.8A MANDATORY SAFETY REQUIREMENTS — NEW HOSPITALS, EXISTING HOSPITALS, OR NEW NURSING HOMES

	Containment (S_a)		Extinguishment (S_b)		People Movement (S_c)	
Zone Location	New	Exist.	New	Exist.	New	Exist.
1st story	11	5	15(12)[a]	4	8(5)[a]	1
2nd or 3rd story[b]	15	9	17(14)[a]	6	10(7)[a]	3
4th story or higher but not high rise	18	9	19(16)[a]	6	11(8)[a]	3
High rise	18	17	19(16)[a]	16	11(8)[a]	7

[a] Use ( ) in zones that do not contain patient sleeping rooms.

[b] For a 2nd story zone location in a *sprinklered* EXISTING hospital, as an alternative to the mandatory safety requirement values set specified in the table, the following mandatory values set shall be permitted to be used: $S_a = 7$, $S_b = 10$, and $S_c = 7$.

WORKSHEET 4.7.8B MANDATORY SAFETY REQUIREMENTS — EXISTING NURSING HOMES

Zone Location	Containment (S_a)	Extinguishment (S_b)	People Movement (S_c)
1st story	0	10	0
2nd story	2	10	2
3rd story	6	14	6
4th story or higher	8	16	2

WORKSHEET 4.7.8C MANDATORY SAFETY REQUIREMENTS — MAJOR REHABILITATION IN NONSPRINKLERED EXISTING HOSPITALS

Zone Location	Containment (S_a)	Extinguishment (S_b)	People Movement (S_c)
1st story	13	17(14)*	8(5)*
2nd or 3rd story	17	19(16)*	10(7)*
4th story or higher	18	19(16)*	11(8)*

*Use ( ) in zones that do not contain patient sleeping rooms.

(For use with NFPA 101A-2010/NFPA *101*-2009) (p. 3 of 4)

FIGURE 4.7 *Continued*

WORKSHEET 4.7.9 ZONE FIRE SAFETY EQUIVALENCY EVALUATION

									Yes	No
Containment Safety (S_1)	minus	Mandatory Containment (S_a)	≥	0	S_1 13	– S_a 8	= C 5		✓	
Extinguishment Safety (S_2)	minus	Mandatory Extinguishment (S_b)	≥	0	S_2 20	– S_b 16	= E 4		✓	
People Movement Safety (S_3)	minus	Mandatory People Movement (S_c)	≥	0	S_3 3	– S_c 2	= P 1		✓	
General Safety (S_4)	minus	Occupancy Risk (R)	≥	0	S_4 19	– R 5	= G 14		✓	

WORKSHEET 4.7.10 FACILITY FIRE SAFETY REQUIREMENTS WORKSHEET

Complete one copy of this worksheet for each facility.
For each consideration, select and mark the appropriate column.

		Met	Not Met	Not Applic.
A.	Building utilities conform to the requirements of Section 9.1.	✓		☒
B.	In new facilities only, life-support systems, alarms, emergency communication systems, and illumination of generator set locations are powered as prescribed by 18.5.1.2 and 18.5.1.3.			✓
C.	Heating and air conditioning systems conform with the air conditioning, heating, and ventilating systems requirements within Section 9.2, except for enclosure of vertical openings, which have been considered in Safety Parameter 7 of Worksheet 4.7.6.	✓		☒
D.	Fuel-burning space heaters and portable electrical space heaters are not used.	✓		☒
E.	There are no flue-fed incinerators.	✓		
F.	An evacuation plan is provided and fire drills conducted in accordance with 18.7.1/18.7.2 and 19.7.1/19.7.2.	✓		☒
G.	Smoking regulations have been adopted and implemented in accordance with 18.7.4 and 19.7.4.	✓		☒
H.	Combustibility of draperies, upholstered furniture, mattresses, furnishings, and decorations is limited in accordance with 18.7.5 and 19.7.5.	✓		
I.	Fire extinguishers are provided in accordance with the requirements of 18.3.5.11 and 19.3.5.11.	✓		☒
J.	Exit signs are provided in accordance with the requirements of 18.2.10.1 and 19.2.10.	✓		
K.	Emergency lighting is provided in accordance with 18.2.9.1 or 19.2.9.1.	✓		
L.	Standpipes are provided in all new high-rise buildings as required by 18.4.2.			✓

All references are to NFPA *101, Life Safety Code*.

WORKSHEET 4.7.11 CONCLUSIONS

1. ☑ All of the checks in Worksheet 4.7.9 are in the "Yes" column. The level of fire safety is at least equivalent to that prescribed by the *Life Safety Code*.*
2. ☐ One or more of the checks in Worksheet 4.7.9 are in the "No" column. The level of fire safety is not shown by this system to be equivalent to that prescribed by the *Life Safety Code*.*

* The equivalency covered by this worksheet includes the majority of considerations covered by the *Life Safety Code*. There are some considerations that are not evaluated by this method. These must be considered separately. These additional considerations are covered in Worksheet 4.7.10, the Facility Fire Safety Requirements Worksheet. One copy of this separate worksheet is to be completed for each facility.

(For use with NFPA 101A-2010/NFPA *101*-2009) (p. 4 of 4)

FIGURE 4.7 *Continued*

WORKSHEET 4.7.1 COVER SHEET

Fire/Smoke Zone* Evaluation Worksheet for Health Care Facilities

Facility: Fairview University Transitional Services — Building: 01- Main Building
Zone(s) evaluated: Fifth Floor North — Zone15 of 18
Evaluator: M. Thuringer, CHFM, CHC — Date: 10/28/2016

Complete this worksheet for each zone. Where conditions are the same in several zones, one worksheet can be used for those zones.

*Fire/smoke zone is a space separated from all other spaces by floors, horizontal exits, or smoke barriers.

WORKSHEET 4.7.2 OCCUPANCY RISK PARAMETER FACTORS

Risk Parameters		Risk Factor Values				
1. Patient Mobility (*M*)	Mobility Status	Mobile	Limited Mobility	Not Mobile		Not Movable
	Risk Factor	1.0	1.6	**3.2**		4.5
2. Patient Density (*D*)	No. of Patients	1–5	6–10	11–30		>30
	Risk Factor	1.0	**1.2**	1.5		2.0
3. Zone Location (*L*)	Floor	1st	2nd or 3rd	4th to 6th	7th and Above	Basements
	Risk Factor	1.1	1.2	**1.4**	1.6	1.6
4. Ratio of Patients to Attendants (*T*)	Patients / Attendant	1–2 / 1	3–5 / 1	6–10 / 1	>10 / 1	One or More* / None
	Risk Factor	1.0	**1.1**	1.2	1.5	4.0
5. Patient Average Age (*A*)	Age	<65 Years and >1 Year		≥65 Years or ≤1 Year		
	Risk Factor	1.0		**1.2**		

*A risk factor of 4.0 is charged to any zone that houses patients without any staff in immediate attendance.

WORKSHEET 4.7.3 OCCUPANCY RISK FACTOR CALCULATION

	M		*D*		*L*		*T*		*A*		*F*
Occupancy Risk	3.2	×	1.2	×	1.4	×	1.1	×	1.2	=	7.1

WORKSHEET 4.7.4 ADJUSTED OCCUPANCY RISK FACTOR — NEW BUILDINGS

	F		*R*
1.0 ×		=	

WORKSHEET 4.7.5 ADJUSTED OCCUPANCY RISK FACTOR — EXISTING BUILDINGS

	F		*R*
0.6 ×	7.1	=	4.3

(For use with NFPA 101A-2010/NFPA 101-2009) (p. 1 of 4)

FIGURE 4.7 Worksheets for Evaluating Fire/Smoke Zones.

WORKSHEET 4.7.6 SAFETY PARAMETER VALUES

Safety Parameters	Parameter Values						
1. Construction	Combustible Types III, IV, and V				Noncombustible Types I and II		
Floor or Zone	000	111	200	211, 2HH	000	111	222, 322, 442
First	−2	0	−2	0	0	2	2
Second	−7	−2	−4	−2	−2	2	4
Third	−9	−7	−9	−7	−7	2	4
4th and Above	−13	−7	−13	−7	−9	−7	4
2. Interior Finish (Corridors and Exits)	Class C	Class B	Class A				
	−5(0)[f]	0(3)[f]	3				
3. Interior Finish (Rooms)	Class C	Class B	Class A				
	−3(1)[f]	1(3)[f]	3				
4. Corridor Partitions/Walls	None or Incomplete	<½ hr	≥½ hr to <1 hr	≥1 hr			
	−10(0)[a]	0	1(0)[a]	2(0)[a]			
5. Doors to Corridor	No Door	<20 min FPR	≥20 min FPR	≥20 min FPR and Auto Clos.			
	−10	0	1(0)[d]	2(0)[d]			
6. Zone Dimensions	Dead End			No Dead Ends >30 ft and Zone Length Is			
	>100 ft	>50 ft to 100 ft	30 ft to 50 ft	>150 ft	100 ft to 150 ft	<100 ft	
	−6(0)[b]	−4(0)[b]	−2(0)[b]	−2(0)[c](0)[h]	0(0)[h]	1	
7. Vertical Openings	Open 4 or More Floors	Open 2 or 3 Floors	Enclosed with Indicated Fire Resist.				
			<1 hr	≥1 hr to <2 hr	≥2 hr		
	−14	−10	0	2(0)[e]	3(0)[e]		
8. Hazardous Areas	Double Deficiency		Single Deficiency		No Deficiencies		
	In Zone	Outside Zone	In Zone	In Adjacent Zone			
	−11	−5	−6	−2	0		
9. Smoke Control	No Control	Smoke Barrier Serves Zone	Mech. Assisted Systems by Zone				
	−5(0)[c]	0	3				
10. Emergency Movement Routes	<2 Routes	Multiple Routes			Direct Exit(s)		
		Deficient	W/O Horizontal Exit(s)	Horizontal Exit(s)			
	−8	−2	0	1	5		
11. Manual Fire Alarm	No Manual Fire Alarm	Manual Fire Alarm					
			W/O F.D. Conn.	W/ F.D. Conn.			
	−4		1	2			
12. Smoke Detection and Alarm	None	Corridor Only	Rooms Only	Corridor and Habit. Spaces	Total Spaces in Zone		
	0(3)[g]	2(3)[g]	3(3)[g]	4	5		
13. Automatic Sprinklers	None	Corridor and Habit. Space	Entire Building				
	0	8	10				

[a] Use (0) where Parameter 5 is −10.
[b] Use (0) where Parameter 10 is −8.
[c] Use (0) on floor with fewer than 31 patients (existing buildings only).
[d] Use (0) where Parameter 4 is −10.
[e] Use (0) where Parameter 1 is based on first-floor zone or on an unprotected type of construction (columns marked "000" or "200").
[f] Use ( ) if the area of Class B or C interior finish in the corridor and exit or room is protected by automatic sprinklers and Parameter 13 is 0; use ( ) if the room with existing Class C interior finish is protected by automatic sprinklers, Parameter 4 is greater than or equal to 1, and Parameter 13 is 0.
[g] Use this value in addition to Parameter 13 if the entire zone is protected with quick-response automatic sprinklers.
[h] Use (0) where zone area ≤22,500 ft² and distance from any point to reach a door in smoke barrier ≤200 ft.

For SI units, 1 ft = 0.3048 m; 1 ft² = 0.092 m².

(For use with NFPA 101A-2010/NFPA *101*-2009) (p. 2 of 4)

FIGURE 4.7 *Continued*

WORKSHEET 4.7.7 INDIVIDUAL SAFETY EVALUATIONS

Safety Parameters	Containment Safety (S_1)	Extinguishment Safety (S_2)	People Movement Safety (S_3)	General Safety (S_4)
1. Construction	4	4		4
2. Interior Finish (Corr. and Exit)	3		3	3
3. Interior Finish(Rooms)	3			3
4. Corridor Partitions/Walls	2			2
5. Doors to Corridor	1		1	1
6. Zone Dimensions			0	0
7. Vertical Openings	-10		-10	-10
8. Hazardous Areas	0	0		0
9. Smoke Control			0	0
10. Emergency Movement Routes			0	0
11. Manual Fire Alarm		2		2
12. Smoke Detection and Alarm		4	4	4
13. Automatic Sprinklers	10	10	10 ÷ 2 = 5	10
Total Value	S_1 = 13	S_2 = 20	S_3 = 3	S_4 = 19

WORKSHEET 4.7.8A MANDATORY SAFETY REQUIREMENTS — NEW HOSPITALS, EXISTING HOSPITALS, OR NEW NURSING HOMES

	Containment (S_a)		Extinguishment (S_b)		People Movement (S_c)	
Zone Location	New	Exist.	New	Exist.	New	Exist.
1st story	11	5	15(12)[a]	4	8(5)[a]	1
2nd or 3rd story[b]	15	9	17(14)[a]	6	10(7)[a]	3
4th story or higher but not high rise	18	9	19(16)[a]	6	11(8)[a]	3
High rise	18	17	19(16)[a]	16	11(8)[a]	7

[a] Use ( ) in zones that do not contain patient sleeping rooms.

[b] For a 2nd story zone location in a *sprinklered* EXISTING hospital, as an alternative to the mandatory safety requirement values set specified in the table, the following mandatory values set shall be permitted to be used: $S_a = 7$, $S_b = 10$, and $S_c = 7$.

WORKSHEET 4.7.8B MANDATORY SAFETY REQUIREMENTS — EXISTING NURSING HOMES

Zone Location	Containment (S_a)	Extinguishment (S_b)	People Movement (S_c)
1st story	0	10	0
2nd story	2	10	2
3rd story	6	14	3
4th story or higher	8	16	2

WORKSHEET 4.7.8C MANDATORY SAFETY REQUIREMENTS — MAJOR REHABILITATION IN NONSPRINKLERED EXISTING HOSPITALS

Zone Location	Containment (S_a)	Extinguishment (S_b)	People Movement (S_c)
1st story	13	17(14)*	8(5)*
2nd or 3rd story	17	19(16)*	10(7)*
4th story or higher	18	19(16)*	11(8)*

*Use ( ) in zones that do not contain patient sleeping rooms.

(For use with NFPA 101A-2010/NFPA *101*-2009) (p. 3 of 4)

FIGURE 4.7 *Continued*

WORKSHEET 4.7.9 ZONE FIRE SAFETY EQUIVALENCY EVALUATION

									Yes	No
Containment Safety (S_1)	minus	Mandatory Containment (S_c)	≥	0	S_1 13	–	S_c 8	= C 5	✓	
Extinguishment Safety (S_2)	minus	Mandatory Extinguishment (S_b)	≥	0	S_2 20	–	S_b 16	= E 4	✓	
People Movement Safety (S_3)	minus	Mandatory People Movement (S_c)	≥	0	S_3 3	–	S_c 2	= P 1	✓	
General Safety (S_4)	minus	Occupancy Risk (R)	≥	0	S_4 19	–	R 4	= G 15	✓	

WORKSHEET 4.7.10 FACILITY FIRE SAFETY REQUIREMENTS WORKSHEET

Complete one copy of this worksheet for each facility.
For each consideration, select and mark the appropriate column.

		Met	Not Met	Not Applic.
A.	Building utilities conform to the requirements of Section 9.1.	✓		☒
B.	In new facilities only, life-support systems, alarms, emergency communication systems, and illumination of generator set locations are powered as prescribed by 18.5.1.2 and 18.5.1.3.			✓
C.	Heating and air conditioning systems conform with the air conditioning, heating, and ventilating systems requirements within Section 9.2, except for enclosure of vertical openings, which have been considered in Safety Parameter 7 of Worksheet 4.7.6.	✓		☒
D.	Fuel-burning space heaters and portable electrical space heaters are not used.	✓		☒
E.	There are no flue-fed incinerators.	✓		
F.	An evacuation plan is provided and fire drills conducted in accordance with 18.7.1/18.7.2 and 19.7.1/19.7.2.	✓		☒
G.	Smoking regulations have been adopted and implemented in accordance with 18.7.4 and 19.7.4.	✓		☒
H.	Combustibility of draperies, upholstered furniture, mattresses, furnishings, and decorations is limited in accordance with 18.7.5 and 19.7.5.	✓		
I.	Fire extinguishers are provided in accordance with the requirements of 18.3.5.11 and 19.3.5.11.	✓		☒
J.	Exit signs are provided in accordance with the requirements of 18.2.10.1 and 19.2.10.	✓		
K.	Emergency lighting is provided in accordance with 18.2.9.1 or 19.2.9.1.	✓		
L.	Standpipes are provided in all new high-rise buildings as required by 18.4.2.			✓

All references are to NFPA *101, Life Safety Code*.

WORKSHEET 4.7.11 CONCLUSIONS

1. ☑ All of the checks in Worksheet 4.7.9 are in the "Yes" column. The level of fire safety is at least equivalent to that prescribed by the *Life Safety Code*.*
2. ☐ One or more of the checks in Worksheet 4.7.9 are in the "No" column. The level of fire safety is not shown by this system to be equivalent to that prescribed by the *Life Safety Code*.*

* The equivalency covered by this worksheet includes the majority of considerations covered by the *Life Safety Code*. There are some considerations that are not evaluated by this method. These must be considered separately. These additional considerations are covered in Worksheet 4.7.10, the Facility Fire Safety Requirements Worksheet. One copy of this separate worksheet is to be completed for each facility.

(For use with NFPA 101A-2010/NFPA 101-2009) (p. 4 of 4)

FIGURE 4.7 *Continued*

WORKSHEET 4.7.1 COVER SHEET

Fire/Smoke Zone* Evaluation Worksheet for Health Care Facilities

Facility: Fairview University Transitional Services — Building: 01- Main Building

Zone(s) evaluated: Fifth Floor South — Zone 16 of 18

Evaluator: M. Thuringer, CHFM, CHC — Date: 10/28/2016

Complete this worksheet for each zone. Where conditions are the same in several zones, one worksheet can be used for those zones.

*Fire/smoke zone is a space separated from all other spaces by floors, horizontal exits, or smoke barriers.

WORKSHEET 4.7.2 OCCUPANCY RISK PARAMETER FACTORS

Risk Parameters	Risk Factor Values					
1. Patient Mobility (*M*)	Mobility Status	Mobile	Limited Mobility	Not Mobile	Not Movable	
	Risk Factor	1.0	**1.6**	3.2	4.5	
2. Patient Density (*D*)	No. of Patients	1–5	6–10	11–30	>30	
	Risk Factor	1.0	**1.2**	1.5	2.0	
3. Zone Location (*L*)	Floor	1st	2nd or 3rd	4th to 6th	7th and Above	Basements
	Risk Factor	1.1	1.2	**1.4**	1.6	1.6
4. Ratio of Patients to Attendants (*T*)	Patients / Attendant	1–2 / 1	3–5 / 1	6–10 / 1	>10 / 1	One or More* / None
	Risk Factor	**1.0**	1.1	1.2	1.5	4.0
5. Patient Average Age (*A*)	Age	<65 Years and >1 Year		≥65 Years or ≤1 Year		
	Risk Factor	1.0		**1.2**		

*A risk factor of 4.0 is charged to any zone that houses patients without any staff in immediate attendance.

WORKSHEET 4.7.3 OCCUPANCY RISK FACTOR CALCULATION

Occupancy Risk	*M*	×	*D*	×	*L*	×	*T*	×	*A*	=	*F*
	1.6		1.2		1.4		1.0		1.2		3.2

WORKSHEET 4.7.4 ADJUSTED OCCUPANCY RISK FACTOR — NEW BUILDINGS

	F		*R*
1.0 ×		=	

WORKSHEET 4.7.5 ADJUSTED OCCUPANCY RISK FACTOR — EXISTING BUILDINGS

	F		*R*
0.5 ×	3.2	=	1.9

(For use with NFPA 101A-2010/NFPA 101-2009) (p. 1 of 4)

FIGURE 4.7 Worksheets for Evaluating Fire/Smoke Zones.

WORKSHEET 4.7.6 SAFETY PARAMETER VALUES

Safety Parameters	Parameter Values						
1. Construction	Combustible Types III, IV, and V				Noncombustible Types I and II		
Floor or Zone	000	111	200	211, 2HH	000	111	222, 322, 442
First	−2	0	−2	0	0	2	2
Second	−7	−2	−4	−2	−2	2	4
Third	−9	−7	−9	−7	−7	2	4
4th and Above	−13	−7	−13	−7	−9	−7	4
2. Interior Finish (Corridors and Exits)	Class C	Class B	Class A				
	−5(0)[f]	0(3)[f]	3				
3. Interior Finish (Rooms)	Class C	Class B	Class A				
	−3(1)[f]	1(3)[f]	3				
4. Corridor Partitions/Walls	None or Incomplete	< ½ hr	≥½ hr to < 1 hr	≥1 hr			
	−10(0)[a]	0	1(0)[a]	2(0)[a]			
5. Doors to Corridor	No Door	<20 min FPR	≥20 min FPR	≥20 min FPR and Auto Clos.			
	−10	0	1(0)[d]	2(0)[d]			
6. Zone Dimensions	Dead End			No Dead Ends >30 ft and Zone Length Is			
	>100 ft	>50 ft to 100 ft	30 ft to 50 ft	>150 ft	100 ft to 150 ft	≤100 ft	
	−6(0)[b]	−4(0)[b]	−2(0)[b]	−2(0)[c](0)[h]	0(0)[h]	1	
7. Vertical Openings	Open 4 or More Floors	Open 2 or 3 Floors	Enclosed with Indicated Fire Resist.				
			<1 hr	≥1 hr to <2 hr	≥2 hr		
	−14	−10	0	2(0)[c]	3(0)[c]		
8. Hazardous Areas	Double Deficiency		Single Deficiency		No Deficiencies		
	In Zone	Outside Zone	In Zone	In Adjacent Zone			
	−11	−5	−6	−2	0		
9. Smoke Control	No Control	Smoke Barrier Serves Zone	Mech. Assisted Systems by Zone				
	−5(0)[c]	0	3				
10. Emergency Movement Routes	<2 Routes	Multiple Routes			Direct Exit(s)		
		Deficient	W/O Horizontal Exit(s)	Horizontal Exit(s)			
	−8	−2	0	1	5		
11. Manual Fire Alarm	No Manual Fire Alarm		Manual Fire Alarm				
	−4		W/O F.D. Conn.	W/ F.D. Conn.			
			1	2			
12. Smoke Detection and Alarm	None	Corridor Only	Rooms Only	Corridor and Habit. Spaces	Total Spaces in Zone		
	0(3)[g]	2(3)[g]	3(3)[g]	4	5		
13. Automatic Sprinklers	None	Corridor and Habit. Space	Entire Building				
	0	8	10				

[a] Use (0) where Parameter 5 is −10.
[b] Use (0) where Parameter 10 is −8.
[c] Use (0) on floor with fewer than 31 patients (existing buildings only).
[d] Use (0) where Parameter 4 is −10.
[e] Use (0) where Parameter 1 is based on first floor zone or on an unprotected type of construction (columns marked "000" or "200").
[f] Use ( ) if the area of Class B or C interior finish in the corridor and exit or room is protected by automatic sprinklers and Parameter 13 is 0; use ( ) if the room with existing Class C interior finish is protected by automatic sprinklers, Parameter 4 is greater than or equal to 1, and Parameter 13 is 0.
[g] Use this value in addition to Parameter 13 if the entire zone is protected with quick-response automatic sprinklers.
[h] Use (0) where zone area ≤22,500 ft² and distance from any point to reach a door in smoke barrier ≤200 ft.

For SI units, 1 ft = 0.3048 m; 1 ft² = 0.092 m².

(For use with NFPA 101A-2010/NFPA *101*-2009) (p. 2 of 4)

FIGURE 4.7 ***Continued***

WORKSHEET 4.7.7 INDIVIDUAL SAFETY EVALUATIONS

Safety Parameters	Containment Safety (S_1)	Extinguishment Safety (S_2)	People Movement Safety (S_3)	General Safety (S_4)
1. Construction	4	4		4
2. Interior Finish (Corr. and Exit)	3		3	3
3. Interior Finish(Rooms)	3			3
4. Corridor Partitions/Walls	2			2
5. Doors to Corridor	1		1	1
6. Zone Dimensions			1	1
7. Vertical Openings	-10		-10	-10
8. Hazardous Areas	0	0		0
9. Smoke Control			0	0
10. Emergency Movement Routes			0	0
11. Manual Fire Alarm		2		2
12. Smoke Detection and Alarm		4	4	4
13. Automatic Sprinklers	10	10	10 ÷ 2 = 5	10
Total Value	$S_1 = 13$	$S_2 = 20$	$S_3 = 4$	$S_4 = 20$

WORKSHEET 4.7.8A MANDATORY SAFETY REQUIREMENTS — NEW HOSPITALS, EXISTING HOSPITALS, OR NEW NURSING HOMES

	Containment (S_a)		Extinguishment (S_b)		People Movement (S_c)	
Zone Location	New	Exist.	New	Exist.	New	Exist.
1st story	11	5	15(12)[a]	4	8(5)[a]	1
2nd or 3rd story[b]	15	9	17(14)[a]	6	10(7)[a]	3
4th story or higher but not high rise	18	9	19(16)[a]	6	11(8)[a]	3
High rise	18	17	19(16)[a]	16	11(8)[a]	7

[a] Use ( ) in zones that do not contain patient sleeping rooms.

[b] For a 2nd story zone location in a *sprinklered* EXISTING hospital, as an alternative to the mandatory safety requirement values set specified in the table, the following mandatory values set shall be permitted to be used: $S_a = 7$, $S_b = 10$, and $S_c = 7$.

WORKSHEET 4.7.8B MANDATORY SAFETY REQUIREMENTS — EXISTING NURSING HOMES

Zone Location	Containment (S_a)	Extinguishment (S_b)	People Movement (S_c)
1st story	0	10	0
2nd story	2	10	2
3rd story	6	14	6
4th story or higher	8	16	2

WORKSHEET 4.7.8C MANDATORY SAFETY REQUIREMENTS — MAJOR REHABILITATION IN NONSPRINKLERED EXISTING HOSPITALS

Zone Location	Containment (S_a)	Extinguishment (S_b)	People Movement (S_c)
1st story	13	17(14)*	8(5)*
2nd or 3rd story	17	19(16)*	10(7)*
4th story or higher	18	19(16)*	11(8)*

*Use ( ) in zones that do not contain patient sleeping rooms.

(For use with NFPA 101A-2010/NFPA *101*-2009) (p. 3 of 4)

FIGURE 4.7 *Continued*

WORKSHEET 4.7.9 ZONE FIRE SAFETY EQUIVALENCY EVALUATION

									Yes	No
Containment Safety (S_1)	minus	Mandatory Containment (S_a)	≥	0	S_1 13	– S_a 8	= C 5		✓	
Extinguishment Safety (S_2)	minus	Mandatory Extinguishment (S_b)	≥	0	S_2 20	– S_b 16	= E 4		✓	
People Movement Safety (S_3)	minus	Mandatory People Movement (S_c)	>	0	S_3 4	– S_c 2	= P 2		✓	
General Safety (S_4)	minus	Occupancy Risk (R)	≥	0	S_4 20	– R 2	= G 18		✓	

WORKSHEET 4.7.10 FACILITY FIRE SAFETY REQUIREMENTS WORKSHEET

Complete one copy of this worksheet for each facility.
For each consideration, select and mark the appropriate column.

		Met	Not Met	Not Applic.
A.	Building utilities conform to the requirements of Section 9.1.	✓		X
B.	In new facilities only, life-support systems, alarms, emergency communication systems, and illumination of generator set locations are powered as prescribed by 18.5.1.2 and 18.5.1.3.			✓
C.	Heating and air conditioning systems conform with the air conditioning, heating, and ventilating systems requirements within Section 9.2, except for enclosure of vertical openings, which have been considered in Safety Parameter 7 of Worksheet 4.7.6.	✓		X
D.	Fuel-burning space heaters and portable electrical space heaters are not used.	✓		X
E.	There are no flue-fed incinerators.	✓		
F.	An evacuation plan is provided and fire drills conducted in accordance with 18.7.1/18.7.2 and 19.7.1/19.7.2.	✓		X
G.	Smoking regulations have been adopted and implemented in accordance with 18.7.4 and 19.7.4.	✓		X
H.	Combustibility of draperies, upholstered furniture, mattresses, furnishings, and decorations is limited in accordance with 18.7.5 and 19.7.5.	✓		
I.	Fire extinguishers are provided in accordance with the requirements of 18.3.5.11 and 19.3.5.11.	✓		X
J.	Exit signs are provided in accordance with the requirements of 18.2.10.1 and 19.2.10.	✓		
K.	Emergency lighting is provided in accordance with 18.2.9.1 or 19.2.9.1.	✓		
L.	Standpipes are provided in all new high-rise buildings as required by 18.4.2.			✓

All references are to NFPA *101, Life Safety Code*.

WORKSHEET 4.7.11 CONCLUSIONS

1. ☑ All of the checks in Worksheet 4.7.9 are in the "Yes" column. The level of fire safety is at least equivalent to that prescribed by the *Life Safety Code*.*
2. ☐ One or more of the checks in Worksheet 4.7.9 are in the "No" column. The level of fire safety is not shown by this system to be equivalent to that prescribed by the *Life Safety Code*.*

* The equivalency covered by this worksheet includes the majority of considerations covered by the *Life Safety Code*. There are some considerations that are not evaluated by this method. These must be considered separately. These additional considerations are covered in Worksheet 4.7.10, the Facility Fire Safety Requirements Worksheet. One copy of this separate worksheet is to be completed for each facility.

(For use with NFPA 101A-2010/NFPA *101*-2009) (p. 4 of 4)

FIGURE 4.7 *Continued*

WORKSHEET 4.7.1 COVER SHEET

Fire/Smoke Zone* Evaluation Worksheet for Health Care Facilities

Facility: Fairview University Transitional Services Building: 01- Main Building
Zone(s) evaluated: Fifth Floor East Zone 17 of 18
Evaluator: M. Thuringer, CHFM, CHC Date: 10/ 28/ 2016

Complete this worksheet for each zone. Where conditions are the same in several zones, one worksheet can be used for those zones.

*Fire/smoke zone is a space separated from all other spaces by floors, horizontal exits, or smoke barriers.

WORKSHEET 4.7.2 OCCUPANCY RISK PARAMETER FACTORS

Risk Parameters	Risk Factor Values					
1. Patient Mobility (*M*)	Mobility Status	Mobile	Limited Mobility	Not Mobile	Not Movable	
	Risk Factor	1.0	**1.6**	3.2	4.5	
2. Patient Density (*D*)	No. of Patients	1–5	6–10	11–30	>30	
	Risk Factor	1.0	**1.2**	1.5	2.0	
3. Zone Location (*L*)	Floor	1st	2nd or 3rd	4th to 6th	7th and Above	Basements
	Risk Factor	1.1	1.2	**1.4**	1.6	1.6
4. Ratio of Patients to Attendants (*T*)	Patients / Attendant	1–2 / 1	3–5 / 1	6–10 / 1	≥10 / 1	One or More* / None
	Risk Factor	**1.0**	1.1	1.2	1.5	4.0
5. Patient Average Age (*A*)	Age	<65 Years and >1 Year		≥65 Years or ≤1 Year		
	Risk Factor	1.0		**1.2**		

*A risk factor of 4.0 is charged to any zone that houses patients without any staff in immediate attendance.

WORKSHEET 4.7.3 OCCUPANCY RISK FACTOR CALCULATION

	M		*D*		*L*		*T*		*A*		*F*
Occupancy Risk	1.6	×	1.2	×	1.4	×	1.0	×	1.2	=	3.2

WORKSHEET 4.7.4 ADJUSTED OCCUPANCY RISK FACTOR — NEW BUILDINGS

	F		*R*
1.0 ×		=	

WORKSHEET 4.7.5 ADJUSTED OCCUPANCY RISK FACTOR — EXISTING BUILDINGS

	F		*R*
0.6 ×	3.2	=	1.9

(For use with NFPA 101A-2010/NFPA *101*-2009) (p. 1 of 4)

FIGURE 4.7 Worksheets for Evaluating Fire/Smoke Zones.

WORKSHEET 4.7.6 SAFETY PARAMETER VALUES

Safety Parameters	Parameter Values						
1. Construction	Combustible Types III, IV, and V				Noncombustible Types I and II		
Floor or Zone	000	111	200	211, 2HH	000	111	222, 322, 442
First	−2	0	−2	0	0	2	2
Second	−7	−2	−4	−2	−2	2	4
Third	−9	−7	−9	−7	−7	2	4
4th and Above	−13	−7	−13	−7	−9	−7	4
2. Interior Finish (Corridors and Exits)	Class C	Class B	Class A				
	−5(0)[f]	0(3)[f]	3				
3. Interior Finish (Rooms)	Class C	Class B	Class A				
	−3(1)[f]	1(3)[f]	3				
4. Corridor Partitions/Walls	None or Incomplete	<½ hr	≥½ hr to <1 hr	≥1 hr			
	−10(0)[g]	0	1(0)[g]	2(0)[g]			
5. Doors to Corridor	No Door	<20 min FPR	≥20 min FPR	≥20 min FPR and Auto Clos.			
	−10	0	1(0)[d]	2(0)[d]			
6. Zone Dimensions	Dead End			No Dead Ends >30 ft and Zone Length Is			
	>100 ft	>50 ft to 100 ft	30 ft to 50 ft	>150 ft	100 ft to 150 ft	≤100 ft	
	−6(0)[b]	−4(0)[b]	−2(0)[b]	−2(0)[c](0)[h]	0(0)[h]	1	
7. Vertical Openings	Open 4 or More Floors	Open 2 or 3 Floors	Enclosed with Indicated Fire Resist.				
			<1 hr	≥1 hr to <2 hr	≥2 hr		
	−14	−10	0	2(0)[e]	3(0)[e]		
8. Hazardous Areas	Double Deficiency		Single Deficiency		No Deficiencies		
	In Zone	Outside Zone	In Zone	In Adjacent Zone			
	−11	−5	−6	−2	0		
9. Smoke Control	No Control	Smoke Barrier Serves Zone	Mech. Assisted Systems by Zone				
	−5(0)[c]	0	3				
10. Emergency Movement Routes	<2 Routes	Multiple Routes			Direct Exit(s)		
		Deficient	W/O Horizontal Exit(s)	Horizontal Exit(s)			
	−8	−2	0	1	5		
11. Manual Fire Alarm	No Manual Fire Alarm		Manual Fire Alarm				
	−4		W/O F.D. Conn.	W/F.D. Conn.			
			1	2			
12. Smoke Detection and Alarm	None	Corridor Only	Rooms Only	Corridor and Habit. Spaces	Total Spaces in Zone		
	0(3)[g]	2(3)[g]	3(3)[g]	4	5		
13. Automatic Sprinklers	None	Corridor and Habit. Space	Entire Building				
	0	8	10				

[a] Use (0) where Parameter 5 is −10.

[b] Use (0) where Parameter 10 is −8.

[c] Use (0) on floor with fewer than 31 patients (existing buildings only).

[d] Use (0) where Parameter 4 is −10.

[e] Use (0) where Parameter 1 is based on first floor zone or on an unprotected type of construction (columns marked "000" or "200").

[f] Use ( ) if the area of Class B or C interior finish in the corridor and exit or room is protected by automatic sprinklers and Parameter 13 is 0; use ( ) if the room with existing Class C interior finish is protected by automatic sprinklers, Parameter 4 is greater than or equal to 1, and Parameter 13 is 0.

[g] Use this value in addition to Parameter 13 if the entire zone is protected with quick-response automatic sprinklers.

[h] Use (0) where zone area ≤22,500 ft² and distance from any point to reach a door in smoke barrier ≤200 ft.

For SI units, 1 ft = 0.3048 m; 1 ft² = 0.092 m².

(For use with NFPA 101A-2010/NFPA *101*-2009) (p. 2 of 4)

FIGURE 4.7 *Continued*

WORKSHEET 4.7.7 INDIVIDUAL SAFETY EVALUATIONS

Safety Parameters	Containment Safety (S_1)	Extinguishment Safety (S_2)	People Movement Safety (S_3)	General Safety (S_4)
1. Construction	4	4		4
2. Interior Finish (Corr. and Exit)	3		3	3
3. Interior Finish(Rooms)	3			3
4. Corridor Partitions/Walls	2			2
5. Doors to Corridor	1		1	1
6. Zone Dimensions			1	1
7. Vertical Openings	-10		-10	-10
8. Hazardous Areas	0	0		0
9. Smoke Control			0	0
10. Emergency Movement Routes			0	0
11. Manual Fire Alarm		2		2
12. Smoke Detection and Alarm		4	4	4
13. Automatic Sprinklers	10	10	10 ÷ 2 = 5	10
Total Value	S_1 = 13	S_2 = 20	S_3 = 4	S_4 = 20

WORKSHEET 4.7.8A MANDATORY SAFETY REQUIREMENTS — NEW HOSPITALS, EXISTING HOSPITALS, OR NEW NURSING HOMES

	Containment (S_a)		Extinguishment (S_b)		People Movement (S_c)	
Zone Location	New	Exist.	New	Exist.	New	Exist.
1st story	11	5	15(12)[a]	4	8(5)[a]	1
2nd or 3rd story[b]	15	9	17(14)[a]	6	10(7)[a]	3
4th story or higher but not high rise	18	9	19(16)[a]	6	11(8)[a]	3
High rise	18	17	19(16)[a]	16	11(8)[a]	7

[a] Use ( ) in zones that do not contain patient sleeping rooms.

[b] For a 2nd story zone location in a *sprinklered* EXISTING hospital, as an alternative to the mandatory safety requirement values set specified in the table, the following mandatory values set shall be permitted to be used: $S_a = 7$, $S_b = 10$, and $S_c = 7$.

WORKSHEET 4.7.8B MANDATORY SAFETY REQUIREMENTS — EXISTING NURSING HOMES

Zone Location	Containment (S_a)	Extinguishment (S_b)	People Movement (S_c)
1st story	0	10	0
2nd story	2	10	2
3rd story	8	16	2
4th story or higher	8	16	2

WORKSHEET 4.7.8C MANDATORY SAFETY REQUIREMENTS — MAJOR REHABILITATION IN NONSPRINKLERED EXISTING HOSPITALS

Zone Location	Containment (S_a)	Extinguishment (S_b)	People Movement (S_c)
1st story	13	17(14)*	8(5)*
2nd or 3rd story	17	19(16)*	10(7)*
4th story or higher	18	19(16)*	11(8)*

*Use ( ) in zones that do not contain patient sleeping rooms.

(For use with NFPA 101A-2010/NFPA 101-2009) (p. 3 of 4)

FIGURE 4.7 *Continued*

WORKSHEET 4.7.9 ZONE FIRE SAFETY EQUIVALENCY EVALUATION

						Yes	No
Containment Safety (S_1)	minus	Mandatory Containment (S_a)	≥	0	S_1 13 − S_a 8 = C 5		
Extinguishment Safety (S_2)	minus	Mandatory Extinguishment (S_b)	≥	0	S_2 20 − S_b 16 = E 4		
People Movement Safety (S_3)	minus	Mandatory People Movement (S_c)	≥	0	S_3 4 − S_c 2 = P 2		
General Safety (S_4)	minus	Occupancy Risk (R)	≥	0	S_4 20 − R 2 = G 18		

WORKSHEET 4.7.10 FACILITY FIRE SAFETY REQUIREMENTS WORKSHEET

Complete one copy of this worksheet for each facility.
For each consideration, select and mark the appropriate column.

		Met	Not Met	Not Applic.
A.	Building utilities conform to the requirements of Section 9.1.	✓		X
B.	In new facilities only, life-support systems, alarms, emergency communication systems, and illumination of generator set locations are powered as prescribed by 18.5.1.2 and 18.5.1.3.			✓
C.	Heating and air conditioning systems conform with the air conditioning, heating, and ventilating systems requirements within Section 9.2, except for enclosure of vertical openings, which have been considered in Safety Parameter 7 of Worksheet 4.7.6.	✓		X
D.	Fuel-burning space heaters and portable electrical space heaters are not used.	✓		X
E.	There are no flue-fed incinerators.	✓		
F.	An evacuation plan is provided and fire drills conducted in accordance with 18.7.1/18.7.2 and 19.7.1/19.7.2.	✓		X
G.	Smoking regulations have been adopted and implemented in accordance with 18.7.4 and 19.7.4.	✓		X
H.	Combustibility of draperies, upholstered furniture, mattresses, furnishings, and decorations is limited in accordance with 18.7.5 and 19.7.5.	✓		
I.	Fire extinguishers are provided in accordance with the requirements of 18.3.5.11 and 19.3.5.11.	✓		X
J.	Exit signs are provided in accordance with the requirements of 18.2.10.1 and 19.2.10.	✓		
K.	Emergency lighting is provided in accordance with 18.2.9.1 or 19.2.9.1.	✓		
L.	Standpipes are provided in all new high-rise buildings as required by 18.4.2.			✓

All references are to NFPA *101, Life Safety Code*.

WORKSHEET 4.7.11 CONCLUSIONS

1. ☑ All of the checks in Worksheet 4.7.9 are in the "Yes" column. The level of fire safety is at least equivalent to that prescribed by the *Life Safety Code*.*
2. ☐ One or more of the checks in Worksheet 4.7.9 are in the "No" column. The level of fire safety is not shown by this system to be equivalent to that prescribed by the *Life Safety Code*.*

* The equivalency covered by this worksheet includes the majority of considerations covered by the *Life Safety Code*. There are some considerations that are not evaluated by this method. These must be considered separately. These additional considerations are covered in Worksheet 4.7.10, the Facility Fire Safety Requirements Worksheet. One copy of this separate worksheet is to be completed for each facility.

(For use with NFPA 101A-2010/NFPA *101*-2009) (p. 4 of 4)

FIGURE 4.7 *Continued*

WORKSHEET 4.7.1 COVER SHEET

Fire/Smoke Zone* Evaluation Worksheet for Health Care Facilities

Facility: Fairview University Transitional Services Building: 01- Main Building

Zone(s) evaluated: Fifth Floor West Zone 18 of 18

Evaluator: M. Thuringer, CHFM, CHC Date: 10/28/2016

Complete this worksheet for each zone. Where conditions are the same in several zones, one worksheet can be used for those zones.

*Fire/smoke zone is a space separated from all other spaces by floors, horizontal exits, or smoke barriers.

WORKSHEET 4.7.2 OCCUPANCY RISK PARAMETER FACTORS

Risk Parameters		Risk Factor Values				
1. Patient Mobility (*M*)	Mobility Status	Mobile	Limited Mobility	Not Mobile	Not Movable	
	Risk Factor	1.0	1.6	**3.2**	4.5	
2. Patient Density (*D*)	No. of Patients	1–5	6–10	11–30	>30	
	Risk Factor	1.0	1.2	**1.5**	2.0	
3. Zone Location (*L*)	Floor	1st	2nd or 3rd	4th to 6th	7th and Above	Basements
	Risk Factor	1.1	1.2	**1.4**	1.6	1.6
4. Ratio of Patients to Attendants (*T*)	Patients / Attendant	1–2 / 1	3–5 / 1	6–10 / 1	>10 / 1	One or More* / None
	Risk Factor	**1.0**	1.1	1.2	1.5	4.0
5. Patient Average Age (*A*)	Age	<65 Years and >1 Year		≥65 Years or ≤1 Year		
	Risk Factor	1.0		**1.2**		

*A risk factor of 4.0 is charged to any zone that houses patients without any staff in immediate attendance.

WORKSHEET 4.7.3 OCCUPANCY RISK FACTOR CALCULATION

	M		*D*		*L*		*T*		*A*		*F*
Occupancy Risk	3.2	×	1.5	×	1.4	×	1.0	×	1.2	=	8.0

WORKSHEET 4.7.4 ADJUSTED OCCUPANCY RISK FACTOR — NEW BUILDINGS

	F		*R*
1.0 ×		=	

WORKSHEET 4.7.5 ADJUSTED OCCUPANCY RISK FACTOR — EXISTING BUILDINGS

	F		*R*
0.6 ×	8.0	=	4.8

(For use with NFPA 101A-2010/NFPA *101*-2009)

(p. 1 of 4)

FIGURE 4.7 Worksheets for Evaluating Fire/Smoke Zones.

WORKSHEET 4.7.6 SAFETY PARAMETER VALUES

Safety Parameters	Parameter Values						
1. Construction	Combustible Types III, IV, and V				Noncombustible Types I and II		
Floor or Zone	000	111	200	211, 2HH	000	111	222, 322, 442
First	−2	0	−2	0	0	2	2
Second	−7	−2	−4	−2	−2	2	4
Third	−9	−7	−9	−7	−7	2	4
4th and Above	−13	−7	−13	−7	−9	−7	4
2. Interior Finish (Corridors and Exits)	Class C	Class B	Class A				
	−5(0)[f]	0(3)[f]	3				
3. Interior Finish (Rooms)	Class C	Class B	Class A				
	−3(1)[f]	1(3)[f]	3				
4. Corridor Partitions/Walls	None or Incomplete	<½ hr	≥½ hr to <1 hr	≥1 hr			
	−10(0)[g]	0	1(0)[g]	2(0)[g]			
5. Doors to Corridor	No Door	<20 min FPR	≥20 min FPR	≥20 min FPR and Auto Clos.			
	−10	0	1(0)[d]	2(0)[d]			
6. Zone Dimensions	Dead End			No Dead Ends >30 ft and Zone Length Is			
	>100 ft	>50 ft to 100 ft	30 ft to 50 ft	>150 ft	100 ft to 150 ft	<100 ft	
	−6(0)[b]	−4(0)[b]	−2(0)[b]	−2(0)[e](0)[h]	0(0)[h]	1	
7. Vertical Openings	Open 4 or More Floors	Open 2 or 3 Floors	Enclosed with Indicated Fire Resist.				
			<1 hr	≥1 hr to <2 hr	≥2 hr		
	−14	−10	0	2(0)[e]	3(0)[e]		
8. Hazardous Areas	Double Deficiency		Single Deficiency		No Deficiencies		
	In Zone	Outside Zone	In Zone	In Adjacent Zone			
	−11	−5	−6	−2	0		
9. Smoke Control	No Control	Smoke Barrier Serves Zone	Mech. Assisted Systems by Zone				
	−5(0)[c]	0	3				
10. Emergency Movement Routes	<2 Routes	Multiple Routes			Direct Exit(s)		
		Deficient	W/O Horizontal Exit(s)	Horizontal Exit(s)			
	−8	−2	0	1	5		
11. Manual Fire Alarm	No Manual Fire Alarm		Manual Fire Alarm				
	−4		W/O F.D. Conn.	W/ F.D. Conn.			
			1	2			
12. Smoke Detection and Alarm	None	Corridor Only	Rooms Only	Corridor and Habit. Spaces	Total Spaces in Zone		
	0(3)[g]	2(3)[g]	3(3)[g]	4	5		
13. Automatic Sprinklers	None	Corridor and Habit. Space	Entire Building				
	0	8	10				

[a] Use (0) where Paramoter 5 is −10.
[b] Use (0) where Parameter 10 is −8.
[c] Use (0) on floor with fewer than 31 patients (existing buildings only).
[d] Use (0) where Parameter 4 is −10.
[e] Use (0) where Parameter 1 is based on first floor zone or on an unprotected type of construction (columns marked "000" or "200").
[f] Use ( ) if the area of Class B or C interior finish in the corridor and exit or room is protected by automatic sprinklers and Parameter 13 is 0; use ( ) if the room with existing Class C interior finish is protected by automatic sprinklers, Parameter 4 is greater than or equal to 1, and Parameter 13 is 0.
[g] Use this value in addition to Parameter 13 if the entire zone is protected with quick-response automatic sprinklers.
[h] Use (0) where zone area ≤22,500 ft² and distance from any point to reach a door in smoke barrier ≤200 ft.

For SI units, 1 ft = 0.3048 m; 1 ft² = 0.092 m².

(For use with NFPA 101A-2010/NFPA *101*-2009) (p. 2 of 4)

FIGURE 4.7 ***Continued***

WORKSHEET 4.7.7 INDIVIDUAL SAFETY EVALUATIONS

Safety Parameters	Containment Safety (S_1)	Extinguishment Safety (S_2)	People Movement Safety (S_3)	General Safety (S_4)
1. Construction	4	4		4
2. Interior Finish (Corr. and Exit)	3		3	3
3. Interior Finish(Rooms)	3			3
4. Corridor Partitions/Walls	2			2
5. Doors to Corridor	1		1	1
6. Zone Dimensions			0	0
7. Vertical Openings	-10		-10	-10
8. Hazardous Areas	0	0		0
9. Smoke Control			0	0
10. Emergency Movement Routes			0	0
11. Manual Fire Alarm		2		2
12. Smoke Detection and Alarm		4	4	4
13. Automatic Sprinklers	10	10	10 ÷ 2 = 5	10
Total Value	$S_1 = 13$	$S_2 = 20$	$S_3 = 3$	$S_4 = 19$

WORKSHEET 4.7.8A MANDATORY SAFETY REQUIREMENTS — NEW HOSPITALS, EXISTING HOSPITALS, OR NEW NURSING HOMES

	Containment (S_a)		Extinguishment (S_b)		People Movement (S_c)	
Zone Location	New	Exist.	New	Exist.	New	Exist.
1st story	11	5	15(12)[a]	4	8(5)[a]	1
2nd or 3rd story[b]	15	9	17(14)[a]	6	10(7)[a]	3
4th story or higher but not high rise	18	9	19(16)[a]	6	11(8)[a]	3
High rise	18	17	19(16)[a]	16	11(8)[a]	7

[a] Use ( ) in zones that do not contain patient sleeping rooms.

[b] For a 2nd story zone location in a *sprinklered* EXISTING hospital, as an alternative to the mandatory safety requirement values set specified in the table, the following mandatory values set shall be permitted to be used: $S_a = 7$, $S_b = 10$, and $S_c = 7$.

WORKSHEET 4.7.8B MANDATORY SAFETY REQUIREMENTS — EXISTING NURSING HOMES

Zone Location	Containment (S_a)	Extinguishment (S_b)	People Movement (S_c)
1st story	0	10	0
2nd story	2	10	2
3rd story	[illegible]	[illegible]	[illegible]
4th story or higher	8	16	2

WORKSHEET 4.7.8C MANDATORY SAFETY REQUIREMENTS — MAJOR REHABILITATION IN NONSPRINKLERED EXISTING HOSPITALS

Zone Location	Containment (S_a)	Extinguishment (S_b)	People Movement (S_c)
1st story	13	17(14)*	8(5)*
2nd or 3rd story	17	19(16)*	10(7)*
4th story or higher	18	19(16)*	11(8)*

*Use ( ) in zones that do not contain patient sleeping rooms.

(For use with NFPA 101A-2010/NFPA *101*-2009) (p. 3 of 4)

FIGURE 4.7 *Continued*

WORKSHEET 4.7.9 ZONE FIRE SAFETY EQUIVALENCY EVALUATION

						Yes	No
Containment Safety (S_1)	minus	Mandatory Containment (S_a)	≥	0	S_1 13 − S_a 8 = C 5		
Extinguishment Safety (S_2)	minus	Mandatory Extinguishment (S_b)	≥	0	S_2 20 − S_b 16 = E 4		
People Movement Safety (S_3)	minus	Mandatory People Movement (S_c)	≥	0	S_3 3 − S_c 2 = P 1		
General Safety (S_4)	minus	Occupancy Risk (R)	≥	0	S_4 19 − R 5 = G 14		

WORKSHEET 4.7.10 FACILITY FIRE SAFETY REQUIREMENTS WORKSHEET

Complete one copy of this worksheet for each facility.
For each consideration, select and mark the appropriate column.

		Met	Not Met	Not Applic.
A.	Building utilities conform to the requirements of Section 9.1.	✓		☒
B.	In new facilities only, life-support systems, alarms, emergency communication systems, and illumination of generator set locations are powered as prescribed by 18.5.1.2 and 18.5.1.3.			✓
C.	Heating and air conditioning systems conform with the air conditioning, heating, and ventilating systems requirements within Section 9.2, except for enclosure of vertical openings, which have been considered in Safety Parameter 7 of Worksheet 4.7.6.	✓		☒
D.	Fuel-burning space heaters and portable electrical space heaters are not used.	✓		☒
E.	There are no flue-fed incinerators.	✓		
F.	An evacuation plan is provided and fire drills conducted in accordance with 18.7.1/18.7.2 and 19.7.1/19.7.2.	✓		☒
G.	Smoking regulations have been adopted and implemented in accordance with 18.7.4 and 19.7.4.	✓		☒
H.	Combustibility of draperies, upholstered furniture, mattresses, furnishings, and decorations is limited in accordance with 18.7.5 and 19.7.5.	✓		
I.	Fire extinguishers are provided in accordance with the requirements of 18.3.5.11 and 19.3.5.11.	✓		☒
J.	Exit signs are provided in accordance with the requirements of 18.2.10.1 and 19.2.10.	✓		
K.	Emergency lighting is provided in accordance with 18.2.9.1 or 19.2.9.1.	✓		
L.	Standpipes are provided in all new high-rise buildings as required by 18.4.2.			✓

All references are to NFPA *101, Life Safety Code*.

WORKSHEET 4.7.11 CONCLUSIONS

1. ☑ All of the checks in Worksheet 4.7.9 are in the "Yes" column. The level of fire safety is at least equivalent to that prescribed by the *Life Safety Code*.*
2. ☐ One or more of the checks in Worksheet 4.7.9 are in the "No" column. The level of fire safety is not shown by this system to be equivalent to that prescribed by the *Life Safety Code*.*

*The equivalency covered by this worksheet includes the majority of considerations covered by the *Life Safety Code*. There are some considerations that are not evaluated by this method. These must be considered separately. These additional considerations are covered in Worksheet 4.7.10, the Facility Fire Safety Requirements Worksheet. One copy of this separate worksheet is to be completed for each facility.

(For use with NFPA 101A-2010/NFPA *101*-2009) (p. 4 of 4)

FIGURE 4.7 *Continued*