#### DEPARTMENT OF HEALTH AND HUMAN SERVICES

#### CENTERS FOR MEDICARE & MEDICAID SERVICES

MEDICARE/MEDICAID CERTIFICATION AND TRANSMITTAL

					TE SURVEY AGENCY		Facility ID: 00259	
MEDICARE/MEDICAID PROVID NO.(L1) 245170     STATE VENDOR OR MEDICAID (L2) 616845105		3. NAME AND ADDRESS OF FACILITY (L3) FAIRVIEW UNIVERSITY TRANS SE (L4) 2450 RIVERSIDE AVENUE SOUTH (L5) MINNEAPOLIS, MN				4. TYPE OF AC  1. Initial 3. Termination 5. Validation	2. Recertification 4. CHOW 6. Complaint	
5. EFFECTIVE DATE CHANGE OF (L9)		7. PROVIDER/SU 01 Hospital	05 HHA	09 ESRD	02 (L7) 13 PTIP 22 CLIA	7. On-Site Visit 9. Other  8. Full Survey After Complaint		
6. DATE OF SURVEY 10/0 8. ACCREDITATION STATUS: 0 Unaccredited 1 TIC 2 AOA 3 Other	<b>06/2016</b> <sup>L34)</sup> (L10)	02 SNF/NF/Dual 03 SNF/NF/Distinct 04 SNF	06 PRTF 07 X-Ray 08 OPT/SP	10 NF 11 ICF/IID 12 RHC	14 CORF 15 ASC 16 HOSPICE	FISCAL YEAR EI	NDING DATE: (L35)	
11. LTC PERIOD OF CERTIFICATION From (a): To (b):  12. Total Facility Beds 13. Total Certified Beds  14. LTC CERTIFIED BED BREAKDO 18 SNF 18/19 SNF 28	28 (L18) 28 (L17)	Compliance1. A <b>X</b> B. Not in Con	equirements e Based On: cceptable POC	gram	And/Or Approved Waivers Or  2. Technical Personne  3. 24 Hour RN  4. 7-Day RN (Rural S  5. Life Safety Code  * Code: <b>B</b> *  15. FACILITY MEETS  1861 (e) (1) or 1861 (j) (1):		of Services Limit al Director Room Size	
(L37) (L38)	(L39)	(L42)	(L43)					
16. STATE SURVEY AGENCY REM	ARKS (IF APPLICA	ABLE SHOW LTC CA	ANCELLATION :	DATE):				
17. SURVEYOR SIGNATURE		Date :			18. STATE SURVEY AGENC	Y APPROVAL	Date:	
Magdalene Jares, H	IFE NE II	1	1/03/2016	(L19)	Kamala Fiske-Downing,	Enforcement Sp	<u>ecialist</u> 11/08/2016 (L20	
PA	RT II - TO BE	COMPLETED I	BY HCFA RI	EGIONAL	L OFFICE OR SINGLE S	STATE AGENCY	7	
DETERMINATION OF ELIGIBII	Participate		IPLIANCE WITI ITS ACT:	H CIVIL	<ul><li>21. 1. Statement of Fin.</li><li>2. Ownership/Cont.</li><li>3. Both of the Abov.</li></ul>	rol Interest Disclosure S		
22. ORIGINAL DATE  OF PARTICIPATION  07/11/1969	23. LTC AGREEI BEGINNING		4. LTC AGREEN ENDING DA		26. TERMINATION ACTION  VOLUNTARY  01-Merger, Closure	<u>INVO</u>	(L30) LUNTARY il to Meet Health/Safety	
(L24)	(L41)		(L25)		02-Dissatisfaction W/ Reimbur		il to Meet Agreement	
25. LTC EXTENSION DATE: (L27)		VE SANCTIONS  n of Admissions:  uspension Date:	(L44) (L45)		03-Risk of Involuntary Terminati 04-Other Reason for Withdrawal	<u> </u>	ovider Status Change	
28. TERMINATION DATE:	20	). INTERMEDIARY/			30. REMARKS			
	23	03001			- J. Kenni Millo			
	(L28)	03001		(L31)				
31. RO RECEIPT OF CMS-1539	32	. DETERMINATION	OF APPROVAL	DATE	Posted 11/10/2016 C	o.		

(L33)

DETERMINATION APPROVAL

(L32)



#### 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:

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

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

<u>Remedies</u> - 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;

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

<u>Informal Dispute Resolution</u> - 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: <a href="http://www.health.state.mn.us/divs/fpc/profinfo/infobul.htm">http://www.health.state.mn.us/divs/fpc/profinfo/infobul.htm</a>

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

Minnesota Department of Health Licensing and Certification Program

Kamala Fiske Downing

Program Assurance Unit

Health Regulation Division

Telephone: (651) 201-4112 Fax: (651) 215-9697 Email: <a href="mailto:Kamala.Fiske-Downing@state.mn.us">Kamala.Fiske-Downing@state.mn.us</a>

## DEPARTMENT OF HEALTH AND HUMAN SERVICES CENTERS FOR MEDICARE & MEDICAID SERVICES

PRINTED: 11/22/2016 FORM APPROVED OMB NO. 0938-0391

	OF DEFICIENCIES OF CORRECTION	(X1) PROVIDER/SUPPLIER/CLIA IDENTIFICATION NUMBER:	(X2) MULTIPLE CONSTRUCTION A. BUILDING			(X3) DAT	E SURVEY PLETED
		245170	B. WING		<del></del>	10/	06/2016
	PROVIDER OR SUPPLIER  W UNIVERSITY TRAN	IS SERV		2	TREET ADDRESS, CITY, STATE, ZIP CODE 450 RIVERSIDE AVENUE SOUTH IINNEAPOLIS, MN 55454		
(X4) ID PREFIX TAG	(EACH DEFICIENC)	TEMENT OF DEFICIENCIES Y MUST BE PRECEDED BY FULL SC IDENTIFYING INFORMATION)	ID PREFI TAG		PROVIDER'S PLAN OF CORRECTION (EACH CORRECTIVE ACTION SHOULD CROSS-REFERENCED TO THE APPROPODE DEFICIENCY)	BE	(X5) COMPLETION DATE
F 000	0 INITIAL COMMENTS  The facility is enrolled in ePOC and therefore a		FC	000			
	signature is not req page of the CMS-2 correction is require	uired at the bottom of the first 567 form. Although no plan of ed, it is required that you of the electronic documents.					
L ABORATOR'	L V DIRECTOR'S OR PROVID	DER/SUPPLIER REPRESENTATIVE'S SIGN	JATURE		TITLE		(X6) DATE

LABORATORY DIRECTOR'S OR PROVIDER/SUPPLIER REPRESENTATIVE'S SIGNATURE

TITLE

Electronically Signed

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.

11/02/2016

#### DEPARTMENT OF HEALTH AND HUMAN SERVICES CENTERS FOR MEDICARE & MEDICAID SERVICES

PRINTED: 11/04/2016 FORM APPROVED OMB NO. 0938-0391

(X3) DATE SURVEY

STATEMENT OF DEFICIENCIES (X1) PROVIDER/SUPPLIER/CLIA (X2) MULTIPLE CONSTRUCTION COMPLETED AND PLAN OF CORRECTION **IDENTIFICATION NUMBER:** A: BUILDING 01 - MAIN BUILDING 01 245170 B. WING 10/05/2016 STREET ADDRESS, CITY, STATE, ZIP CODE NAME OF PROVIDER OR SUPPLIER 2450 RIVERSIDE AVENUE SOUTH FAIRVIEW UNIVERSITY TRANS SERV MINNEAPOLIS. MN 55454 PROVIDER'S PLAN OF CORRECTION SUMMARY STATEMENT OF DEFICIENCIES ID (X5) COMPLETION (X4) ID (EACH CORRECTIVE ACTION SHOULD BE (EACH DEFICIENCY MUST BE PRECEDED BY FULL PREFIX PRÉFIX DATE CROSS-REFERENCED TO THE APPROPRIATE REGULATORY OR LSC IDENTIFYING INFORMATION) TAG TAG DEFICIENCY) K 000 INITIAL COMMENTS K 000 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 (X6) DATE LABORATORY DIRECTOR'S OR PROVIDER/SUPPLIER REPRESENTATIVE'S SIGNATURE TITLE

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.

If continuation sheet Page 1 of 3

11/02/2016

**Electronically Signed** 

# DEPARTMENT OF HEALTH AND HUMAN SERVICES CENTERS FOR MEDICARE & MEDICAID SERVICES

PRINTED: 11/04/2016 FORM APPROVED OMB NO. 0938-0391

	OF DEFICIENCIES OF CORRECTION	(X1) PROVIDER/SUPPLIER/CLIA IDENTIFICATION NUMBER:	l ` '		E CONSTRUCTION D1 - MAIN BUILDING 01		E SURVEY PLETED
		245170	B. WING			10/0	05/2016
	PROVIDER OR SUPPLIER W UNIVERSITY TRAN			24	FREET ADDRESS, CITY, STATE, ZIP CODE 150 RIVERSIDE AVENUE SOUTH IINNEAPOLIS, MN 55454	10.0	3.23.13
(X4) ID PREFIX TAG	(EACH DEFICIENC)	ATEMENT OF DEFICIENCIES Y MUST BE PRECEDED BY FULL SC IDENTIFYING INFORMATION)	ID PREFI TAG		PROVIDER'S PLAN OF CORRECT (EACH CORRECTIVE ACTION SHOU CROSS-REFERENCED TO THE APPR DEFICIENCY)	JLD BE	(X5) COMPLETION DATE
K 000	This 5-story buildin Type II(222) constrand is fully sprinkle has a fire alarm systhe corridors and sthat is monitored for notification. The facand had a census	age 1 g was determined to be of uction. It has a full basement ared throughout. The facility stem with smoke detection in paces open to the corridors or automatic fire department cility has a capacity of 28 beds of 13 at the time of the survey.	K	000			
K 020 SS=F	NOT MET as evide NFPA 101 LIFE SA Stairways, elevator shafts, chutes, and between floors are having a fire resista	t 42 CFR, Subpart 483.70(a) enced by: AFETY CODE STANDARD  shafts, light and ventilation dother vertical openings enclosed with construction ance rating of at least one ay be used in accordance with	K	)20			10/28/16
	8.2.5, 8.2.5.6, 19.3 This STANDARD Based on observa failed to maintain v LSC(00) Section 11 could affect all 13 r Findings include: On a facility tour be and 01:30 PM on 0 revealed that the re is served by a verti	is not met as evidenced by: ition and interview, the facility rertical openings as required by 9.3.1.1. This deficient practice residents.  etween the hours of 9:30 AM October 05, 2016, observation esident room ventilation system ical riser duct shaft with k leading from the penthouse			A FSES has been completed the establishes that the facility has a level of fire safety equivalent to required by the Life Safety Code	an overall the	

# DEPARTMENT OF HEALTH AND HUMAN SERVICES CENTERS FOR MEDICARE & MEDICAID SERVICES

PRINTED: 11/04/2016 FORM APPROVED OMB NO. 0938-0391

STATEMENT OF DEFICIENCIES AND PLAN OF CORRECTION  (X1) PROVIDER/SUPPLIER/CLIA IDENTIFICATION NUMBER:		(X1) PROVIDER/SUPPLIER/CLIA IDENTIFICATION NUMBER:		TIPLE CONSTRUCTION ING <b>01 - Main Building 01</b>	(X3) DAT COM	E SURVEY MPLETED
		245170	B. WING		10	/05/2016
	PROVIDER OR SUPPLIER W UNIVERSITY TRAN	NS SERV		STREET ADDRESS, CITY, STATE, ZIP COD 2450 RIVERSIDE AVENUE SOUTH MINNEAPOLIS, MN 55454		
(X4) ID PREFIX TAG	SUMMARY STA (EACH DEFICIENC' REGULATORY OR L	PROVIDER'S PLAN OF CORRE X (EACH CORRECTIVE ACTION SH CROSS-REFERENCED TO THE API DEFICIENCY)	OULD BE	(X5) COMPLETION DATE		
K 020	Administrator at the Note: This deficien FSES can establish	cice was verified by the etime of the inspection.  cy need not be corrected if an h that the facility has an overall equivalent to that required by	K	020		

APPROVED

By Tom Linhoff at 9:12 am, Nov 03, 2016

		WORKSHEE	T 4.7.1 COVE	R SHEET	•			
			n Worksheet for I					
	niversity Transitional Service	es	Building 01	- Main Build	ding	<del> </del>		
Zone(s) evaluated			Zr					
Evaluator M. Thuri				/28 /2016				
Complete this works	sheet for each zone. Who	re conditions are	e the same in seve	ral zones,	one wo	rksheet can be use	ed for those zones.	
*Fire/s	moke gone is a space ser WORKSHE		other spaces by fl				rriers.	
Risk Parameters			Risk Facto	r Values				
1. Patient Mobility (M)	Mobility Status	Mobile	Limited Mobility		No	t Mobile	Not Movable	
Widelity (M)	Risk Factor	1:0	1.6			3:2	4.5	
2. Patient	No. of Patients	1-5	6–16	•	1	11-30	>30	
Density (D)	Risk Factor	1.0	1.2	1.2		1.5	2,0	
3. Zone	Floor	1st	2nd or 3rd	4th to	6th	7th and Above	Basements	
Location (L)	Risk Factor	1,1	1.2	1.4		1,6	1:6	
4. Ratio of Patients to	Patients Attendant	1-2	3-5 1	3-5 6-10 1 1		>10	One or More None	
$\begin{array}{c} \text{Attendants} \\ (T) \end{array}$	Risk Factor	1.0	1.1;	1.2	2 1:5		4.0	
5. Patient Average	Age	<65 Ye	ars and >1 Year		≥65 Years or ≤1 Year			
Age (A)	Risk Factor		1.0		1.2			
*A risk fa	actor of 4.0 is charged to	any zone that h	onses patients wi	thout any	staff in	immediate atten	dance,	
	WORKSHEET	4.7.3 OCCUF	ANCY RISK FA	CTOR CA	ALCUL	ATION		
Öcc	upancy Risk	<u>М</u> х	X   L	×	×	A F.		
	4 ADJUSTED OCCL OR — NEW BUILDING		WORKS			ADJUSTED OCC XISTING BUILD	CUPANCY RISK DINGS	
1.0× [	R R			0,6	F	$R = \begin{bmatrix} R \\ 0.7 \end{bmatrix}$		
(For use with NFPA 101A	1-2010/NFPA 101-2009)						(p. 1 of 4)	

FIGURE 4.7 Worksheets for Evaluating Fire/Smoke Zones.

Safety Parameters				Paramet	er Value	es			
1. Construction			ustible , IV, and V			Noncombustible Types I and II			
Floor or Zone	000	111	200	211,2HH		000			<u> </u>
First	-2	.0	-2		Ö.	-0	2	3.	2
Second	7	2	-4	-	2	-2	.2	<u>.</u>	4
Third	-9	.–7	-9		7:	-7.	2	2	4
4th and Above	-13	-7.	-13		7	-9		7.	4
2. Interior Finish	Class C	Cla	iss B	Close	.A.				
(Corridors and Exits)	$-5(0)^{f}$	0	(3)(	3		<u> </u>			
3. Interior Finish	Class C	Cla	ss B	Lines				,	
(Rooms)	≓3(1) <sup>f</sup>	1	(3)f	3		7	1		
4. Corridor	None or Incomplete	- 1/2	5.hr	≥% hr to	الم		≥1.hr_		
Partitions/Walla	~10(0)a:		O'	1(0		.2(0)*			
				1(5,	<del>"</del>	≥20 min FPR and			
5. Doors to Corridor	No Door	<20 m	<20 min FPR		≥20 min FPR		ito Clos		
	10		Ġ	1(0	)d		2(0)d	<u> </u>	
6. Zenc Dimensions		Dead Er	ıd .		No	Dea <del>d B</del>	de -80 ft an	d Zone l	ength Is
5. 2010 Dillionalong	>100 ft	>50 ft to 1		ft to 50 ft		50 ft	100.00+0.10	D ft	<100 ft
	6(0) <sup>6</sup>	-4(0)b		-2(0)b	-2(0	)c(0)h	$0(0)^{h_{\bullet}}$		1
7. Vertical Openings	Open 4 or Mor				Enclos		Indicated Fi	e Resis	t
	Floors	Flo	oors	<1]	hr .	≥1 hr to <2 hr			>9 hv.
	-14		10	0.		<u> </u>	2(0)*		3(0)e
8. Hazardous Areas	·····	e Deficiency		Single I		Deficiency		No D	eficiencie
	In Zone		de Zone	In Zone		In Adjacent Zone		-	
	-11	<u></u>	<del></del>	-6			-2		.0
9. Smoke Control	No Control		Barrier	Mech Assisted Systems by Zone		tenış	_		
	-5(0) <sup>c</sup>		0			3			
10. Emergency	<2 Routes			Multiple	Routes			Dire	ct Exit(s)
Movement Routes		Ďef	icient	W/O Hor Exit			rizontal Exit(s)		
Tional C	8		-2	0			1		5
11. Manual Fire	No Mani	al Fire Alar	m .		ranual I	ire Alai	m		
Alarm				W/O F.D.	Conn.	¥-	P.D. Gran.		
		-4	•	1			2		
12. Smoke Detection and Alarm	None	Corrie	or Only	Rooms.	Only		rider and		al Spaces n Zone
and Alarm.	0(3)g	20	(3)g	3(3	)s		4		5
13. Automatic	None	Corri	dor and t. Space	Enti Postd	re.				<del></del>
Sprinklers	0		8	10		1	•		

<sup>&</sup>lt;sup>a</sup> Use (0) where Parameter 5 is -10.

For SI units, 1 ft = 0.3048 m; 1 ft<sup>2</sup> = 0.092 m<sup>2</sup>.

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

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.

3 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.

(p. 2 of 4)



 $<sup>^{\</sup>rm b}$  Use (0) where Parameter 10 is -8.

<sup>&</sup>lt;sup>e</sup> Use (0) on floor with fewer than 31 patients (existing buildings only).

e Use (0) where Parameter 4 is -10.

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

Containment Safety (S <sub>1</sub> )	Extinguishment Safety (S <sub>2</sub> )	People Movement Safety (S <sub>3</sub> )	General Safety (S <sub>4</sub> )
2	2		_ 2
3		3	. 3
3			3
2			2
2		2	2
		0	0
0		Ö	0
0	0.		0
		0	0
		0	o
	2		2
	4:	4	4
10	10	$10 \div 2 = 5$	.10
	(S <sub>1</sub> )  2  3  3  2  2  0  0	$(S_1)$ $(S_2)$ 2 2 3 3 3 2 2 2 0 0 0 0 0 0 0 0 0 0 0 0	(S <sub>1</sub> ) (S <sub>2</sub> ) Safety (S <sub>3</sub> )  2  3  3  2  2  0  0  0  0  0  2  4  4

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

	Contain	ment (S <sub>a</sub> )	Extinguish	ment (S <sub>b</sub> )	People Movement (S	
Zone Location	New	Exist.	New	Exist.	New	Exist.
1st story	11	5	15(12) <sup>a</sup>	4.	8(5) <sup>a</sup>	1
2nd or 3rd storyb	15	9	17(14) <sup>a</sup>	6		3
4th story or higher but not high rise	18	9	19(16) <sup>a</sup>	6	10(7) <sup>a</sup> 11(8) <sup>a</sup>	3
High rise	18	17	19(16) <sup>a</sup>	16	11(8) <sup>a</sup>	7

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

#### WORKSHEET 4.7.8B MANDATORY SAFETY REQUIREMENTS — EXISTING NURSING HOMES

Zone Location	Containment (Sa)	Extinguishment ( $S_b$ )	People Movement ( $S_c$ )		
1st story 2nd story	0	10	0.3		
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 <sub>a</sub> )	Extinguishment (S <sub>b</sub> )	People Movement (Sc)		
1st story	13	17(14)*	3(5)*		
2nd or 3rd story 4th story or higher	17	19(16)* 19(16)*	10(7)° 11(8)*		

<sup>\*</sup>Use ( ) in zones that do not contain patient sleeping rooms.

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

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FIGURE 4.7 Continued

<sup>\*</sup> 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  $S_c = 7$ .

		Ye	s	No
	intainment minus Mandatory $S_1$ $S_2$ $C$ fety $(S_1)$ Containment $(S_a)$ $\geq 0$ $S_1$ $S_a$ $C$ $S_1$ $S_2$ $S_3$ $S_4$ $S_4$ $S_5$ $S_$		,	
	tinguishment minus Mandatory $S_2$ $S_b$ $E$ fety $(S_2)$ minus Extinguishment $(S_b) > 0$ $\begin{bmatrix} S_2 & S_b & E \\ 18 & 10 & = 8 \end{bmatrix}$		,	
	ople Movement minus Mandatory People fety $(S_3)$ Movement $(S_c)$ > 0 $\begin{bmatrix} S_3 & S_c & P \\ 14 & 0 & 14 \end{bmatrix}$	v	,	
G (S	neral Safety minus Occupancy $Risk(R)$ $\geq 0$ $\begin{bmatrix} S_4 & R & G \\ 28 & 1 & = 27 \end{bmatrix}$	V		·
mpi r ea	WORKSHEET 4.7.10 FACILITY FIRE SAFETY REQUIREMENTS WORK ate one copy of this worksheet for each facility, the consideration, select and mark the appropriate column.  Building utilities conform to the requirements of Section 9.1.	SHEET  Met	Not: Met	No Appl
В.	In new facilities only, life-support systems, alarms, emergency communication systems, and	1		
C ;	illumination of generator set locations are powered as prescribed by 18.5.1.2 and 18.5.1.3.  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.	, ,		Ž
Ď.	Fuel-burning space heaters and portable electrical space heaters are not used.	<b>V</b>		>
F.	There are no flue-fed incinerators.	<b>V</b>		
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.	1		>
Ģ.	Smoking regulations have been adopted and implemented in accordance with 18.7.4 and 19.7.4	/		>
н.	Combustibility of draperies, uphoistered 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	<del></del>		$\equiv$
J.:	Exit signs are provided in accordance with the requirements of 18.2.10.1 and 19.2.10.	1		
K.	Emergency lighting is provided in accordance with 18:2.9.1 or 19.2.9.1.	1		
L.	Standpipes are provided in all new high-rise buildings as required by 18.4.2.	-		<b>V</b>
relei	ences 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 prescribed by the Life Safety Code."	t equivale	nt to that	
2. [	One or more of the checks in Worksheet 4.7.9 are in the "No" column. The level of fire safety system to be equivalent to that prescribed by the <i>Life Safety Code</i> ."			
	he equivalency covered by this worksheet includes the majority of considerations covered by the <i>Life S</i> maiderations that are not evaluated by this method. These must be considered separately. These additivered in Worksheet 4.7.10, the Facility Fire Safety Requirements Worksheet. One copy of this separate	ional consi	derations a	

APPROVED

By Tom Linhoff at 9:13 am, Nov 03,/2016

		WORKSHEE	T 4.7.1 COVE	R SHEE	T					
	Fire/Smoke	Zone <sup>a</sup> Evaluatio	n Worksheet for I	Iealth Ca	re Facil	ities				
	Iniversity Transitional Se	ervices	Building 0			·······				
Zone(s) evaluated				Zone 2 of	18					
Evaluator M. Thuris	-		Date 10/2				10			
	heet for each zone. Whe									
**Fire/si	moke zone is a space sej	parated from all	other spaces by fl	oors, hori	izontal e	xits, or smoke bar	riers,			
	WORKSHE	ET 4.7.2 OCC	CUPANCY RISK	PARAM	ETER I	FACTORS				
Risk Parameters		Risk Factor Values								
1. Patient Mobility (M)	Mobility Status	Mobile	Limited M	obility	Ν̈́ο	t Mobile	Not Movable			
Middate's (M.)	Risk Factor	1:0	1.6			3.2	4.5			
2. Patient	No. of Patients	1-5	6-10	) ·		11-30	>30			
Density (D)	Risk Factor	1.0	1.2	1.2		1.5	2.0			
3. Zone	Floor	lst	2nd or 3rd 4tl		o 6th 7th and Abo		Basements			
Location (L)	Risk Factor	1.1	1.2	1,4		1.6	1.6			
4. Ratio of Patients to	Patients Attendant	<u>1-2</u> 1	<u>3–5</u> 1	6–10 1		<u>&gt;10</u>	One or More <sup>a</sup> None			
Attendants (T)	Risk Factor	1.0	1.1	1,	1.5		4.0			
5. Patient Average	Age	<65 Ye	ars and >1 Year		≥65 Years or ≤1 Year					
Age (A)	Risk Factor		1.0	1.2						
*A risk fa	actor of 4.0 is charged to	any zone that h	ouses patients wi	thout an	y staff in	immediate atten	dance.			
	WORKSHEET	4.7.3 OCCUP	ANCY RISK FA	CTOR C	ALCUL	ATION				
Occ	upancy Risk	<u>M</u> × <u>D</u>	x [1,1]	× [	] ×	A F				
	4 ADJUSTED OCCI OR — NEW BUILDING		WORKS	SHEET 4	1.7.5 A	ADJUSTED OCC	CUPANCY RISK DINGS			
1.0×	P R			Ø,	.6× 1.	1 = 0.7				
(For use with NEPA 101A	A-2010/NFPA 1 <i>01</i> -2009)					,	(p. 1 of 4)			

Safety Parameters				Parameter Values						
1. Construction		Combus Types III, 1		<u> </u>		· · · · · · · · · · · · · · · · · ·	Noncom Types	bustible ( and II		
Floor or Zone	000	111	200	211, 2	2HH	000	1		22 322 4	
First	-2	0	2	(	0	.0	5	3	2	
Second	-7	-2	4	-2	2	-2	1	2 1		
Third	-9	-7	9			-7		2	4	
4th and Above	-13	-7	-18	-7	7	-9			4	
2. Interior Finish	Class C	Clas	sВ	Class	Δ.		·			
(Corridors and Exits)	-5(0)f	0(8	})f	-3						
3. Interior Finish	Class C	Clas	s.B		=<					
(Rooms)	$-3(1)^{l}$	103	3)f	3						
4. Corridor	None or				_				· · · · · · · · · · · · · · · · · · ·	
Partitions/Walls	Incomplete	<1/2		≥½ hr to		≥1 hr				
<del> </del>	-10(0)a	0.		1(0)	j <b>a</b>		3(0)a			
5. Doors to Corridor	No Door	<20 min	. EDD	≥20 min	ממינו		n FPR and to Clos			
	-10 -10	0	EFFA	220 mm 1(0)			(O)d			
		Dead End	. <u>.                                   </u>	1(0)			us >50 ft an	d Zone I	enoth Is	
6. Zone Dimensions	>100 ft	>50 ft to 100		ft to 50 ft			100 ft to 15		<100 ft	
	-6(0)b	-4(0)5		-2(0)b		)c(())h:	0(0)h	.016	1	
m standarsho as it and	Open 4 or More	Open 2	D on' B				Indicated Fi	e Resist	<del></del>	
7: Vertical Openings	Floors	Floors		<1 hr		≥1 hr to <2 hr			>2 hr	
	14	-10	Ó.	ū		1	2(0)		3(0)e	
8. Hazardous Areas	Double	Double Deficiency		Single I		Deficiency		No De	antermoles	
o. Hazai dous meas	In Zone	Outside Zone		In Zone		In Adjacent Zone				
	-11	-5		6			-2		Ö	
9. Smoke Control	No Control	Smoke I		Me	Mech. Assisted Systems			_		
ii. Parione control		Sarves	Zane	by 2		Zone				
······································	-5(0) <sup>c</sup>	O.				3				
10. Emergency	<2 Routes	-		Multiple !				Dire	ct Exit(s)	
Movement Routes		Defic		W/O Hori			izontal			
nones	-8	Denc -2		0	<b>`</b>		xit(s)		5	
		al Fire Alarn		<u>-</u>	Wilson H	ire Alari			Ð	
11. Manual Fire Alarm	140 Malluz	1 1.1411)		W/O F.D.			D.Conn.			
tarar m	_	-4		170 F.D.	GODIA.		2			
10 N. J. N. L. H.		<u> </u>				2021	nor and	Tota	il Spaces	
12. Smoke Detection and Alarm	None	Corrido	r Only	Rooms	Only	Hahi	. Spaces		Zone	
	0(3)k	2(3		3(3)			4		5	
13. Automatic	No silen	Corrido		Enti Poild		_				
Sprinklers	None 0	Habit.		10						

<sup>&</sup>lt;sup>3</sup> Use (0) where Parameter 5 is -10.

For SI units, 1 ft = 0.8048 m;  $1 \text{ ft}^2 = 0.092 \text{ m}^2$ .

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

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  $\leq$ 22,500 ft and distance from any point to reach a door in smoke barrier ≤200 ft.

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 $<sup>^{\</sup>rm h}$  Use (0) where Parameter 10 is -8.

<sup>\*</sup>Use (0) where Farameter 10 is -5.

\*Use (0) on floor with fewer than 31 patients (existing buildings only).

d Use (0) where Parameter 4 is -10.

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

Safety Parameters	Containment Safety (S <sub>1</sub> )	Extinguishment Safety (S <sub>2</sub> )	People Movement Safety (S <sub>3</sub> )	General Safety (S <sub>4</sub> )
I. Construction	2	2:		2
. Interior Finish (Corr. and Exit)	3		3	3
i. Interior Finish(Rooms)	3			3
. Corridor Partitions/Walls	0			0
5. Doors to Corridor	2		2	2
5. Zone Dimensions			0	.0
. Vertical Openings	0		ď	0
3. Hazardous Areas	0	0		0
). Smoke Control			0	0
). Emergency Movement Routes			0	_ 0
. Maoual Fire Alarm		2		2
2. Smoke Detection and Alarm		4	4	4
3. Automatic Sprinklers	10	10	10 ÷ 2 = 5	10
Total Value	S <sub>1</sub> = 20	S <sub>2</sub> = 18	S <sub>3</sub> = 14	S <sub>4</sub> = 26

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

	Containment (S <sub>a</sub> )		Extinguish	ment (S <sub>b</sub> )	People Movement (S		
Zone Location	New	Exist,	New	Exist.	New	Exist.	
1st story	11	5	15(12)a	4	8(5)a	i	
2nd or 3rd storyb	15	9	17(14)	6	10(7)a	3	
4th story or higher but not high rise	18	9	19(16) <sup>a</sup>	6	11(8) <sup>a</sup>	3	
High rise	18	17	19(16) <sup>a</sup>	16	11(8)2	7	

<sup>&</sup>lt;sup>a</sup> Use ( ) in zones that do not contain patient sleeping rooms.

#### WORKSHEET 4.7.8B MANDATORY SAFETY REQUIREMENTS — EXISTING NURSING HOMES

Zone Location	Containment (Sa)	Extinguishment ( $S_b$ )	People Movement ( $S_c$ )
1st story 2nd story	0.	10	0
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 <sub>a</sub> )	Extinguishment ( $S_b$ )	People Movement ( $S_c$ )
1st story	13	17(14)*	8(5)*
2nd or 3rd story	1.7	19(16)*	10(7)#
4th story or higher	18	19(16)*	11(8)*

<sup>\*</sup>Use ( ) in zones that do not contain patient sleeping rooms.

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

(p. 3 of 4)

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  $S_c = 7$ .

		Yes	<u> </u>	No:
- 7	ontainment minus Mandatory $S_1$ $S_a$ $C$ $S_1$ $S_a$ $C$ fety $(S_1)$ $S_1$ $S_2$ $S_3$ $S_4$ $S_5$ $S_6$ $S_7$ $S_8$	/		
	tinguishment minus Mandatory Extinguishment $(S_b) \ge 0$	\ \		
	ople Movement minus Mandatory People fety $(S_3)$ Movement $(S_c)$ $> 0$ $S_3$ $S_c$ $P$ $14$ $- 0$ $= 14$	<b>V</b>		
G (S	ineral Safety minus Occupancy $Risk(R)$ $\geq 0$ $\begin{bmatrix} S_4 & R & G \\ 26 & -1 & = 25 \end{bmatrix}$	\ \		
	WORKSHEET 4.7.10 FACILITY FIRE SAFETY REQUIREMENTS WORKS ate one copy of this worksheet for each facility.	HEET Met	Not Met	Noi Appl
A.	Building utilities conform to the requirements of Section 9.1.	<b>/</b>		>
В,	In new facilities only, life-support systems, slavms, emergency communication systems, and illumination of generator set locations are powered as prescribed by 18,5.1.2 and 18,5.1.3.			1
Ċ.	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,	/	·	$\nearrow$
D.	Fuel-burning space heaters and portable electrical space heaters are not used.	<b>V</b>		$\geq$
E.	There are no flue-fed incinerators.	1		
F.	An evacuation plan is grovided and fire drills conducted in accordance with 18.7.1/18.7.2 and 19.7.1/19.7.2.	1		>
G.	Smoking regulations have been adopted and implemented in accordance with 18.7.4 and 19.7.4.	/		$\geq$
н.	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.	<b>V</b>		>
J.	Exit signs are provided in accordance with the requirements of 18.2.10.1 and 19.2.10.	<b>V</b>		
K.	Emergency lighting is provided in accordance with 18.2.9.1 or 19.2.9.1.		<del></del> -	
ـــــــــــــــــــــــــــــــــــــ	Standpipes are provided in all new high-rise buildings as required by 18.4.2.			1/
refe	rences are to NFPA 101, Life Safety Code:	. <del></del>		1 *
	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 prescribed by the Life Safety Code."	equivalen	t to that	t
2. [	One or more of the checks in Worksheet 4.7.9 are in the "No" column. The level of fire safety is system to be equivalent to that prescribed by the Life Safety Code.*	not show	n by thi	S
L	he equivalency covered by this worksheet includes the majority of considerations covered by the <i>Life Sc</i> considerations that are not evaluated by this method. These must be considered separately. These additi	nal consid		

By Tom Linhoff at 9:14 am, Nov 03, 2016

FIRE SAFETY EVALUATION SYSTEM FOR HEALTH CARE OCCUPANCES

#### 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 Date\_ 10 /28/ 2016 Evaluator M. Thuringer, CHFM, CHC 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 parriers. WORKSHEET 4.7.2 OCCUPANCY RISK PARAMETER FACTORS **Risk Factor Values Risk Parameters** Mobility Status Mobile Limited Mobility Not Mobile Not Movable 1. Patient Mobility (M) Risk Factor 1.0 1.6 3.2 4.5 No. of Patients 1-56 - 1011-30 >30 2. Patient Density (D)Risk Factor 1.0 1.2 1.5 2.0 Floor 1st 2nd or 3rd 4th to 6th 7th and Above Basements 3. Zone Location (L)Risk Factor 1.2 1.1 1.4 1.6 1.6 Patients ... One or More\* 1-2 $\frac{3-5}{1}$ 6-10 1 >10 1 4. Ratio of None Attendant Patients to Attendants (T)Risk Factor 1.0 £.î 1.2 1.5 4.0 Patient Age 265 Years or ≤1 Year <65 Years and >1 Year Average Age (A) Risk Factor 1,2 1:0 \*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 1.0 WORKSHEET 4.7.4 ADJUSTED OCCUPANCY RISK FACTOR — NEW BUILDINGS WORKSHEET 4.7.5 ADJUSTED OCCUPANCY RISK **FACTOR** — **EXISTING BUILDINGS** (For use with NFPA 101A-2010/NFPA 101-2009) (p. 1 of 4).

FIGURE 4.7 Worksheets for Evaluating Fire/Smoke Zones.

Safety Parameters	ł				Parame	ter Value	es				
1. Construction	.[	Combustible Noncombustib Types III, IV, and V Types I and II						•			
Floor or Zone	000	·	111	200	917	2HH	000		111	····	
First	-2		0	.22		0	.0	<u> </u>	2		9.
Second Second	-7.		<del></del>			2	-2		2		·4
Third	-9		<del>-71</del>	-4 -9			-7	_	2		7
4th and Abov			<del></del>	-13			9		<del>7</del>		<del></del>
	Class C	ـــب	Class.		Class		Ţ	<u>,,-</u>	Ť		<del></del>
2. Interior Finish (Corridors and Exits)	-5(0)f		0(3)f		3		7				
	Class C		Class I		Lilan	<del></del>	1.		†		<del>. :</del>
3. Interior Finish (Reoms)	$-3(1)^{f}$		1(3)	·	3		-{:		•		
	None or		1(0)				1		+		
4. Corridor Partitions/Walls	Incomplet	æ	<% hr		>1/2 hr to	n<1 hr		1 hr	1		
12(GIDIOILES (FRIIG	-10(0)a		0		1(0	i)a	1 2	2(0)a.			
E Thomas to Counties							≥20 m	n FFR an	d		
5. Doors to Corridor	No Door		<20 min F	PR	>20 mir		<del></del>	to Clos.	_		
<u>.</u>	-10		). O		1(0		_	5(0) <sub>d</sub> .			
6. Zone Dimensions			Dead End			No	Dead Er	ds >30 ft		T	gth Is
	>100 ft	_ >	50 ft to 100 f		ft to 50 ft		50 ft	100 ft to		1 4	DO FF
	-6(0)b		-4(0) <sup>b</sup>		-2(0) <sup>b</sup>		)գ(Օ)ի	0(0)	_		1.
7. Vertical Openings	Open 4 or M Floors	ore	Open 2 o		<1		· · · · · · · · · · · · · · · · · · ·	Indicated ir to <2 hi		esist. ≥2	
	-14		-10	<b></b>		<del> </del>	<u> </u>	2(0)°			(1). ur.
		bla I	Deficiency				Jeficienc		<del>-      </del>	o Defic	
8. Hazardous Areas	In Zone	DIE T	Outside Z	one	În Ze			acent Zon		io pere	tencies
	-11	·············	-5	DIE.	6		×	-2	6.		
	No Centre	á	Smoke Ba			ech. Assi:			-}		
9. Smoke Control	INO CORTER	D1	Serves Z		2,72,4	by:	Zone	OHD,			
	-5(0)¢		-0:				3		7		
10 F	<2 Routes	5			Multiple Routes				Direct I	Cwitia's	
10. Emergency Movement					W/O Hor		Ho	rizontal	┨ '	Direct	JA10,57.
Routes	- 1		Deficie	nt	Exit	(2)	E	sit(s)			
	-8.		-2		.0			1.	<u> </u>	5	
II. Manual Fire	No Ma	nual	Fire Alarm		manual Fire Alarm			_			
Alarm					W/O F.D		in. W/FD Copn		_		
		<u> </u>	4		1			2			
12. Smoke Detection and Alarm	None		Corridor :	Only	Rooms	Only		idor and f Spaces		Total S in Zo	
वसर भाषां प्रा	0(3)g		2(3)5		30	3)¢		4	<u> </u>	5	
I3. Automatic			Corridor		Ent		_	······································			
Sprinklers	None.		Habit, St	oace	Built	ing	1		1		
Use (0) where Parameter 5 i Use (0) where Parameter 10 Use (0) on floor with fewer t patients (existing buildings Use (0) where Parameter 1 i or on an unprotected type of	is - 8. han 31 hanly). s - 10. s based on first flo		room i the ro sprink Use th protec he   h Use (6	is protection with ders, Pa nis valuated wit ted wit	area of Cla ted by auto existing Co trameter 4 e in addition in quick-res e zone area ke barrier	omatic sp lass C in is greater in to Para ponse au ≤22,500	rinklers terior fin then or meter 13 tomatic s	and Paran ish is prote equal to 1, if the enti prinklers.	eter 13 ected by and Pa re zone	is 0; us autom rameter is	e ( ) if atic : 13 is 0.

For SI units, 1 ft = 0.3048 m; 1 ft $^2$  = 0.092 m<sup>2</sup>.

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

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Safety Parameters	Containment Safety (S <sub>1</sub> )	Extinguishment Safety (S <sub>2</sub> )	People Movement Safety (S <sub>3</sub> )	General Safety (S <sub>4</sub> )
. Construction	4	4		4
. Interior Finish (Corr. and Exit)	3		3	3
. Interior Finish(Rooms)	3			3
. Corridor Partitions/Walls	2			2
. Doors to Corridor	1		1	1.
. Zone Dimensions			1	1
. Vertical Openings	-10		-10	-10
. Hazardous Areas	0	0		o .
. Smoke Control			.Ò.	Ö
. Emergency Movement Routes			D-	.0.
. Manual Fire Alarm		2		2
. Smoke Detection and Alarm		4	4:	4
. Automatic Sprinklers	10	10	10 ÷ 2 = 5	.10
Total Value	S <sub>1</sub> = 13	S <sub>2</sub> = 20	S <sub>3</sub> = 4	S <sub>4</sub> = 20

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

	Contain	тепt ( <i>S<sub>a</sub></i> )	Extinguish	nment (S <sub>b</sub> )	People Movement (Sc)		
Zone Location	New	Exist.	New	Exist.	New	Exist.	
1st story 2nd or 3rd story <sup>b</sup> 4th story or higher but not high rise	11 15 18	5 9 9	15(12) <sup>a</sup> 17(14) <sup>a</sup> 19(16) <sup>a</sup>	4 6 6	8(5) <sup>a</sup> 10(7) <sup>a</sup> 11(8) <sup>a</sup>	1 3 3	
High rise	18	17	19(16) <sup>a</sup>	16	11(8)a	<i>T</i>	

<sup>\*</sup> Use ( ) in zones that do not contain patient sleeping rooms.

#### WORKSHEET 4.7.8B MANDATORY SAFETY REQUIREMENTS - EXISTING NURSING HOMES

Zone Location	Containment (S <sub>a</sub> )	Extinguishment (S <sub>b</sub> )	People Movement ( $S_c$ )
lst story 2nd story 3rd story 4th story or higher	$\frac{\hat{2}}{8}$	16	

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

Zone Location	Containment (S <sub>a</sub> )	Extinguishment (S <sub>b</sub> )	People Movement ( $S_c$ )
1st story 2nd or 3rd story	13. 17	17(14)** 19(16)*	8(5)* 10(7)*
4th story or higher	. 18	19(16)**	11(8)*

 $<sup>{}^{\</sup>circ}\text{Use}\left(\ \right)$  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

<sup>&</sup>lt;sup>b</sup> 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:  $S_{\alpha} = 7$ ,  $S_{b} = 10$ , and  $S_{c} = 7$ .

		Yes	# 1	No
	ntainment minus Mandatory $S_1$ $S_2$ $C$ Rety $S_1$ $S_3$ $S_4$ $S_5$ $C$ $S_6$ $C$ $S_1$ $S_2$ $S_3$ $S_4$ $S_5$ $S_6$ $S_7$ $S_8$	<b>/</b>		
	tinguishment minus Mandatory $S_2$ $S_b$ $E$ fety $S_2$ $S_b$ $E$ $S_b$	/	٠.	
Pe Sa	ople Movement minus Mandatory People fety $(S_3)$ Movement $(S_c)$ $> 0$ $\begin{bmatrix} S_3 & S_c & P \\ 4 & - 2 & 2 \end{bmatrix}$			
G (S	neral Safety minus Occupancy $Risk(R)$ $\geq 6$ $S_4$ $R$ $G$ $= 19$	<b>✓</b>	,	
ompl ir ea	WORKSHEET 4.7.10 FACILITY FIRE SAFETY REQUIREMENTS WORKSH ate one copy of this worksheet for each facility. In consideration, select and mark the appropriate column.	EET Met	Not Met	Not Appli
Α.	Building utilities conform to the requirements of Section 9.1.	<b>/</b>		$\geq$
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.			/
Ċ.	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.		<u> </u>	>
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.	<i></i>		>
G.	Smoking regulations have been adopted and implemented in accordance with 18.7.4 and 19.7.4.	/		$>\!<$
Ή.	Combustibility of draperies, upholstered furniture, mattresses, furnishings, and decorations is limited in accordance with 18:7.5 and 19:7.5.	/		
ī.	Fire extinguishers are provided in accordance with the requirements of 18.3.5.11 and 19.3.5.11.	<u></u>		>
ij,	Exit signs are provided in accordance with the requirements of 18.2.10.1 and 19.2.10.	<u> </u>		
K.	Emergency lighting is provided in accordance with 18,2.9,1 or 19,2.9,1.	1	· · · · · · · · · · · · · · · · · · ·	
Ŀ.	Standpipes are provided in all new high-rise buildings as required by 18.4.2.	- <del>.</del> Y.		1.7
rele	ences 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 e prescribed by the Life Safety Code.*	quivaler	it to tha	iŧ
2. [	One or more of the checks in Worksheet 4.7.9 are in the "No" column. The level of fire safety is a system to be equivalent to that prescribed by the Life Safety Code."	not show	m by th	is
-	he equivalency covered by this worksheet includes the majority of considerations covered by the <i>Life Safe</i> possiderations that are not evaluated by this method. These must be considered separately. These addition overed in Worksheet 4.7.10, the Facility Fire Safety Requirements Worksheet. One copy of this separate wompleted for each facility.	al consid	leration:	are

FIRE SAFETY EVALUATION SYSTEM FOR HEALTH CARE OCCUPANCIES

		WORKSHE	ET 4.7.1 COVE	R SHEE	Т			
	Fire/Smoke	Zone* Evaluatio	on Worksheet for F	Iealth Ca	ire Facili	ties		
	University Transitional S					<del> </del>		
Zone(s) evaluated EvaluatorM_Thur			**************************************	Zone 4 of 18 Date 10 /28 /2016				
Complete this works	heet for each zone. Wh				, one wo	ksheet can be use	d for those zones.	
*Fire/s	make rano is a spaco sej	carated from all	other spaces by fl	oors, hor	izontal e	xits, or smoke bar	riers.	
	WODKERE	ET 470 OC	CUPANCY RISK	DADAN	ETED (	:ACTODO		
Risk Parameters	WORKSHE	E1 4;7.22 GC	Risk Factor		1E 1 E D. I	ACTONS	<del></del>	
	Mobility Status	Mobile	Limited M		No	: Mobile	Not Movable	
1. Patient Mobility (M)	Risk Factor	1.0	1.6		1,0	3.2	4.5	
<del> </del>	No. of Patients	1-5	6-10	 i		11-30	>30	
2. Patient Density (D)								
<del> </del>	Risk Factor	1.0	1.2		<u> </u>	1.5	2.0	
3. Zone Location (L)	Floor	lst	2nd or 3rd	4th to 6th 7		7th and Above	Basements	
FOCATION (E)	Risk Factor	1,1	1.2	1.4		1.6	1.6	
4. Ratio of Patients to	<u>Patients</u> Attendant	<u>1-2</u> 1	3 <u>-5</u> 1	3-5 6- 1 1		>10°	One or More* None	
Attendants (T)	Risk Factor	1.0	1.1	1,2		1,5	4.0	
5. Patient	Age	<65 Y	ears and >1 Year	s and >1 Year		≥65 Years or ≤1 Year		
Average Age (A)	Risk Factor		1.0	1.2				
*A risk f	actor of 4.0 is charged to	any zone that	houses patients w	thout an	y staff in	immediate atten	dance.	
	WORKSHEET	4.7.3 OCCU	PANCY RISK FA	CTOR C	ALCUL	ATION		
<del>-:</del>		M D	. <u>L</u>	T.		A F	<del></del> -	
Occ	upancy Risk	1.0 × 1.2	1,2	× 7,1	×	1:0 = 1:6	]	
	4 ADJUSTED OCC OR — NEW BUILDING		WORK	SHEET 4	4.7.5 A	DJUSTED OCC	CUPANCY RISK	
1.0×					.6× 1.6	, R	mygo	
For use with NFPA 1017	A-2010/NEPA 101-2009)						(p. f of 4).	

FIGURE 4.7 Worksheets for Evaluating Fire/Smoke Zones.

Safe	ety Parameters		Parameter Values								
1. Cons	struction		Combustible Noncom								
21		Types III, IV, and V			1 4			Types			
	Floor or Zone	000	1111	200	211, 2HH		000		11.	222, 322, 44	
	First		<u>0</u>	2		):	0		2	2	
	Second	-7:	-2	:4	-2		-2		2:	-4	
	Third 4th and Above	9 	<u>-7</u>	<u>-9</u> -13		· manine manine	$\frac{-7}{-9}$		2 7	4	
a :			Class	<del></del>			-9.	<del> </del>	<del></del>	4	
	rior Finish ridors and Exits)	Class C -5(0) <sup>f</sup>	0(3		3	_	-				
		Class C	Class		Class	<del></del>	<u> </u>	·····		· · · · · · · · · · · · · · · · · · ·	
3. Inte	rior Finish	-3(1)f	1(3		3	<u> </u>	-				
		None or	1(0				<b> </b>	·····			
4: Corr	ndor stions/Walls	Incomplete	<% h	r .	≥½ hr to	<3 hr		>1 hr	į		
		-10(0)a	0		1(0)	а.		2(0)a			
E Trace	rs to Corridor		<u> </u>				≥20 m	in FPR and		•	
o. Door	rs.to Corridor	No Door	<20 min	FPR	≥20 mm			to Clos.	i		
		-10	0		1(0)			5(0)q			
6. Zone	Dimensions		Dead End					nds >30 ft an	<del></del>		
			50 ft to 100		to 50 ft		0 ft	100 ft to 18	50.ft	100 A	
		-6(0) <sup>6</sup>	-4(0) <sup>0</sup>		2(0) <sup>b</sup>		)բ(0)հ	0(0)h		1	
7. Vert	ical Openings	Open 4 or More	Open 2.				· 1 - · · · ·	Indicated Fi	re Res		
		Floors	Floor	-	<1 h	r	≥1 !	hr ta <2 hr	<del> </del>	≥2 hr	
	<del></del>	-14 Dble			0	Carlina a T	l Deficienc	2(0)°		3(0)u	
8. Haz	ardous Areas		Deficiency	_			1	<del>-</del>	No	Deficiencies	
		In Zone	Outside	Zone	In Zo	ne	· · · · · · · · · · · · · · · · · ·	acent Zone			
		-11	<u>–5</u>		−6 Mech. Assis			-2			
9. Smo	ke Control	No Control	Smoke Barrier Serves Zone				Zone				
		-5(0)°.	O O		з						
10 É		<2 Routes			Multiple l		X			rect Exit(s)	
	tergency ovement	12 200			W/O Horizontal		Horizontal			Tect Exit(s)	
	utes		Defici	ent	Evitle		Exit(s)				
		-8	-2		0			1		5	
11. Ma	nual Fire	No Manua	l Fire Alarm		Manual Fire			m .			
	rm				W/O F.D.	Coun.	144	Copp.			
			4		1			2			
12. Sm	ioke Detection	Nonė	Corridor	Onto	Rooms	Oweler.		ndor and	T	otal Spaces	
and	d Alarm	0(3)g	2(3)		3(3)		riah	it Spaces		in Zone	
	·	0(3)6	Corrido		රැය. Enti:		<b> </b>	.4		5	
13. Aut	tomatic rinklers	None	Habit. 8		Buildi						
-Spi	rmajera	:0	S		10		İ				
Use (0) to Use (0) to patients Use (0) to Use (0) to or on an	where Parameter 5 is — where Parameter 10 is on floor with fewer than (existing buildings only where Parameter 4 is — where Parameter 1 is bunprotected type of con "000" or "200").	-8. 131 y). 10. ased on first floor z	room the r sprii g Use prote h Use	is protect nom with aklers, Par this value ected with (0) where	ed by auto existing Cl ameter 4 is in addition quick-resp	matic spass C into greater to Para onse aut	rinklers terior fin than or meter 12 omatic s	If the entire	er 13 is ed by a id Para zone is	s 0; use ( ) if utomatic imeter 13 is 0.	

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FIGURE 4.7 Continued

(For use with NFPA 101A-2010/NFPA (01-2009)

Safety Parameters	Containment Safety (S <sub>1</sub> )	Extinguishment Safety $(S_2)$	People Movement Safety (S <sub>3</sub> )	General Safety (S <sub>4</sub> )
. Construction	4	4.		4
Interior Finish (Corr. and Exit)	3		3	3
Interior Finish(Rooms)	3			3 3
. Corridor Partitions/Walls	2			2
. Doors to Corndor	1		4.	·1
. Zone Dimensions			1.	1
. Vertical Openings	-10		-10	-10
. Hazardous Areas	Ö	0		0
. Smoke Control			0	o
. Emergency Movement Routes			0	. 0
. Manual Fire Alarm		2		2
. Smoke Detection and Alarm		4.	4	4
. Automatic Sprinklers	10	10	10 + 2 = 5	10

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

		nent (S <sub>B</sub> )	Extinguish	···	People Mov	ement (S <sub>c</sub> )
Zone Location	New.	Exist.	New	Exist.	New	Exist.
1st story 2nd or 3rd storyb 4th story or higher but not high rise	11 15 18	5 9 9	15(12) <sup>a</sup> 17(14) <sup>a</sup> 19(16) <sup>a</sup>	4 6 6	8(5) <sup>a</sup> 10(7) <sup>a</sup> 11(8) <sup>a</sup>	1 3 3
High rise	18	17	19(16) <sup>a</sup>	16.	11(8)a	<sup>1</sup> 7

<sup>\*</sup> Use ( ) in zones that do not contain patient sleeping rooms.

#### WORKSHEET 4.7.8B MANDATORY SAFETY REQUIREMENTS — EXISTING NURSING HOMES

Zone Location	Containment (S <sub>a</sub> )	Extinguishment ( $S_b$ )	People Movement ( $S_c$ )		
1st story 2nd story 3rd story		10			
4th story or higher	. 8	16	. 2		

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

Zone Location	Containment (S <sub>a</sub> )	Extinguishment (S <sub>b</sub> )	People Movement ( $S_c$ )
1st story 2nd or 3rd story	18 <sup>:</sup> 17	17(14)* 19(16)*	8(5)* 10(7)*
4th story or higher	18	19(16)*	11(8)*

<sup>\*</sup>Use ( ) in zones that do not contain patient sleeping rooms.

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

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<sup>&</sup>lt;sup>b</sup> 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  $S_c = 7$ .

								Yes	<b>;</b> .	No
	ontainment $(S_1)$	minus	Mandatory Containment $(S_a)$	≥	0	S <sub>3</sub>	$S_a = C$ $2 = 11$	<b>V</b>		
	stinguishment dety ( $S_2$ )	minus	Mandatory Extinguishment ( $S_b$	)· >	0	S <sub>2</sub>	$\begin{array}{c} S_6 & E \\ \hline 10 & = \boxed{10} \end{array}$	<b>V</b>		
	ople Movement fety $(S_3)$	minus	$\begin{array}{c} \text{Mandatory People} \\ \text{Movement} \left(S_c\right) \end{array}$	>	o .	$\begin{bmatrix} s_3 \\ 4 \end{bmatrix}$	$\begin{array}{c} S_{c} & P \\ \hline 2 & = \boxed{2} \end{array}$			
	eneral Safety	minus	Occupancy Risk (R)	ž	ç	8 <sub>4</sub>	R = G $19$			
rea	ete one copy of the	is workshe select and	EET 4.7.10 FACIL et for each facility. mark the appropriate co	umn.			EMENTS WORKS	Met	Not Met	No Appl
A. B.		<del> </del>	nm to the requiremen ife-support systems, a				tion systems and	🗸		12
	illumination	of genera	tor set locations are po	wered a	is preso	ibed by 18.5.1	.2 and 18.5.1.3.			12
C.	ventilating sy	stems re	ioning systems confor quirements within Sed dered in Safety Paran	tion 9.2	. except	for enclosure	eating, and of vertical openings,			$\geq$
D.	Fuel-burning	space he	aters and portable ele	trical s	pace he	iters are not u	sed.	V_		$\geq$
F).	There are no		.,				,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	V		
F.	An evacuation and 19.7.1/19		provided and fire drill	s conduc	cted in a	ccordance wit	h 18.7.1/18.7.2			>
G.	Smoking regu	dations h	ave been adopted and i	mpleme	nted in	accordance wit	h 18.7.4 and 19.7.4.			$\searrow$
Н.	Combustibili	y of drap	eries, upholstered fur with 18.7.5 and 19.7.5	iture, n	nattress	es, furnishings	, and decorations is	1 + 1		
I:	<del> </del>		provided in accordance		e requir	ements of 18.	3.5.11 and 19.3.5.11.			$\searrow$
J.			l in accordance with th	<del></del> -				1	<del> · ·· ·</del>	
K			provided in accordance	<del></del>				1		1
Ļ.			ed in all new high-rise			·····	2.			
reier	ences are to NFPA	101, Life Sa	afety Code.		·····			,		
						CONCLUSIO		<del> </del>		<del>- ,</del>
1. [	All of the ch prescribed b	ecks in W y the <i>Life</i>	orksheet 4,7,9 are in t Safety Code:#	he "Yes'	"column	The level of	lire safety is at least	equivalen	t to the	it
2: [	system to be	equivale	ecks in Worksheet 4.7 at to that prescribed b	y the L	ifc Safet	y Code."			-	
C	onsiderations the	it are not : ieet 4,7,10	this worksheet includes evaluated by this metho , the Facility Fire Safet	d. These	must be	considered se	parately. These additi	onal consid	eration	sare

# APPROVED By Tom Linhoff at 9:15 am, Nov 03, 2016 HEALTH CARE OCCUPANCIES 101A-15

		WORKSHEE	T 4.7.1 COVE	RSHEE	Т			
			n Worksheet for H			ities		
	Iniversity Transitional Se	rvices	Building 01- Main Building					
Zone(s) evaluated			Zoné 5-of 18 Date 10 /28/ 2016					
Evaluator M. Thurir	heet for each zone. Whe					1-1-2-2-3-3-3-3-3-3-3-3-3-3-3-3-3-3-3-3-	1.6.4)	
	noke zone is a space sep	parated from all	other spaces by fl	oors, hori	izontal e	xits, or smoke ba		
Risk Parameters	WORKSHE	E1 4.7.2 OCC	CUPANCY RISK Risk Factor	<del></del>	EIEK I	-ACTORS		
1. Patient	Mobility Status	Mobile	Limited M	<del>:-</del>	No	t Mobile	Not Movable	
Mobility (M)	Risk Factor	i.0	1.6			3:2	4.5	
t. Patient	No. of Patients	1-5	6-10	<u> </u>	:	11-30	>30	
Density (D)	Risk Factor	1.0	1.2	<b></b>	1.5		2.0	
3. Zone Location (L)	Floor	1st	2nd or 3rd	4th to 6th 7th		7th and Above	Basements	
	Risk Factor	1.1.	1.2	1.	4	1.6	1,6	
4. Ratio of Patients to Attendants	Patients Attendant	1-2	3-5	6-10		>10	One or More* None	
(T)	Risk Factor	1.0		1.2		1.5	4.0	
5. Patient Average	Age	<65 Ye	ears and >1 Year	; .		≥65 Years or s	1 Year	
Age (A)	Risk Factor		1.0	1.2				
*A risk fa	actor of 4.0 is charged to	any zone that l	nouses patients wi	thout an	y staff ir	immediate atter	dance.	
·	WORKSHEET	4.7.3 OCCU!	PANCY RISK FA	CTOR C	ALCUL	ATION		
Oce	upancy Risk	M D	× 1.2	× 1.1	×	$ \begin{array}{c} A \\ \hline 1.0 \end{array} =  \begin{array}{c} F \\ \hline 1.6 \end{array} $		
	4 ADJUSTED OCCI DR — NEW BUILDING		WORK			ADJUSTED OCC		
1.0×	F R			θ	.6 x 1	$\frac{R}{1.0}$ = $\frac{R}{1.0}$		
For use with NFPA 1014	4-2010/NFPA <i>101-</i> 2009)						(p. t of	

FIGURE 4.7 Worksheets for Evaluating Fire/Smoke Zones.

Safety Parameters	Parameter Values										
1. Construction	Combustible Types III, IV, and V					: : : .	Noncombustible Types I and II				
Floor or Zone	000 111 200		211, 2	2HH	000	<del> </del>	· · · · · · · · · · · · · · · · · · ·	2, 322, 44			
First	-2.	.0		-2		0	0		3	2	
Second	7	-2.		4	-:	2	-2	1 4	2	4	
Third	-9	-7		-9		7	<u>7</u>		2	4	
4th and Above	13	-7		-18	'	7	~9		7	4	
2. Interior Finish	Class C		Class B		Clare	<u> </u>					
(Corridors and Exits)	-5(0)f		0(3)f.		3						
3. Interior Finish	Class C		Class B		1000						
(Rooms)	-3(1)f		1(3)f		3	- T					
4. Corridor	None or							* - *			
Partitions/Walls	Incomplete		<1/2 hr		≥%hr to			>1.hr			
	-10(0)a		0		1(0)	<u>)</u> #	<u> </u>	2(0)a			
5. Doors to Corridor	No Door <20 min		20 min FI	20	≥20 min FPR			to Clos.			
	-10	<del></del>	0	1				2(0) <sup>d</sup>			
<u></u>	-1,1/	De:	ad End		,1(0,			nds >30 ft an	d Zone Le	noth Is	
6. Zene Dimensions	>100 ft	· ·	t to 100 ft	30.6	to 50 ft		50 ft	100 ft to 18		-100.0	
	-6(0)b		4(0) <sup>b</sup>		2(0)h		)c(0)h	0(0)h	· · ·	1	
a vide io	Open 4 or Mo	ra	Open 2 or			<u> </u>		Indicated Fi	e Resist		
7. Vertical Openings	Floors Floors		<11			nr to <2 hr	· · · · · · · · · · · · · · · · · · ·	2 hr			
	-14	14 -10		1	0		2(0)*		<del></del>	3(0)¢	
8. Hazardous Areas	Double Deficiency		1.	Single Deficiency			y I	<del></del>	iciencies		
a. nazatoons Areas	ln Zone	(	Outside Zo	ne	In Zone		In Adjacent Zone				
	-11		<b>–</b> Б		-6		-2			0	
9. Smoke Control	No Control	9	moke Bar	rior	Mech. Assisted Systems						
s. Shoke Control			Serves Zone		by Zone						
	-5(0) <sup>c</sup>		0				3				
10. Emergency	<2 Routes		-	<b></b>	Multiple.	Routes			Direct	Exit(s)	
Movement		l	TD . P* 1	. 1	W/O Hori			rizontal			
Routes	-8	-	Deficien	t .	li with	-	<u> </u>	xit(s)		_	
· · · · · · · · · · · · · · · · · · ·	−o No Man	1 YF:			-0		Pit Aller	1	<del></del>	5	
11. Manual Fire	ING MIGH	Det Dan	s Wraciti'		Wanual Fire Alarm W/O F.D. Conu. W/FD-Con.						
Alarm		-4		-	707/O F.D.	Conn.		2			
12. Smoke Detection	None	一	Corridor O	nly	Rooms	Only		idor and		Spaces	
and Alarm	0(3)	+	2(3)8		3(3		1	it Spaces	ın.	Zone	
	, U(3)8		Corridor a	nd -	Enti	<del> </del>	<del>  </del>	4		.5	
13. Automatic Sprinklers	None		Habit. Spa		Raild		1				
Obimpiers.	0.		8		10		1				

For SI units, 1.6t = 0.3048 m;  $1.6t^2 = 0.092$  m<sup>2</sup>.

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

<sup>f</sup> 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.

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.

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 $<sup>^{\</sup>rm b}$  Use (0) where Parameter 10 is +8

<sup>#</sup>Use (0) on floor with fewer than 31 patients (existing buildings only).

<sup>\*\*</sup>Color of the Color of the Col

Safety Parameters	Containment Safety (S <sub>1</sub> )	Extingulshment Safety (S <sub>2</sub> )	People Movement Safety (S <sub>3</sub> )	General Safety (S <sub>4</sub> )
I. Construction	4	4		4
2. Interior Finish (Corr. and Exit)	3.		3	3
Interior Finish(Rooms)	3			3
4. Corridor Partitions/Walls	2			2.
5. Doors to Corridor	1		1	1
3. Zone Dimensions			1	4
I. Vertical Openings	-10		-10	-10
3. Hazardous Areas	0	0		0 .
). Smoke Control			0	0
). Emergency Movement Routes			0	0
. Manual Fire Alarm		2		2
. Smoke Detection and Alarm		4	4	4
. Automatic Sprinklers	10	10	10 ÷ 2 = 5	10

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

	Contain	πent (S <sub>a</sub> )	Extinguish	ment (S <sub>b</sub> )	People Movement ( $S_c$ )		
Zone Location	New	Exist,	New	Exist.	New	Exist.	
1st story 2nd or 3rd story <sup>b</sup> 4th story or highev but not high rise	11 15 18	5 9 9	15(12) <sup>a</sup> 17(14) <sup>a</sup> 19(16) <sup>a</sup>	4 6 6	8(5) <sup>a</sup> 10(7) <sup>a</sup> 11(8) <sup>a</sup>	1 3 8	
High rise	18	17	19(16)a	16	11(8) <sup>à</sup>	7	

<sup>\*</sup> Use ( ) in zones that do not contain patient sleeping rooms.

#### WORKSHEET 4.7.8B MANDATORY SAFETY REQUIREMENTS - EXISTING NURSING HOMES

Zone Location	Containment (S <sub>a</sub> )	Extinguishment (S <sub>b</sub> )	People Movement (S <sub>c</sub> )
1st story 2nd story 3rd story 4th story or higher		16	

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

Zone Location	Containment (S <sub>a</sub> )	Extinguishment (S <sub>b</sub> )	People Movement (S <sub>c</sub> )
1st story 2nd or 3rd story	13 <sup>°</sup> 17	17(14)* 19(16)*	8(5)* 10(7)*
4th story or higher	. 18	19(16)*	11(8)*

<sup>\*</sup>Use ( ) in zones that do not contain patient sleeping rooms.

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

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<sup>&</sup>lt;sup>b</sup> 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:  $S_{\alpha} = 7$ ,  $S_{b} = 10$ , and  $S_{c} = 7$ .

	S; S. C	Ye	<u>s</u>	No	
	ntainment minus Mandatory $S_1$ $S_2$ $S_3$ $S_4$ $S_4$ $S_5$ fety $S_1$ $S_4$ $S_5$ $S_6$ $S_7$ $S_8$	v			
	tinguishment minus Mandatory fety $(S_2)$ minus Extinguishment $(S_b) > 0$ $\begin{bmatrix} S_2 & S_b & E \\ 20 & -10 \end{bmatrix} = \begin{bmatrix} 10 \end{bmatrix}$	\ \ \	,		
Pe Sa	ople Movement minus Mandstory People fety $(S_3)$ Movement $(S_c)$ > 0 $\begin{bmatrix} S_3 & S_c & P \\ 4 & - & 2 \end{bmatrix} = \begin{bmatrix} 2 & 1 & 1 & 1 \\ 2 & - & 2 & 1 \end{bmatrix}$	V	,		
Ge (S	ineral Safety minus Occupancy $\geq 0$ $S_4$ $R$ $G$ $\geq 0$ $20$ $-1$ $= 19$	V	/		
mpler eac	WORKSHEET 4.7.10 FACILITY FIRE SAFETY REQUIREMENTS WORKS ate one copy of this worksheet for each facility. The consideration, select and mark the appropriate column.  Building utilities conform to the requirements of Section 9.1.	Met	Not Met	Not Appli	
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.	1		X	
D.	Fuel-burning space heaters and portable electrical space heaters are not used.	V_			
E,	There are no flue-fed incinerators.	L V		<u></u>	
E	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.			$\rightarrow$	
G.	Smoking regulations have been adopted and implemented in accordance with 18.7.4 and 19.7.4.	1			
Н.	Combustibility of draperies, uphoistered furniture, mattresses, furnishings, and decorations is limited in accordance with 18.7.5 and 19.7.5.	1			
1.	Fire extinguishers are provided in accordance with the requirements of 18.3.5.11 and 19.3.5.11.	1	ļ		
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.				
Ļ.	Standpipes are provided in all new high-rise buildings as required by 18.4.2.		ļ		
rele	ences 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 prescribed by the Life Safety Code."	equivale	nt to th	at	
2. [	One or more of the checks in Worksheet 4.7.9 are in the "No" column. The level of fire safety is system to be equivalent to that prescribed by the Life Safety Code."	s.not shov	wn by th	iİs	
ж.л	he equivalency covered by this worksheet includes the majority of considerations covered by the <i>Life Sc</i> onsiderations that are not evaluated by this method. These must be considered separately. These additi overed in Worksheet 4.7.10, the Facility Fire Safety Requirements Worksheet. One copy of this separate	onal consi	deration	sare	



#### 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 10 /28/ 2016 Date 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 Factor Values **Risk Parameters** Mobility Status Mobile Limited Mobility Not Mobile Not Movable 1. Patient Mobility (M)Risk Factor 1.0 1.6 3.24.5 6 - 10No. of Patients 1-5 11 - 30>30 2. Patient Density (D)Risk Factor 1.0 1.2 1.5 2:0 Floor 1st 2nd or 3rd 4th to 6th 7th and Above Basements 3. Zone Location (L)Risk Factor 1.1 1.2 1.4 1.6 1.6 Patients One or More 6-10 1 >10 4. Ratio of None Attendant Patients to Attendants (T)Risk Factor 1.0 1.1 1.2 1.5 4.0Age 5. Patient <65 Years and >1 Year ≥65 Years or ≤1 Year Average Age (A) Risk Factor 1:0 1.2 \*A risk factor of 4.0 is tharged to any zone that houses patients without any staff in immediate attendance, WORKSHEET 4.7,3 OCCUPANCY RISK FACTOR CALCULATION Occupancy Risk 1.0 WORKSHEET 4.7.4 ADJUSTED OCCUPANCY RISK WORKSHEET 4.7.5 ADJUSTED OCCUPANCY RISK FACTOR - NEW BUILDINGS **FACTOR — EXISTING BUILDINGS** (For use with NFPA 101A-2010/NFPA 101-2009) (p. 1 of 4)

FIGURE 4.7 Worksheets for Evaluating Fire/Smoke Zones.

Safety Parameters				Paramet	er Value	es :		•	
1. Construction	Combustible Noncor Types III, IV, and V Types								
Floor or Zone	000	111	200	211, 2	HH	000	<del>~~~~</del>		2, 322, 4
First	-2	0	-2 0		0		2	2	
Second	-7	-2	-4			-2		2	4.
Third	-9	-7				-7		2   1	
4th and Above	-13	-7	-13	_		9		7	4
2. Interior Finish	Class C	Cla	ss B	- <del> </del>	-	1			
(Corridors and Exits)	-5(0)f		3)f	3		1			
3. Interior Finish	Class C	Cla	ss B	Clare					
(Rooms)	-3(1)f	10	(3)f	3	_	1			
4. Corridor Partitions/Walls	None or Incomplete	< 1/2	ħr	≥½ hr to	< I hr		≥1_hr		
rardions/ waits	-10(0) <sup>a</sup>	0		1(0)	)à.		2(0)a		
5 D. 4 C. 29					· · · · · · · · · · · · · · · · · · ·	≥20 ni	in FFR and	N	· · · · · · · · · · · · · · · · · · ·
5. Doors to Corridor	No Door	<20 mi		≥20 min			to Clos.		
	-10	0.		1(0)			2(0)d		
6. Zone Dimensions		Dead En					nds >30 ft ar		
		>50 ft to 10		to 50 ft		50 ft	100 ft:to:1	50 ft	4000
	6(0) <sup>b</sup>	-4(0) <sup>5</sup>		2(0)b		)c(0)h	0(0)h		1
7. Vertical Openings	Open 4 or More Floors		2 or 3 ors	<1.)			Indicated Fi hr to <2 hr		2 hr
	-14		10.	0			2(0)6		3(0)6
8. Hazardous Areas	Double Deficiency		Single Deficiency			y	No Det	iciencies	
or impriminations	In Zone	Outsid	le Zone	In Zone		In Adjacent Zone			
	-11		i	-6		-2			0
9. Smoke Control	No Control		Barrior			sted Systems		<u> </u>	
			s Zone			Zone	····		
	-5(0) <sup>c</sup>			N# 3.7 3		<u>3:</u>			
10. Emergency	<2 Routes			Multiple Routes W/O Horizontal		Horizontal		Direc	Exit(s)
Movement Routes		Defi	cient	W/U Hor Exit			rizontal Exit(s)		
	-8			0	$\neg$	· · · · ·	1		5
11 25		l Fire Alar	m.	Rianual Fire Alarm					<u> </u>
11. Manual Fire Alarm				W/O F.D. Conn. W/FD Gran					
7,3,500	-	-4		1		2			
12. Smoke Detection	None	Corrid	or Only	Rooms	Only		ridor and it Snaces		Spaces Zone
and raid in	0(3)g		3)s	3(3	)g		4		5
13. Automatic	BOT A LANGE		lor and	Entire					
Sprinklers	None 0		. Space	Building 10		-			
Use (0) where Parameter 5 is Use (0) where Parameter 10 is Use (0) on floor with fewer that patients (existing buildings on Use (0) where Parameter 4 is Use (0) where Parameter I is b or on an unprotected type of comarked "000" or "200").	10. -8. -8. 131 y). 10. 9sed on first floor 2	f Us roo the spr g Us pro s h Us	e() if the a m is protect mom with inklers, Par e this value itected with	rea of Classed by autoexisting Clameter 4 in addition quick-response area:	s B or C matic sp lass C in s greater to Para conse au ≤22,500 (	rinklers terior fin than or meter 13 tomatic s	finish in the and Paramet ish is protect equal to 1, a 3 if the entire prinklers. istance from	er 13 is 0; ed by auto nd Parame zone is	ise ( ) if matic er 13 is 0.

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FIGURE 4.7 Continued

For SI units,  $1 \, \mathrm{ft} = 0.3048 \, \mathrm{m}$ ;  $1 \, \mathrm{ft}^2 = 0.092 \, \mathrm{m}^2$ . (For use with NFPA 101A-2010/NFPA 101-2009)

Šafety Parameters	Containment Safety (S <sub>1</sub> )	Extinguishment Safety (S <sub>2</sub> )	People Movement Safety (S <sub>3</sub> )	General Safety (S <sub>4</sub> )
. Construction	4	4		4
. Interior Finish (Corr. and Exit)	3		3	3
. Interior Finish (Rooms)	3			3
. Corridor Partitions/Walls	2			2
. Doors to Corridor	1		]:f	1
. Zone Dimensions			1	1
Vertical Openings	-10		-10	-10
. Hazardous Areas	Q	0		Ö.
. Smoke Control			0	:0
Emergency Movement Routes			0	0
. Manual Fire Alarm		2		2
. Smoke Detection and Alarm		4	4	4
. Automatic Sprinklers	10	10	10 ÷ 2 = 5	10

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

			1		i ·		
	Contain	ment (S <sub>a</sub> )	Extinguish	iment (S <sub>b</sub> )	People Movement (Sc		
Zone Location	New	Exist,	New	Exist.	New	Exist.	
1st story	11	5	15(12) <sup>a</sup>	4	8(5) <sup>a</sup>	1	
2nd or 3rd storyb	15	9	17(14) <sup>a</sup>	.6	10(7)a	.3:	
4th story or higher but not high rise	1.8	. 9	19(16) <sup>a</sup>	6	11(8) <sup>a</sup>	3	
Hìgh rise	18	17	19(16) <sup>a</sup>	16	11(8)a	7	

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

#### WORKSHEET 4.7.8B MANDATORY SAFETY REQUIREMENTS - EXISTING NURSING HOMES

Zone Location	Containment (S <sub>a</sub> )	Extinguishment (S <sub>b</sub> )	People Movement ( $S_c$ )
1st story 2nd story 3rd story		16	
4th story or higher	8	16	<u>2</u> .

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

Zone Location	Containment (S <sub>a</sub> )	Extinguishment (S <sub>b</sub> )	People Movement (Sc)		
1st story	1.3	17(14)*	8(5)*		
2nd or 3rd story	17	.19(16)*	10(7)*		
4th story or higher	.18	19(16)*	11(8)*		

<sup>\*</sup>Use ( ) in zones that do not contain patient sleeping rooms.

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

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<sup>&</sup>lt;sup>b</sup> 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  $S_c = 7$ .

								Yes	5'	No
	intainment dety $(S_1)$	minus	Mandatory Containment $(S_n)$	ż	:0	$\begin{array}{c c} S_1 & S_a & C \\ \hline 13 & - & 2 & = \boxed{11} \end{array}$	].	<b>√</b>		
	Extinguishment Safety $(S_2)$ minus Mandatory Extinguishment $(S_b) > 0$ $S_2$ $S_b$ $E$ $S_b$									
	People Movement minus Mandatory People Safety $(S_3)$ Mandatory People $(S_c)$ > 0 $\begin{bmatrix} S_3 & S_c & P \\ 4 & - & 2 \end{bmatrix} = \begin{bmatrix} 2 & 1 & 1 & 1 \\ 2 & 1 & 1 & 1 \\ 3 & 1 & 1 & 1 \\ 4 & 1 & 2 & 3 \end{bmatrix}$							/		
Ge (S	eneral Safety 4)	minus	Occupancy Risk (R)	≥	0	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$		_	,	
	ete one copy of thi ch consideration, s	s workshe elect and	EET 4.7.10 FACILITY Set for each facility. Mark the appropriate column to the requirement	imn.		AFETY REQUIREMENTS W	ORKSI	Met	Not Met	Not Appli
В.	In new faciliti	es only, l	ife-support systems, al	arms,	emerg	ency communication systems, scribed by 18.5.1.2 and 18.5.1.		¥		1
C.	Heating and a	ir condit	ioning systems conform	n witl	h the a	r conditioning, heating, and opt for enclosure of vertical ope				X
D.	Fuel-burning space heaters and portable electrical space heaters are not used.							<b>/</b>		$\searrow$
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.							3	/		$\geq$
G.	Smoking regu	lations h	ave been adopted and i	mplen	nented	in accordance with 18.7.4 and	9.7.4.			$\geq$
Ή.	Combustibilit limited in acc	y of drap ordance v	eries, upholstered furn with 18.7.5 and 19.7.5.	iture,	mattre	sses, furnishings, and decorati	ons is			
I.	Fire extinguis	hers are	provided in accordance	with	the rec	uirements of 18.3.5.11 and 19.3	3.5.11.	Ż		$\geq$
J.	Exit signs are	provided	I in accordance with th	е теф	uireme	nts of 18.2.10.1 and 19.2.10.		<b>V</b>		
K.	Emergency li	thting is	provided in accordance	with	18.2.9	1 or 19.2.9.1.		<b>V</b>		
Ĺ.	Standpipes ar	e provide	ed in all new high-rise	build	ings as	required by 18.4.2.				/
refe	rences are to NFPA	1.01, Life Si		EET	4,7,1	CONCLUSIONS				
1. [	All of the che prescribed by	ecks in W y the <i>Life</i>	orksheet 4.7.9 are in t Safety Code.*	ne "Ye	es" colu	mn. The level of fire safety is a	t least e	equivaler	nt to the	at
2. [	One or more system to be	of the ch equivale	ecks in Worksheet 4.7. nt to that prescribed b	9 are y the	in the <i>Life So</i>	No" column. The level of fire s fety Code."	afety is	not show	va by th	is
	onsiderations tha	t are not	evaluated by this metho	d. The	ese mus	of considerations covered by the t be considered separately. These ts Worksheet. One copy of this se	additio	nal consid	decation	s are

APPROVED

By Tom Linhoff at 9:16 am, Nov 03/2016

		WORKSHEET	4.7.1 COVE	RSHEE	т				
	Fire/Smoke:	Zone* Evaluation	Worksheet for F	lealth Ca	ire Facili	ties			
2.11007.10	Iniversity Transitional Se	ervices	Building 0		Building		<del></del>		
Zone(s) evaluated			Zone 7 of 18						
Evaluator M. Thum			Date 10./28/2016 the same in several zones, one worksheet can be used for those zones.						
*Fire/si	noke zone is a space ser	parated from all o	ther spaces by fl	oors, hor	izontal e	xits, or smoke bar	riers,		
	WORKSHE	ET 4.7.2 OCC	UPANCY RISK	PARAN	ETER F	ACTORS			
Risk Parameters			Risk Factor	Values					
1. Patient Mobility (M)	Mobility Status	Mobile	Limited M	obility	No	t Mobile	Not Movable		
Middlifty (M)	Risk Factor	1.0	1.6			3.2	4.5		
2. Patient	No. of Patients	1–5	6-10		.J	11-30	>30		
Density (D)	Risk Factor	1.0	1.2	1.2 1.5		1.5	2.0		
3. Zone Location (L)	Floor	1st	2nd or 3rd	4th to 6th		7th and Above	Basements		
rocarion (E)	Risk Factor	1.1.	1.2	1.4		1.6	1.6		
4. Ratio of Patients to	Patients Attendant	<u>1–2</u> 1	3 <u>-5</u>	3-5 1 6-10		>10	One or More* None		
Attendants $(T)$	Risk Factor	1.0	1.1	1.2		1.5	4,0		
5. Patient	Age	<65 Years and >1 Year				≥65 Years or ≤1 Year			
Average Age (A)	Risk Factor		1,0			1.2			
*A risk fa	actor of 4.0 is charged to	any zone that h	ouses patients wi	thout an	y staff in	immediate atten	dance.		
	WORKSHEET	4.7,3 OCCUP	ANCY RISK FA	CTOR C	ALCUL	ATION			
Occ	Occupancy Risk $M \times M $								
	4 ADJUSTED OCCI OR — NEW BUILDING		WORKS			DJUSTED OCC	CUPANCY RISK DINGS		
1.0 ×.	P R			.0	.6 x 1	$\begin{bmatrix} 2 \\ 2 \end{bmatrix} = \begin{bmatrix} 0.7 \\ \end{bmatrix}$			
(For use with NFPA 101A	\-2010/NFPA 1 <i>01-</i> 2009)						(p. 1 of 4)		

FIGURE 4.7 Worksheets for Evaluating Fire/Smoke Zones.

	WORKSHEE	T 4.7.6	SAFETY	PARAM	IETER V	ALUES			
Safety Parameters	Parameters Parameter Values								
1. Construction		Comba Types III,	astible IV, and V				Noncor Types	nbusti I and	
Floor or Zone	000	111	200	21	1,2HH	000		111	222, 322, 44
First	-2	D	2		0	0		2	2
Second	<u>-7</u>	-2	-4		-2	-2		2	4
Third	-9	-7	-9		_7	-7		2	4
4th and Above		-7	-18		<u>-7:</u>	_9	<u> </u>	7	
2. Interior Finish	Class C		ss B		<u> </u>	<u>-</u>			
(Corridors and Exits)	-5(0)f	<del> </del>	(3)1		3				
3. Interior Finish	Class C		ss B	Til.	isa A				
(Rooms)	-3(1)f	1	(3)f	<b></b>	3			ļ	<del></del>
4. Corridor Partitions/Walls	None or Incomplete	< 1/2	hr	>½ hr	to < 1 hr		>1 hr		
Partitions/ Walls	-10(0)*		)		(0)a		2(0)8	1	
5. Doors to Carridor	No Door	<20 mi	n FPR		in FPR	≥20 <u>m</u>	in FPR and to Clos.		<del> </del>
	-10	(20,10			(O)d		2(0)d	1	
0.00		Dead En						nd Zon	e Length Is
6. Zone Dimensions	>100 ft  >	50 ft to 10	00 ft 30	ft to 50 f		150 ft	100 ft to 1		100 <del>0</del>
	-6(0)b	~4(0) <sup>b</sup>		-2(0)b		(0)c(0)h	0(0)h		1
7. Vertical Openings	Open 4 or More Floors		2 or 3		Encl 1 hr		sed with Indicated Fi ≥1 hr to <2 hr		
	-14	-3			0	- ST	2(0)•	<del></del>	≥2 hr 3(0)e
		Deficiency				Deficienc	eficiency		Deficiencies
8. Hazardous Areas	In Zone Outside Zone		In Zone		-,	acent Zone	110	Detretencies	
`	-11				-6		-2		C
9. Smoke Control	No Control	Smoke	Barrier s Zone	<del></del>	vIech. Ass	sisted Sys y Zone			
	-5(0) <sup>e</sup>		)			: 3		1	
10. Emergency	<2 Routes			Multip	le Route:			n	irect Exit(s)
Movement		:		<del>, ,,, ,,,,,</del>	orizonta		rizontal	1 -	HECK DAMES
Routes		<del>}</del>	cient	E	rit(s)	, E	xit(s)		
	-8	<u> </u>	<del></del>		0	1	1	<u> </u>	5
II. Manual Fire	No Manual	Fire Alar	m			Fire Alar			
Alarm				W/O F	D. Conn.	- 1	D. Com.		
	<del></del>	<del>}</del>			1.	<del>-</del>	2		· · · · · · · · · · · · · · · · · · ·
12. Smoke Detection	None	Corrid	or Only	Roon	as Only	Hab	ridor and it Spaces	r	otal Spaces in Zone
and Alarm	0(3)\$	2(	3)¤	3	(3)g		4	-	5
13. Aŭtomatic	·		lor and	E	ntire				
Sprinklers	None 0		. Space		lding 10	_			
Use (0) where Parameter 5 is Use (0) where Parameter 10 is Use (0) on floor with fewer than patients (existing buildings on) Use (0) where Parameter 4 is Use (0) where Parameter 1 is be or on an unprotected type of comarked "000" or "200").	10. -8. 3i y). 10. 18ed on first floor zo	f Us roo the spr g Us pro	e() if the om is prote room with rinklers, Pa e this valu otected wit	area of C cted by an n existing grameter e in addit h quick-re zone are	lass B or tomatic: Class C i 4 is great ion to Pa esponse a a ≤22,500	sprinklers Interior fin er than or rameter 15 utomatic s	and Parame ish is protec equal to 1, a lif the entire	ter 13 i ted by a nd Para zone i	ameter 13 is 0. s

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FIGURE 4.7 Continued

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

Safety Parameters	Containment Safety (S <sub>1</sub> )	ExtInguishment Safety (S <sub>2</sub> )	People Movement Safety ( <i>S</i> <sub>3</sub> )	General Safety ( <i>S</i> <sub>4</sub> )
. Construction	4	4		4
. Interior Finish (Corr. and Exit)	3		3	3
. Interior Finish(Rooms)	3			3
. Corridor Partitions/Walls	2			2
Doors to Corridor	1		1	1
. Zone Dimensions			1	1
. Vertical Openings	-10		-10	-10
. Hazardous Areas	0	0		0
. Smoke Control			0	0
. Emergency Movement Routes			0	. O
. Manual Fire AJarm		2		2
. Smoke Detection and Alarm		4	4	4
. Automatic Sprinklers	10	10	10 ÷2= 5	10
Total Value	S <sub>1</sub> = 13	S <sub>2</sub> = 20	<b>S</b> <sub>3</sub> = 4	<b>S</b> <sub>4</sub> = 20

	Contain	ment (S <sub>a</sub> )	Extinguist	ment $(S_b)$	People Movement (Sc	
Zone Location	New	Exist.	New	Exist.	New:	Exist.
1st story	11	5	15(12)a	4.	8(5)a	1.
2nd or 3rd storyb	15	9	17(14) <sup>a</sup>	6	10(7)a	3
4th story or higher but not high rise	18	9	19(16)*	6	11(8)8	3
High rise	18	17	$19(16)^a$	16	11(8)*	7

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

#### WORKSHEET 4.7.8B MANDATORY SAFETY REQUIREMENTS — EXISTING NURSING HOMES

Zone Location	Containment ( $S_{g}$ )	Extinguishment $(S_b)$	People Movement ( $S_c$ )
1st story 2nd story 3rd story 4th story or higher	<u>6</u>	10 10 14 14 16	0 2 2

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

Zone Location	Containment (S <sub>a</sub> )	Extinguishment $(S_b)$	People Movement (S <sub>c</sub> )
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)*

<sup>\*</sup>Use ( ) in zones that do not contain patient sleeping rooms.

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

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<sup>&</sup>lt;sup>5</sup> 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  $S_c = 7$ .

		Ye	5	No
	ntainment minus Mandatory sety $(S_1)$			
	tinguishment minus Mandatory $S_2$ $S_b$ $E$ $S_b$ $E$ fety $(S_2)$ $S_2$ $S_b$ $S_b$ $E$ $S_b$		ŀ	·
	ople Movement minus Mandatory People fety $(S_3)$ Movement $(S_c)$ $\geq 0$ $\begin{bmatrix} S_3 & S_c & P \\ 4 & 2 & 2 \end{bmatrix}$			
Ge (S	neral Safety minus Occupancy $\geq 0$ $\begin{bmatrix} S_4 & R & G \\ 20 & 1 \end{bmatrix} = \begin{bmatrix} 19 \end{bmatrix}$			
	WORKSHEET 4.7.10 FACILITY FIRE SAFETY REQUIREMENTS WORKSHIP one copy of this worksheet for each facility. In consideration, select and mark the appropriate column.  Building utilities conform to the requirements of Section 9.1.	HEET  Met	Not Met	No Appl
В.	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.	- <del>-</del>		$\supset$
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 $19.7.4$ .		}	$\geq$
Н.	Combustibility of draperies, upholstered furniture, mattresses, furnishings, and decorations is limited in accordance with 18.7.5 and 19.7.5.	<b>V</b>		
ĭ.	Fire extinguishers are grovided in accordance with the requirements of 18.3.5.11 and 19.3.5.11.			$\geq$
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.	<u> </u>		
L.	Standpipes are provided in all new high-rise buildings as required by 18.4.2.		<u> </u>	$\perp \checkmark$
relei	ences are to NFPA 101, Life Salety Code:  WORKSHEET 4.7.11 CONCLUSIONS			
1.		quivale:	nt to the	at
2. [	One or more of the checks in Worksheet 4.7.9 are in the "No" column. The level of fire safety is system to be equivalent to that prescribed by the Life Safety Code."			
e	he equivalency covered by this worksheet includes the majority of considerations covered by the <i>Life Saj</i> considerations that are not evaluated by this method. These must be considered separately. These addition overed in Worksheet 4.7.10, the Facility Fire Safety Requirements Worksheet. One copy of this separate completed for each facility.	nal consi	deration	sare

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FIRE SAFETY EVALUATION SYSTEM FOR HEALTH CARE OCCUPANCIES

		WORKSHEE	T 4.7.1 COVE	RSHEE	Т		
	Fire/Smoke	Zone* Evaluatio	n Worksheet for I	lealth Ca	are Facili	ties	
	V University Transition			1-Main	Building		
	Third Floor South	· · · · · · · · · · · · · · · · · · ·		Zone 8 of			· · · · · · · · · · · · · · · · · · ·
	nger, CHFM, CHC	344	Date <u>10/</u>				
-	neet for each zone. Whe						
*Fire/sr	noke zone is a space sej	parated from all	other spaces by fl	oors, hor	izontal e	xits, or smoke bar	riers.
	WORKSHE	ET 4.7.2 OCC	UPANCY RISK	PARAN	ETER F	ACTORS	
Risk Parameters			Risk Factor	Values			
1. Patient	Mobility Status	Mobile	Limited M	obility	No	t Mobile	Not Movable
Mobility (M)	Risk Factor	1.0.	1.6			3.2	4,5
2. Patient	No. of Patients	1-5	6-16		. 1	11-30	>30
Density (D)	Risk Factor	1.0	1.2	<del> </del>		1.5	2.0
3. Żone	Floor	1st	2nd or 3rd	4th t	o 6th	7th and Above	Basements
Location (L)	Risk Factor	1,1	1.2	I,	4	1.6	1.6
4. Ratio of Patients to	Patients Attendant	<u>1–2</u> 1	3 <u>-5</u> 1	<u>6</u> -	-10 1	>10° 1.	One or Mores None
Attendants $(T)$	Risk Factor	1.0	1.1	1	.2	1.5	4.0
5. Patient Average	Age:	<65 Ye	ars and >1 Year			≥65 Years or ≤	1 Year
Age (A)	Risk Factor		1.0			1.2	
#A risk fa	actor of 4.0 is charged to	any zone that h	ouses patients wi	thout an	y staff in	immediate atten	dance.
	WORKSHEET	4.7.3 OCCUP	ANCY RISK FA	CTOR C	ALCUL	ATION	
Occ	upancy Risk	<i>M</i>	L 1.2	×	] × [	A F	
	4 ADJUSTED OCC		WORKS	SHEET 4		ADJUSTED OCC	CUPANCY RISK
1.0 × _	7 R		<del></del>	Ó	.6× 1.	$\begin{bmatrix} R \\ 0.7 \end{bmatrix}$	
(For use with NEPA 101A	-2010/NFPA 161-2609)						(p. 1 of 4)

FIGURE 4.7 Worksheets for Evaluating Fire/Smoke Zones.

	Safety Parameters					Paramet	er Value	:S			
1.	Construction						Noncombustible Types I and II				
	Floor or Zone	000		111	200 211,2HH		HH	1 000		i	222, 322, 44
	First	-2.		0	2		)	0.			2
	Second	-7		-2	-4		2	-2.	2	2	1
	Third	-9		-7	-9.		7	-7		ž	4
	4th and Above	-13	~	-7	-13	-7	7	~9	7	7	4
2.	Interior Finish	Class C	_	Class		C)ess	Δ_	1			
	(Corridors and Exits)	-5(0)f		9(3)		3		1			<u> </u>
	Interior Finish	Class C		Class		THE REAL PROPERTY.	<b>-</b>				
	(Rooms)	$-3(1)^{f}$	_	1(3)	)f	3					
4.	Corridor	None or Incomplete		_< <sup>i</sup> / <sub>2</sub> h		≥½hrta	1 1444	\	i hr		
	Partitions/Walls	-10(0) <sup>a</sup>		0		2392.DC 20 1(0)		<del></del>	(0)#		
		-10(0)*			ا الت	1(0)	<u> </u>				
5;	Doors to Corridor	No Door		<20 mín	FPR	≥20 min	FPR		n FPR and to Clos.		
		10	$\dashv$	0		1(0)			(0) <sub>q</sub>		
ż	ET TO			Dead End			_		ds >30 ft an	d Zon	e Length Is
ь.	Zone Dimensions	>100 ft	-5	50 ft to 100	ft 30	ft to 50 ft	>15	0 ft	100 ft to 15	n <del>n</del> l	
		6(0)h	1	-4(0) <sup>b</sup>		$-2(0)^{b}$	-2(0		0(Đ) <sup>h</sup>		1
77	Vertical Openings	Open 4 or Mo	ΞŢ	Open 2	or 3		Enclos	sed with Indicated Fi ≥1 hr to <2 hr		e Res	ist.
!*	verticai Openings	Floors		Floor		<1 }				Τ	≥2.hr
	ļ	14		-10		0			2(0)e	Ī	3(0)a
2	Hazardous Areas	Doubl	e D	eficiency	Single Deficiency		y	No	Deficiencies		
o.	Traverrions Ureas	In Zone		Outside Zone In Zone		ne	In Adjacent Zone				
		-11		-5		-6			-2	ſ	0
۰۵.	Smoke Control	No Control		Smoke B	arrier	Me		ted Syst	ems		
٠.	CHOKS OVILLO			Servea	Zone		by :	Zone			
		-5(0)¢	_	Ü				3			<del> </del>
10	Emergency	<2 Routes	_			Multiple	<del></del>	·		Di	rect Exit(s)
	Movement			73.75		W/O Hori			izontal		
	Routes	-8	ŀ	Defici	ent	Exit	S1.		xit(s)		
				Fire Alarm		0	201 10	ire Aları	~ 1		5
Ц.	Manual Fire	ING-INIAII)	uai,	PURMIN	··	W/O F.D.	<del></del>	<del> </del>	n: D. Conn.		
	Alarm		-4			W/O F.D.	Conti.		2		
			Ť			<u>_</u>	<del></del>		ider and		4-3 6
12	Smoke Detection and Alarm	None		Corridor	Only	Rooms	Only		t. Spaces	1	otal Spaces in Zone
	and Alarm	0(3)¢		2(3)	a ·	3(3)	)g		4		5
13	. Automatic			Corrido		Enti					
	Sprinklers	None	[	Habit. S		Build					
Use Use pat Use Use or o	e (0) where Parameter 5 is – e (0) where Parameter 10 is i (0) on floor with fewer than ients (existing buildings onlo o (0) where Parameter 4 is – e (0) where Parameter 1 is b on an unprotected type of contact of contact of the contact of the rked "000" or "200").	-8, n 31 y). 10, ased on first floor		room the r sprin g Use i prote be [ b Use (	i is protect from with thers, Pa this value ected with (0) where	cted by auto n existing Cl crameter 4 in e in addition h quick-resp	matic sp ass C int s greater to Para onse aut \$22,500 f	rinklers a erior fini than or o meter 13 omatic sp	if the entire	er 13 is ed by a d Pars zone is	ov; use ( ) if outomatic ometer 13 is 0.

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FIGURE 4.7 Continued

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

Safety Parameters	Containment Safety (S <sub>1</sub> )	Extinguishment Safety (S <sub>2</sub> )	People Movement Satety (S <sub>3</sub> )	General Safety (S <sub>4</sub> )
1. Construction	4	4		4
2. Interior Finish (Corr. and Exit)	3		3	.3.
3. Interior Finish(Rooms)	3			
i. Corridor Partitions/Walls	0			0
5. Doors to Corridor	1		1	1
i. Zone Dimensions			1	1
. Vertical Openings	-10		-10	-10;
. Hazardous Areas	0	0		0
). Smoke Control			0	0
). Emergency Movement Routes			0	o
. Manual Fire Alarm		2		2
2. Smoke Detection and Alarm		4	4	4
3. Automatic Sprinklers	10	. 10	10 ÷ 2 = 5	10
Total Value	S <sub>1</sub> = 11	S₂ = 20	S <sub>3</sub> = 4	S <sub>4</sub> = 18

	E 77 11001 11712	O, E70071110111		12.17.1701101110	1 5 7 W 171 WW C	
	Containment (S <sub>a</sub> )		Extingular	ment (S <sub>b</sub> )	People Movement (S <sub>c</sub> )	
Zone Location	New	Exist.	New	Exist.	New	Exist
1st story 2nd or 3rd story <sup>b</sup> 4th story or higher	11 15 18	5 9 9	15(12) <sup>a</sup> 17(14) <sup>a</sup> 19(16) <sup>a</sup>	4 6	8(5) <sup>µ</sup> 10(7) <sup>a</sup> 11(8) <sup>n</sup>	1. 33.6
but not high rise High rise	18	17	19(16) <sup>a</sup>	16	11(8)	. 3 7

<sup>\*</sup> Use ( ) in zones that do not contain patient sleeping rooms.

### WORKSHEET 4.7.88 MANDATORY SAFETY REQUIREMENTS — EXISTING NURSING HOMES

Zone Location	Containment (S <sub>a</sub> )	Extinguishment ( $S_{b}$ )	People Movement (S <sub>c</sub> )
1st story 2nd story 3rd story 4th story or higher	6	10 10 14 16	

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

Zone Location	Containment (S <sub>a</sub> )	ExtInguishment (S <sub>b</sub> )	People Movement (S <sub>c</sub> )
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)*

<sup>\*</sup>Use ( ) in zones that do not contain patient sleeping rooms.

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

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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:  $S_{\alpha}=7$ ,  $S_{b}=10$ , and  $S_{c}=7$ .

		Ye	<u>s</u>	No
	ntainment minus Mandatory fety $(S_1)$ Containment $(S_a)$ $\geq 0$ $\begin{bmatrix} S_1 & S_a & C \\ 11 & -6 & =5 \end{bmatrix}$	\ \	/	
	tinguishment minus Mandatory fety $(S_2)$ minus Extinguishment $(S_b) > 0$	V	/	
	piple Movement minus Mandatory People fety $(S_3)$ Movement $(S_c)$ > 0 $S_3$ $S_c$ $P$ $A$			
G (S	neral Safety minus Occupancy $Risk(R)$ $\geq 0$ $S_4$ $R$ $G$ $18 - 1 = 17$			
read	WORKSHEET 4.7.10 FACILITY FIRE SAFETY REQUIREMENTS WORKSH ete one copy of this worksheet for each facility. In consideration, select and mark the appropriate column.	Met	Not Met	No Appl
A. B.	Building utilities conform to the requirements of Section 9.1.  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.			L V
Ċ.	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.	<b>✓</b>		$\geq$
D.	Fuel-burning space heaters and portable electrical space heaters are not used.	$\checkmark$		$\geq$
E,	There are no flue-fed incinerators.	<u> </u>		
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.	✓	}	$\rightarrow$
Ģ.	Smoking regulations have been adopted and implemented in accordance with 18.7.4 and 19.7.4.	V		>
H.	Combustibility of draperies, upholstered furniture, mattresses, furnishings, and decorations is limited in accordance with 18.7.5 and 19.7.5.	<b>V</b>	:	
Ŀ	Fire extinguishers are provided in accordance with the requirements of 18.3.5.11 and 19.3.5.11.	<b>V</b>		>
J.	Exit signs are provided in accordance with the requirements of 18.2.10.1 and 19.2.10.	<b>√</b> .		
K.	Emergency lighting is provided in accordance with 18.2.9.1 or 19.2.9.1.	$\checkmark$		
i.	Standpipes are provided in all new high-rise buildings as required by 18.4.2.			V
refer	ences 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 exprescribed by the Life Safety Code."	quivale	nt to the	ıt
2. [	One or more of the checks in Worksheet 4.7.9 are in the "No" column. The level of fire safety is a system to be equivalent to that prescribed by the Life Safety Code."	not shov	va by th	is
	he equivalency covered by this worksheet includes the majority of considerations covered by the <i>Life Safe</i> positions that are not evaluated by this method. These must be considered separately. These addition overed in Worksheet 4.7.10, the Facility Fire Safety Requirements Worksheet. One copy of this separate w	ial consi	deration	sare

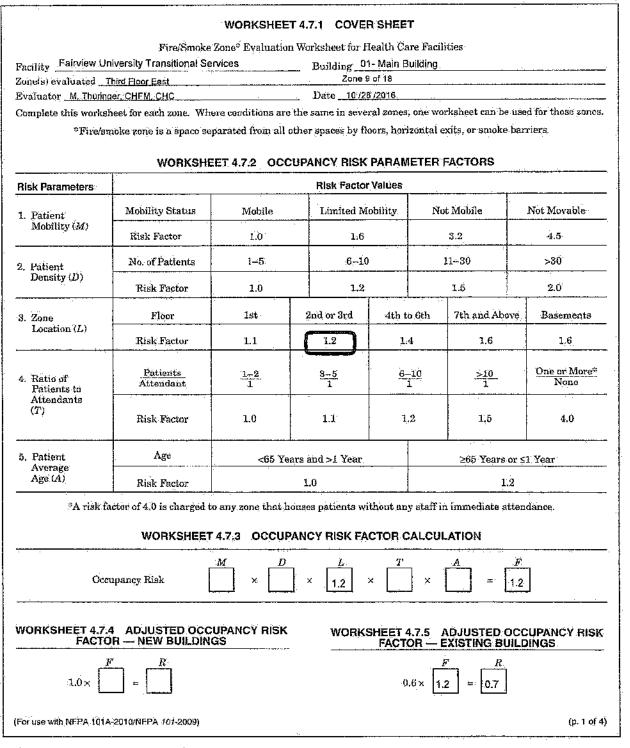


FIGURE 4.7 Worksheets for Evaluating Fire/Smoke Zones.

Safety Parameters				Paramete	r Value	s			
1. Construction		bustible and H	;						
Floor or Zone	000	Types III, I	200	211, 2	нн	000	130031		222, 322, 4
First	-2	0	2	0		0.	2	<del></del>	2
Second	-7	-2.	-4	-2		-2	ż		4
Third	-9	<u>-7</u>	-9	-7		-7	2		4
4th and Above	-13	-7	-13	-7		-9	7	7	<del></del>
2. Interior Finish	Class C	Class	В	e Class.	<del>_</del>			•	
(Corridors and Exits)	-5(0)f	0(3		3		ļ			
3. Interior Finish	Class C	Class	B.	Class	A.	· ·			_
(Rooms)	$-3(1)^{f}$	1(3	jt	3		1			
4. Corridor	None or			<u> </u>					
Partitions/Walls	Incomplete	<1/2 hr		≥½ hr to			l br		
	-10(0)ª	0	0		1(0)*		(0)*		<del> </del>
5. Doors to Corridor	No Door	<20 min	roo l	>20 min	PDD		n FPR and to Clos.		
	-10	0.	P.F.W.	1(0)			(0)d		
	-10	Dead End		1,07			ds->30 ft an	d Zone l	ength Is
6. Zone Dimensions	>100 ft	>50 ft to 100	£ 30 £	t to 50 ft	<del></del>	50 ft	100 ft to 15		-100.6
	-6(0)b	-4(0) <sup>b</sup>		2(0)b	-2(0)		0(0)h		71
7	Onen 4 or Mora	pen 4 or Mere Open 2 or 3 Floors Floors		Enclosed with Indicated Fi				e Resis	i
7. Vertical Openings				<1 hr		≥1 hr to <2 hr		Ţ	≥2 hr
	-14	-10		0		2(0)e		-	3(0)°
O. Marraindorni Angria	Double	Deficiency	eficiency		Single I		y	No D	eficiencies
8. Hazardous Areas	In Zone	Outside	Zone	In Zone		In Adjacent Zone		·	
	-11	-5		-6		-	-2		0
9. Smoke Control	No Control	Smoke E		Med		ted Syst	ems		
at purove douglot		Serves	Zone		by '	Zone	i		
	-5(0) <sup>c</sup>	0				3			
10. Emergency	<2 Routes			Multiple l				Dire	ect Exit(s)
Movement Routes		Defici		W/O HoriExit			izontal xit(s)		
nontes	8	Denci	ear	1/2/1/5	·	<u> </u>	1	•	5
		al Fire Alarm			ermal F	ire Alan		<del>-</del>	
U. Manual Fire Alarm	A10 BARILLE	O V INDENSITIN		W/O F.D.			D. Capra.		
2401III	_	-4:	ŀ	1			2		
40 (2014-10-10-11-11-11-11-11-11-11-11-11-11-11-		T		<del></del>		Cort	ider and	Tot	al Spaces
12. Smoke Detection and Alarm	None	Corridor	Only	Rooms (	Only		-Spaces		n Zone
	0(3)¢	2(3)		3(3)			4		5
13. Automatic	None	Corrido		Entii Buildi					
Sprinklers	None	Habit.	opace	الالتنتي		i			

<sup>&</sup>lt;sup>a</sup> Use (0) where Parameter 5 is -10.

For SI units, 1.1t = 0.3048 m;  $1.1t^2 = 0.092 \text{ m}^2$ .

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

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.

s Use this value in addition to Parameter 13 if the entire zone is

protected with quick-response automatic sprinklers. In Use (0) where zone area  $\leq$ 22,500 ft² and distance from any point to reach a door in smoke barrier  $\leq$ 200 ft.

(p. 2 of 4).



 $<sup>^{\</sup>rm h}\, {\rm Use}$  (0) where Parameter 10 is –8,

<sup>\*</sup> Use (0) on floor with fewer than 31. patients (existing buildings only).

due (0) where Parameter 4 is -10.

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

Containment Safety (S <sub>1</sub> )	Extinguishment Safety (S <sub>2</sub> )	People Movement Safety (S <sub>3</sub> )	General Safety (S₄)
4	4		4
3		3	3
3			3
2			. 2
1		1	1
		1	1
-10		-10	-10
O	0		0
		Ō	0
		.0	0
	2.		2
	4	4.	4
10	10	10 +2 = 5	10
	Safety (S <sub>1</sub> )  4  3  3  2  1  -10  0	Safety (S <sub>1</sub> ) Safety (S <sub>2</sub> )  4 4 4  3 3  2 1  -10 0 0  2 4	Safety (S <sub>1</sub> ) Safety (S <sub>2</sub> ) Movement Safety (S <sub>3</sub> )  4

	Contain	ment (S <sub>a</sub> )	Extinguisi	nment (S <sub>b</sub> )	People Movement (Sc)		
Zone Location	New	Exist.	weV.	Exist.	New	Exist.	
1st story	11	5	15(12) <sup>a</sup>	4	8(5) <sup>a</sup>	. 1	
2nd or 3rd storyb	15	9	17(14)a	6	10(7)a	.3	
4th story or higher but not high rise	1.8	9.	19(16) <sup>a</sup>	6	11(8)a	3	
High rise	18	17	19(16) <sup>a</sup>	16	11(8) <sup>a</sup>	7	

<sup>&</sup>lt;sup>2</sup> Use ( ) in zones that do not contain patient sleeping rooms.

### WORKSHEET 4.7.88 MANDATORY SAFETY REQUIREMENTS - EXISTING NURSING HOMES

Zone Location	Containment (S <sub>a</sub> )	Extinguishment ( $S_b$ )	People Movement (S <sub>c</sub> )
1st story 2nd story 3rd story 4th story or higher	6 8	10	0 2° g

# 

Zone Location	Containment (S <sub>a</sub> )	Extinguishment $(S_b)$	People Movement (S <sub>c</sub> )
ist story 2nd or 3rd story	13 17	17(14)* 19(16)*	8(5)* .10(7)*
4th story or higher	18	19(16)*	11(8)*

<sup>\*</sup>Use ( ) in zones that do not contain patient sleeping rooms.

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

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<sup>&</sup>lt;sup>5</sup> 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:  $S_{\alpha} = 7$ ,  $S_{b} = 10$ , and  $S_{c} = 7$ .

	<u> </u>	Yes	1.	No.
	minus Mandatory $S_1$ $S_2$ $C$ fety $(S_1)$ $S_3$ $S_4$ $S_5$ $S_6$ $S_7$ $S_8$ $S_9$ $S$	V		
	stinguishment minus Mandatory Extinguishment $(S_b) \ge 0$ $\begin{bmatrix} S_2 & S_b & E \\ 20 & 14 & = 6 \end{bmatrix}$	✓.		
	ople Movement minus Mandatory People. S3 Sc P $ \frac{S_3}{4} - \frac{S_c}{2} = 2 $	✓		
G (S	operal Safety minus Occupancy $\geq 0$ $\begin{bmatrix} S_4 & R & G \\ 20 & 1 & 19 \end{bmatrix}$	<b>~</b>		
r ea	WORKSHEET 4.7.10 FACILITY FIRE SAFETY REQUIREMENTS WORKSH ate one copy of this worksheet for each facility, th consideration, select and mark the appropriate column.	EET Met	Not Met	Not Appli
A.	Building utilities conform to the requirements of Section 9.1:	_	<del></del>	$\geq$
В.	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.			<b>V</b>
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.	<b>✓</b>		$\times$
D.	Fuel-burning space heaters and portable electrical space heaters are not used.	$\sqrt{}$		> <
K.	There are no flue-fed incinerators.	V		
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.	<b>V</b>	* <del></del>	$\times$
Œ,	Smoking regulations have been adopted and implemented in accordance with 18.7.4 and 19.7.4.	<b>V</b>		$>\!\!<$
H.	Combustibility of draperies, upholstered furniture, mattresses, furnishings, and decorations is limited in accordance with 18.7.5 and 19.7.5.	<b>V</b>		
I.	Fire extinguishers are provided in accordance with the requirements of 18.3.5.11 and 19.3.5.11.	<b>V</b>		>
J:	Exit signs are provided in accordance with the requirements of 18.2.10.1 and 19.2.10.	1	· <u></u>	
K.	Emergency lighting is provided in accordance with 18.2;9.1 or 19.2,9,1.	/		
i.	Standpipes are provided in all new high-rise buildings as required by 18.4.2.	· ·	•	1/
i <b>e!e</b>	erices are to NFPA 101, Life Safety Code.			.l
	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 ed prescribed by the Life Safety Code."	quivalen	t to the	t
2. [	One or more of the checks in Worksheet 4.7.9 are in the "No" column. The level of fire safety is a system to be equivalent to that prescribed by the Life Safety Code."	ot show	n by thi	s
фŋ	the equivalency covered by this worksheet includes the majority of considerations covered by the <i>Life Safe</i> onsiderations that are not evaluated by this method. These must be considered separately. These addition overed in Worksheet 4.7.10, the facility Fire Safety Requirements Worksheet. One copy of this separate w	al consid	erations	are

101A-13

FIRE SAFETY EVALUATION SYSTEM FOR HEALTH CARE OCCUPANCIES

		WORKSHEET	F4.7.1 COVE	RSHEE	Т				
		Zone* Evaluation	* * * *			ties			
	Iniversity Transitional S	ervices				· · · · · · · · · · · · · · · · · · ·			
Zone(s) evaluated				Zone 10 of 18					
Evaluator M. Thurin				8/ 2016					
_	heet for each zone. Wh								
*Fire/sn	noke zone is a space se	parated from all c	ther spaces by fl	oors, hor	zontal e	xits, or smoke bar	riers.		
	WORKSHE	ET 4.7.2 OCC	UPANCY RISK	PARAM	ETER I	ACTORS			
Risk Parameters			Risk Factor	Values	y <del></del>		;		
1. Patient Mobility (M)	Mobility Status	Mobile	Limited M	obility	No	t Mobile	Not Movable		
Moonicy (M)	Risk Factor	1.0	1.6			3.2	4.5		
2. Patient	No. of Patients	1–5	6-10	)	1	11-30	>30		
Density (D)	Risk Factor	1.0	1,2			1,5	2.0		
3. Zone	Floor	1st	2nd or 3rd	4th t	o 6th	7th and Above	Basements		
Location (L)	Risk Factor	1,1	1.2	1.	4	1.6	1.6		
4. Ratio of Patients to	Patients Attendant	1-2	3-5	6-	-10 1	>10 1	One or More* None		
$\begin{array}{c} \text{Attendants} \\ (T) \end{array}$	Risk Factor	1.0	1.1	1.	.2	1.5	4.0		
5. Patient Average	Age	<65 Yea	rs and >1 Year			≥65 Years or ≤	1 Year		
Age (A)	Risk Factor		1.0			1.2			
*A risk fa	actor of 4.0 is charged t	o any zone that h	ouses patients wi	thout an	y staff in	immediate atten	dance.		
	WORKSHEET	4.7.3 OCCUP	ANCY RISK FA	CTOR C	ALCUL	ATION			
Ócer	upancy Risk	<u>M</u> × <u>D</u>	× 1.2	× [	] × ]	$ \begin{array}{ccc} A & F \\ \hline & = & 1.2 \end{array} $	] .		
	4 ADJUSTED OCC PR — NEW BUILDIN		WORKS			DJUSTED OCC	CUPANCY RISK DINGS		
1.0×.	= R			O	,6 x 1.	2] = 0.7			
(For use with NEPA:101A	-20(0/NFPA 161-2009)						(p, i of 4)		

FIGURE 4.7 Worksheets for Evaluating Fire/Smoke Zones.

Sa	afety Parameters					Parame	ter Va	alues						
1. Co	onstruction	<del></del>		Combus Types III, I					Noncon Types					
	Floor or Zone	000		111	200	211,	2HH				11	222, 322, 44		
	First	-2		0	2	0			0		2	2		
	Second	-7.		-2	-4		-2.		-2		2			
	Third	_9		-7	9		-7		<u>-7</u>		2	4		
	4th and Above	-1.3.		<b>-</b> 7	-13		-7		_9		.7	4		
2. Int	terior Finish	Class C		Class	s B	Clas	s:A:			•				
	erridors and Exits)	-5(0)f		0(3	)£	-3								
3 Int	terior Finish	Class C		Class	s B	1 1160						•		
	ooms)	-3(1)f		1(3		3	_				1			
.t. Co	prridor	None or		· · · ·										
	rtitions/Walls	Incomplete		<1⁄2 hr		>5% hr t	a < 1	hr	تسر	>1 hr				
		-10(0)a		0		1(0	)]a		2	2(0)a				
é Dia	ors to Corridor								n FPR and					
0. Du	ors w Corridor	No Door		<20 min	FPR	≥20 mi		R.		to Clos.				
		-10	لب	.0		1((	))d			5(0)q	<u> </u>			
6. Zor	ne Dimensions		•	Dead End		***		No D	ead Er			e Length Is		
		>100 ft	<u>  &gt; </u>	50 ft to 100		ft to 50 ft	ļ	>150		100 ft to 1	50 ft.	100.0		
	<del></del>	-6(0) <sub>P</sub>	Щ	-4(0) <sup>5</sup>	-	-2(0) <sup>b</sup>		-2(0)°(	0)h	$-0(0)_{p}$		1		
7. Ve	rtical Openings	Open 4 or Mor	re	Open 2				closec		Indicated F	ire Res	sist.		
		Floors	_	Floor	_		hr	[	≥11	ur to <2 hr	1	≥2 hr		
	-14		-10		)	. 0			2(0)%			3(0)6		
8. Ha	zardous Areas		le D	eficiency					ficienc		No	Deficiencies		
		In Zone		Outside Zone		Outside Zone		In Zone			In Adjacent Zone			
		-11		-5						-2		.0		
9. Sn	noke Control	No Control	_	Smoke Barrier Serves Zone		by 2			sisted Systems y Zone		•			
		_5(0)¢		0				3		<del></del>				
	lmergency	<2 Routes				Multiple Routes				D	irect Exit(s)			
	Jovement Routes			Defici	iont	W/O Ho		tal		rizontal xit(s)				
11	toutes.	-8		_2		0	_		,E.	1	<del> </del>	5		
				Fire Alarm		<u>·</u>		al Fix	e Alar		-	3		
	lanual Fire Jarm	No Man	uai	vine Wistur		W/O F.D				n 'D'Copn	ł			
Ą	rarm'		-4	Ĺ		WOLL		(n. )		2				
				; 				$-\dot{1}$	<b>-</b>	nuor and	<del> </del>	1 . 1 .		
	moke Detection	None		Corrido	r Only	Rooms	Only	<i>i</i>		Liuor and	.1	otal Spaces in Zone		
aı	nd Alarm	0(3)g		2(3)	)g	30	3)s		- [	4		5		
13 A	utomatic			Corrido	rand	Ent	ire	$\neg$	-			-		
	prinklers	None		Habit. 8	Space	Buil								
		. 0		8		10	)							
Use (0)	i) where Parameter 5 is - i) where Parameter 10 is- i) on floor with fewer than	-8;		room then	n is prote room with	ited by aut existing (	omati Nass (	ic sprii C inter	nklers nor fin	and Paramet ish is protect	er 13 i ed by	or and exit or s 0; use ( ) if automatic ameter 13 is 0.		

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

brotected with mick-response automatic sprinklers.

Let (0) where zone area \$22,500 ft. and distance from any point to reach a door in smoke barrier \$200 ft.

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d Use (0) where Parameter 4 is 10.

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

For SI units, 1 ft = 0.3048 m; 1 ft<sup>2</sup> = 0.092 m<sup>2</sup>.

Safety Parameters	Containment Safety (S <sub>1</sub> )	Extinguishment Safety (S <sub>2</sub> )	People Movement Safety (S <sub>3</sub> )	General Safety (S <sub>4</sub> )
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
6. Doors to Corridor	1		1	1
3. Zone Dimensions			1	1
. Vertical Openings	-10		-10	-10
. Hazardous Areas	0	0		0
). Smoke Control			Ö	0
). Emergency Movement Routes			0	0
. Manual Fire Alarm		2		2.
2. Smoke Detection and Alarm		4	4	4
3. Automatic Sprinklers	10	10	10 ÷ 2 = 5	10
Total Value	S₁ = 13	<b>S</b> <sub>2</sub> = 20	S <sub>3</sub> = 4	S <sub>4</sub> = 20

	Containment (S <sub>a</sub> )			ment (S <sub>b</sub> )	People Movement (S <sub>c</sub> )	
Zone Location	New	Exist.	New	Exist.	New	Exist.
1st story	11	5	15(12) <sup>a</sup>	4:	8(5)3	1
2nd or 3rd storyb	15	9	17(14) <sup>3</sup>	-6	10(7) <sup>a</sup>	.3
4th story or higher but not high rise	1.8	9	19(16) <sup>a</sup>	.6	11(8)a	3.
High rise	18	. 17:	19(16) <sup>a</sup>	16.	11(8) <sup>a</sup>	7

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

### WORKSHEET 4.7.8B MANDATORY SAFETY REQUIREMENTS — EXISTING NURSING HOMES

Zone Location	Containment (S <sub>B</sub> )	Extinguishment $(S_b)$	People Movement ( $S_c$ )
1st story 2nd story 3rd story 4th story or higher	6	10 10 14 14	2

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

Zone Location	Containment (S <sub>a</sub> )	Extinguishment (S <sub>b</sub> )	People Movement ( $S_c$ ).
1st story	13	17(14)*	8(5)*
2nd or 3rd story 4th story or higher	18	19(16)* 19(16)*	10(7)* 11(8)*

<sup>\*</sup>Use ( ) in zones that do not contain patient sleeping rooms.

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

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<sup>&</sup>lt;sup>b</sup> 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  $S_c = 7$ .

			CHEET ING EG	, III (		LENCY EVALUATION	Ye	25	No
	ntainment. Jety $(S_1)$	minus	$\begin{array}{c} \text{Mandatory}, \\ \text{Containment}\left(S_q\right) \end{array}$	2: 0	13. –	$ \begin{array}{ccc} S_a & C \\ \hline 6 & = 7 \end{array} $	V	/	
	tinguishment fety (S <sub>2</sub> )	minus	Mandatory Extinguishment (S	<sub>b</sub> ). ⇒ 0	20 -	$\begin{bmatrix} S_6 \\ 14 \end{bmatrix} = \begin{bmatrix} 6 \end{bmatrix}$		,	
	ople Movement fetÿ $\langle S_3  angle$	minus	Mandatory People Movement $(S_c)$	× 0	S <sub>3</sub>	$ \begin{array}{c} S_c & P \\ \hline 2 & = 2 \end{array} $	V	/	
Ge (S	eneral Safety 4)	minus	Occupancy Risk (R)	≥ 0	20 -	$\begin{array}{c} R & G \\ \hline 1 & = 19 \end{array}$	V	<i>/</i>	
mple	ete one copy of th	is workshe	EET 4.7.10 FACIL et for each facility. mark the appropriate or		SAFETY REQUI	REMENTS WORKS	SHEET. Met	Not Met	Not
A.			mark me appropriate corns to the requiremen	· ·	n.9 1	•	I /	18/61	Appii
В.	In new facilit	ies only, l	ife-support systems, a tor set locations are p	alarms, eme	rgency communic		<u> </u>	ļ	
Ç.	ventilating s	etems rec	ioning systems confo quirements within Se dered in Safety Parar	ction 9.2, e	cept for enclosure	heating, and of vertical openings,	1		$\searrow$
D.	Fuel-burning	space he	aters and portable ele	ectrical spa	e heaters are not	used.	1		$\triangleright$
E.	There are no				·				
F.	An evacuatio and 19.7.1/19		provided and fire dril	ls conducte	l in accordance wi	th 18.7.1/18.7.2	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		$\geq$
G.	Smoking regu	llations h	ave been adopted and	implement	ed in accordance w	ith 18.7.4 and 19.7.4.	<b>V</b>		$\geq$
Н.			eries, upholstered fur with 18.7.5 and 19.7.5		resses, furnishing	gs, and decorations is			
1.	Fire extingui:	shers are	provided in accordance	e with the	equirements of 18	.3.5.11 and 19.3.5.11.	/	1.	$\triangleright$
J.	Exit signs ar	c provided	l in accordance with t	the require	nents of 18.2.10.1	and 19.2.10.	. 🗸		
K	Emergency li	ghting is	provided in accordan	ce with 18.	.9.1 or 19.2.9.1.		<b>V</b>		
Ŀ.	Standpipes a	re provide	ed in all new high-ris	e buildings	as required by 18.	4.2.			\ \
refer	ences are to NFPA	101, Life Šā	•	HEET 4.7.	11 CONCLUS	ONS			
1. [	All of the ch	ecks in W	orksheet 4.7.9 are in Safety Code.**	the "Yes" co	lump. The level of	fire safety is at least	equivale	nt to tha	àt
	One or more system to be	of the che equivale	ecks in Worksheet 4.' nt to that prescribed	by the $Life$	Safety Code.*	e level of fire safety is			
2: [	he equivalency o	overed by	this worksheet include	s the major	ty of consideration ust be considered s	s covered by the Life So	rfety Code	There a	re some

APPROVED This & Sulf	
By Tom Linhoff at 9:18 am, Nov 03, 201	6

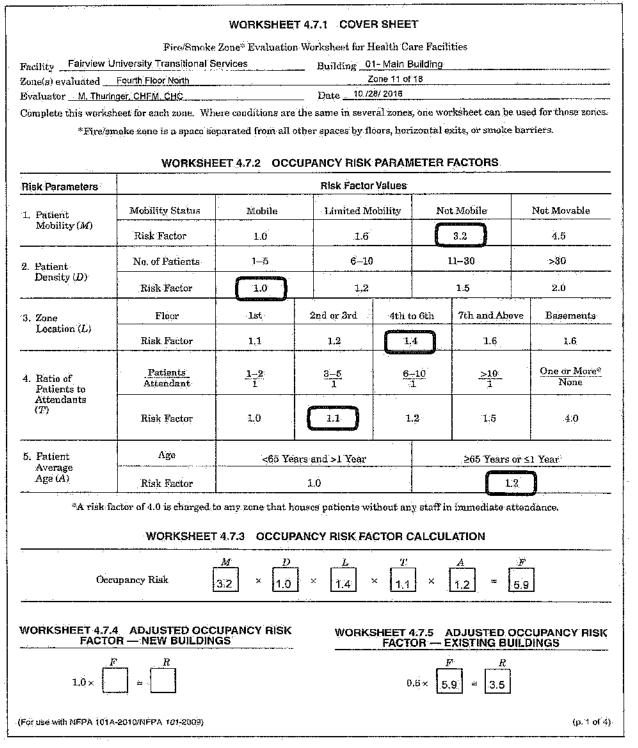


FIGURE 4.7 Worksheets for Evaluating Fire/Smoke Zones.

Safety Parameters					Paramet	er Value	es				
1. Construction			Combus Types III, I						mbusti		
Floor or Zone	000	211.2HH				I and II 111   222, 322, 4					
· · · · · · · · · · · · · · · · · · ·	_2		0	200		0	000	<del></del>	2	222, 322, 44	
First	<u>-2</u> · -7		-				<u></u>		2	2 4	
Second			<u>-2</u>	4						- 4	
Third	9 13		<del>-7</del>	<u>-9</u> -13			<u>-1</u> -9		7	4	
4th and Above					<del> </del>		- <u>9.</u>		T	<u> </u>	
2. Interior Finish (Corridors and Exits)	Class C +5(0)f		Clas		<del>سبجات م</del>	<del></del>	4				
			<del></del>		3		1		+	<del>-</del>	
3. Interior Finish	Class C		Clas		Place	<u> </u>	-				
(Rooms)	-3(1)f		1(8	5) <u>*</u>	3	<b></b> }	ļ	······			
4. Corridor	None or Incomplet		< ½1	310.	>3/2 hr to	-The	>	1 hr_			
Partitions/Walls	-10(0)a	o:	0	<u>'</u>	1(0)			(0)R	┪		
····	-10(0)		<u> </u>		1(0)	, <u>.</u>			+		
5. Doors to Corridor	No Door	•	<20 min	FPR	≥20 min	FPR	≥20 mm Frit and Auto Clos.		1		
	-10		0		1(0)			(0)d	1		
			Dead End						nd Zon	e Length Is	
6. Zone Dimensions	>100 ft	Ť	50 ft to 100		t to 50 ft		50.f€	100 8	<del></del>	<100 ft	
	-6(0)b	- 1-	-4(0) <sup>5</sup>		·2(0)b		)c(0)h	0(0)		1	
_ ::	Open 4 or M		Open 2 or 3			<u></u>		ndicated I		eiet	
7. Vertical Openings	Floors	r More Open		Floors		)r	≥1 hr to <2 hr		1.0 1.0	≥2 hr	
	-14		-10		0	•••	7-4-11	2(0)6	_	3(0)é	
		Double Deficiency			Single I	Deficiency		T No	Deficiencies		
8. Hazardous Areas			T .	Outside Zone		In Zone		In Adjacent Zone			
	÷11		-5	, 20110	-6		-2		1	0	
	No Contro	,ı	Smoke I	20			sted Syste	<del></del>	+ 1		
9. Smoke Control	140 Contac	<i>,</i> 1	Serves		, IME		Zone	žinė.			
	-5(0)¢	:	. 0				3		1		
10 10	<2 Routes				Multiple				113	irect Exit(s)	
10. Emergency Movement					W/O Hor		Hor	izontal	1 "	arecr Extr(s)	
Routes			Defic	ient	Evit			rit(s)			
	-8		-2		O O	1		1		5	
11. Manual Fire	No Ma	nual	Fire Alaro	1	ĮV.	ianual I	ire Alarr	n:		· <del>-</del> ·········	
Alarm					W/O F.D.	Conn.	W/F	D. Cogn.	1		
•		_4	<u>1</u>	į	1			2	1		
12. Smoke Detection and Alarm	None		Corrido	r Only	Rooms	Only		dor.and Spaces	1	Total Spaces in Zone	
जास स्पर्धास	0(3)g		2(3	)g	3(3	)g		4	1	. 5	
13. Automatic Sprinklers	None		Corrido Habit,		Enti Build						
obituiera	0		8		10		1		1.		

For SI units, 1 ft = 0.3048 m;  $1 \text{ ft}^2 = 0.092 \text{ m}^2$ .

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

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.

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

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

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 $<sup>^{\</sup>mathfrak{h}}$  Use (0) where Parameter 10 is -8.

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

patients (existing numeries only.

d Use (0) where Parameter 4 is ~10.

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

Safety Parameters	Containment Safety (S <sub>1</sub> )	Extinguishment Safety (S <sub>2</sub> )	People Movement Safety (S <sub>3</sub> )	General Safety (S <sub>4</sub> )
L. Construction	4	4		4
. Interior Finish (Corr. and Exit)	3.		3	3.
B. Interior Finish(Rooms)	3.			3
I. Corridor Partitions/Walls	2			2
5. Doors to Corridor	1		1	1
5. Zone Dimensions			<b>o</b>	0
7. Vertical Openings	-10		-10	-10
I. Hazardous Areas	0.	0		0
). Smoke Control			0	0
. Emergency Movement Routes			0	0
. Manual Fire Alarm		2		<b>_</b> 2
2. Smoke Detection and Alarm		4	4	4
. Automatic Sprinklers	10	10	10 ÷ 2 = 5	10
Total Value	s <sub>1</sub> = 13	s₂ = 20	<b>s</b> <sub>3</sub> = 3	S <sub>4</sub> = 19

	Containn	nent (S <sub>a</sub> )	Extinguish	ment (S <sub>b</sub> )	Péople Movement (Sc)		
Zone Location	New	Exist.	New	Exist.	New	Exist.	
1st story	11	5	15(12)a	4	8(5)9	. 1	
2nd or 3rd storyb	15	9	$17(14)^3$	6	.10(7) <sup>a</sup>	3	
4th story or higher but not high rise	18	9	19(16) <sup>a</sup>	6	10(7) <sup>a</sup> 11(8) <sup>a</sup>	,3	
High rise	18	17	19(16) <sup>a</sup>	16	11(8)*	7	

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

### WORKSHEET 4.7.8B MANDATORY SAFETY REQUIREMENTS — EXISTING NURSING HOMES

Zone Location	Containment (S <sub>a</sub> )	Extinguishment $(S_b)$	People Movement ( $S_c$ )
1st story 2nd story	o 2	10 10	0 2:
3rd story 4th story or higher	r ŝ	16	

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

Zone Location	Containment (S <sub>a</sub> )	Extinguishment (S <sub>b</sub> )	People Movement (S <sub>c</sub> )
1st story	13	17(14)*	8(5)*
2nd or 3rd story 4th story or higher	18	19(16)∻ 19(16)*	10(7)* 11(8)*

<sup>\*</sup>Use ( ) in zones that do not contain patient sleeping rooms.

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

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<sup>&</sup>lt;sup>b</sup> 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:  $S_{\alpha} = 7$ ,  $S_{b} = 10$ , and  $S_{c} = 7$ .

		1 +					Ye	s	No
	intainment minus $(S_1)$	Mandatory Containment $\langle S_g \rangle$	2	0	$ \begin{array}{c c} S_1 & S_2 \\ \hline 13 & 8 & = \end{array} $	<i>C</i>			
	tinguishment minus fety $(S_2)$	Mandatory Extinguishment (S <sub>b</sub>	) ·>	0	$\begin{bmatrix} S_2 & S_b \\ \hline 20 & 16 \end{bmatrix} = \begin{bmatrix} S_b & S_b \\ \hline \end{bmatrix}$	E 4			
Pe Sa	ople Movement minus fety (\$\sigma_3\)	Mandatory People Movement (S <sub>c</sub> )	>	ō	$\begin{bmatrix} S_3 & S_c \\ 3 & - \end{bmatrix} = \begin{bmatrix} 2 & -1 \end{bmatrix}$	P 1			
	eneval Safety minus	Occupancy Risk (R)	≥.	0	S <sub>4</sub> R 19 - 2 =	G 17			
	ete one copy of this works ch consideration, select an		lumn.		FETY REQUIREMENT	S WORKS	Met	Not Met	Not Appli
B.	In new facilities only	life-support systems, a	larms	, emerg	ency communication syste		<del>-</del>		
C.	Heating and air cond ventilating systems r	itioning systems confor	n wit	h the ai	scribed by 18.5.1.2 and 18 r conditioning, heating, a pt for enclosure of vertical sheet 4.7.6.	ıd	·V		×
D.,		eaters and portable ele					<b>V</b>		$\triangleright$
E	There are no flue-fed incinerators.						<b>✓</b>		
F.	An evacuation plan is and 19.7.1/19.7.2.	s provided and fire drill	s conc	lucted i	accordance with 18.7.1/	18.7.2	<b>\</b>		$\geq$
G.	Smoking regulations	have been adopted and i	mple	mented	n accordance with 18.7.4	and 19.7.4.	<b>V</b>		$\geq$
н.		peries, upholstered furr with 18.7.5 and 19.7.5.		, mattre	sses, furnishings, and dec	orations is	<b>√</b>		
l,	Fire extinguishers ar	e provided in accordance	with	the req	uirements of 18.3.5.11 and	1 19.3.5.11.	<b>V</b>		
J	Exit signs are provid	ed in accordance with th	ne rec	uireme	nts of 18.2,10.1 and 19.2.1	.0.	<b>√</b>		1
K.	Emergency lighting i	s provided in accordanc	e witl	n 18.2.9	1 or 19,2.9.1.		<b>V</b>		
٠١	Standpipes are provi	ded in all new high-rise	build	lings as	required by 18.4.2.				<b>V</b>
refer	ences are to NFPA 101, Life	Safety.Code.	•						
		WORKS	LEET	4.7.11	CONCLUSIONS				
1,	All of the checks in prescribed by the Li	Worksheet 4.7.9 are in t	he "Y	es" colu	nn. The level of fire safet	y is at least	equivale	nt to the	at
2.		checks in Worksheet 4.7 lent to that prescribed t			No" column. The level of i	īre safety is	not show	vn by th	is
	he equivalency covered boosiderations that are no	y this worksheet include: t evaluated by this metho	s then	najority ese mus	of considerations covered b be considered separately. is Worksheet, One copy of t	These additio	nal consi	deration	s are

APPROVED | Sometimes of the second se

		WORKSHEET	(4.7.1 COVE	RSHEE	Ť		,		
	Fire/Smoke	Zone <sup>s</sup> Evaluation	Worksheet for H	Iealth Ca	are Facili	ties			
Facility Fairview	University Transitiona	Services	Building_0	1-Main I	Building.				
Zone(s) evaluated		<u></u> .		Zone 12	of 18		<del></del>		
Evaluator M. Thuri			Date10/28						
•	heet for each zone. Whe								
*Fire/si	moke zone is a space sej	parated from all c	ther spaces by fl	oors, hor	izontal e	xits, or smoke bar	riers.		
<u> </u>	WORKSHE	ET 4.7.2 OCC	UPANCY RISK	PARAN	ETER I	ACTORS			
Risk Parameters			Risk Factor	Values					
1: Patient	Mobility Status	Mobile	Limited M	obility	.No	t Mobile	Not Movable		
Mobility (M)	Risk Factor	1.0:	1.6			3.2	4.5		
2. Patient:	No. of Patients	15	6-10		1	1130	>30		
Density (D)	Risk Factor	1,0	1.2			1.5	2.0		
3. Zone	Floor	1st	2nd or 3rd	4th t	o.6th	7th and Above	Basements		
Location (L)	Risk Factor	1.1	1.2	1.	4	1.6	1.6		
4. Ratio of Patients to	Patients Attendant	1-2 1	3 <u>-5</u> 1	6-	_10 <u>&gt;16</u>		One or More* None		
(T)	Risk Factor	1.0	1.1.	] 1.2		1.5	4:0		
5. Patient	Age	<65 <b>Y</b> ea	irs and >1 Year			≥65 Years or ≤1 Year			
Average Age (A)	Risk Factor		1.0	1.2					
*A risk f	actor of 4.0 is charged to	any zone that he	ouses patients wi	thout an	y staff ir	immediate atten	dance.		
	WORKSHEET	4.7.3 OCCUP	ANCY RISK FA	CTOR C	ALCUL	ATION			
Occ	upancy Risk	M D 1.6 × 1.0	× 1.4	× 1.1	] × ]	$ \begin{array}{ccc} A & F \\ \hline 1.2 & = & 3.0 \end{array} $			
	4 ADJUSTED OCCI DR — NEW BUILDING		works			ADJUSTED OCC XISTING BUILD	CUPANCY RISK DINGS		
1,0 ×	F R			Ò	.b × 3.	$R = \begin{bmatrix} R \\ 1.8 \end{bmatrix}$	·		
(For use with NFPA 101/	A-2010/NFPA 101-2009)						(p. 1 of 4)		

FIGURE 4.7 Worksheets for Evaluating Fire/Smoke Zones.

Safety Parameters				Paramete	r Value							
		Comb	ustible	rainea	1 14444		None	mbust	ible			
1. Construction			, IV, and V					s I and	II.			
Floor or Zone	000	111	200	211, 21	H	000		111	222,	322, 44		
First	-2	D	-2	0 		0		2		2		
Second	-7	-2				-2		2		4		
Third 4th and Above	<u>-9</u> -13	<u>-7</u>	<u>-7</u> <u>-9</u> -7 -13					2. -7		$\frac{4}{4}$		
	Class C.	<del></del>	ass B	-7		7-3		<del></del>	<b>\-</b>	4		
2. Interior Finish (Corridors and Exits)	-5(0)f	<del></del>	(3)(	3	<b>-</b>							
3. Interior Finish	Class C	<del>-</del>	ass B	Class				1				
(Rooms)	~3(1)f	1	(3)f	3		1						
4. Corridor	None or											
Partitions/Walls	Incomplete		hr ·	≥½hr to	<del></del>	1	1 he					
	-10(0)*	<del>  '</del>	0.	1(0)	<u></u>	<del>   </del>	2(0) <sup>n</sup>	_				
5. Doors to Corridor	No Door	<20 m	<20 min FPR		PPR		in FPR an to Clos.	di				
	-10		0	1(0)			5(0)q	1				
6. Zone Dimensions		Dead En	ıd		Nο	Dead Er	ids >30 ft	and Zo	ne Leng	th Is		
5, 2010 1511031310113		>50 ft to 10		ft to 50 ft		0 ft	100 ft to		-	0.0		
	-6(0)b	-4(0) <sup>3</sup>		-2(0) <sup>6</sup>	-2(0)				1			
7. Vertical Openings	Open 4 or More		2 or 3				Indicated					
	Floors		ors	<1.hr		≥1 hr to <2 hr			≥21			
	-14	Deficiency		0	ingle F	eficienc	2(0)*	1 200	.3(0			
8. Hazardous Areas	In Zone Outside Zone			In Zor			s acent Zone		o Defici	encies.		
	-11	-5		-6			-2	-		<b>—</b> —		
6 F. A. O. ( )	No Control	<del></del>	Smoke Barrier Mech Assisted Systems		+-	<u> </u>						
9. Smoke Control			es Zone			Zone		_				
	_5(0) <sup>c</sup>		0					3				
10. Emergency	<2 Routes	_		Multiple Routes				I:	Direct E	xit(s)		
Movement Routes		Def	icient	W/O Horiz			rizontal xit(s)					
Nontes	-8		-2	0	<b>-</b>	ند	1	+	- 5			
II. Manual Fire		d Fire Alar			final F	ire Alan	m.					
Alarm			1	W/O F.D. Conn.			D Conn.	7				
		-4		ļ			-2					
12. Smoke Detection	None	Camalá	lor Only	B C	1-1-		ndor and	1	Total Sp	aces		
and Alarm	0(3)s		3) <sup>g</sup>	Rooms C		Habi	t. Spaces	<del> </del> -	in Zo	20		
76' A-4	0(0)*		dor and	Entir			4	+-	5			
13. Automatic Sprinklers	None		. Space	Puildi	- C							
	.0		8	10								
Use (0) where Parameter 5 is — Use (0) where Parameter 10 is — Use (0) on floor with fewer than patients (existing buildings only Use (0) where Parameter 1 is be or on an unpretected type of cor	-8. 31 y). 10. ased on first floor 2	roo the sp g Us one pr	om is protect e room with rinklers, Pa se this valu- otected with	area of Class ted by auton existing Cla traineter 4 is in addition a quick-respondence come area \$1	iatic spi ss C int greater to Parai nse aut	rinklers erior fin than or moter 13 omatic s	and Param ish is prote equal to 1, if the enti prinklers.	eter 13 cted by and Par re zone	is 0; use automal rameter is	( ) if tic 13 is 0.		

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FIGURE 4.7 Continued

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

Safety Parameters	Containment Safety (S₁)	Extingulshment Safety $(S_2)$	People Movement Safety (S <sub>3</sub> )	General Safety (S₄)
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
3. Hazardous Areas	0	0		0
7. Smoke Control			0.	0
). Emergency Movement Routes			o	0:
I. Manual Fire Alarm		2		2
2. Smoke Detection and Alarm		4	4	4
3. Automatic Sprinklers	10	10	10 ÷ 2 = 5	10
Total Value	<b>S</b> <sub>1</sub> = 13	<b>S</b> <sub>2</sub> = 20	S <sub>3</sub> = 4	<b>S</b> <sub>4</sub> = 20

	Containn	Containment (S <sub>a</sub> )		iment (S <sub>b</sub> )	People Movement ( $S_c$ )	
Zone Location	New	Exist.	New	Exist,	New	Exist.
1st story	11	5.	15(12) <sup>a</sup>	4	8(5) <sup>2</sup>	1
2nd or 3rd storyb	15	9	17(14)	6	10(7) <sup>3</sup>	3
4th story or higher but not high rise	18	9	19(16) <sup>a</sup>	6	11(8) <sup>a</sup>	3
High rise	18	17.	19(16) <sup>a</sup>	16	11(8) <sup>a</sup>	7

<sup>&</sup>lt;sup>a</sup> Use ( ) in zones that do not contain patient sleeping rooms.

### WORKSHEET 4.7.88 MANDATORY SAFETY REQUIREMENTS — EXISTING NURSING HOMES

Zone Location	Containment (S <sub>a</sub> )	Extinguishment (S <sub>b</sub> )	People Movement (S <sub>c</sub> )
1st story 2nd story 3rd story 4th story or higher	2 2 8	10 10 16	2
4 ", "", "	Contraction of the Contraction o		

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

Zone Location	Containment (S <sub>a</sub> )	Extinguishment ( $S_b$ )	People Movement (S <sub>c</sub> )
1st story 2nd or 3rd story	13 17	17(14)* 19(1 <del>6</del> )*	8(5)* 19(7)*
4th story or higher	18	19(16)*	11(8)*

<sup>&</sup>quot;Use ( ) in zones that do not contain patient sleeping rooms.

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

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<sup>&</sup>lt;sup>5</sup> 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  $S_c = 7$ .

						Ye	<b>S</b> .	No .
27.	ontainment minus afety $(S_{\mathbf{j}})$	<i>C</i> = 5	\	•				
	stinguishment minus	Mandatory Extinguishment $(S_b)$	> 0	$\begin{bmatrix} S_2 & S_b \\ 20 & 16 \end{bmatrix}$	<i>E</i> = 4	V		
Pe Sa	copie Movement $minus$	$\begin{array}{c} \text{Mandatory People} \\ \text{Movement } (S_c) \end{array}$	> 0	$\begin{bmatrix} S_3 \\ 4 \end{bmatrix} - \begin{bmatrix} S_c \\ 2 \end{bmatrix}$	P = 2	V	,	
	eneral Safety minus	Occupancy Risk (R)	≥ 0	S <sub>4</sub> R 20 - 2	<i>G</i> = 15		, .	
	ete one copy of this works ch consideration, select an	d mark the appropriate colur	mn.		ITS WORKS	Met	Not Met	Not Applie
Α.		form to the requirements		<del>,</del>		<b>V</b>		$\geq \leq$
B.		. life-support systems, ala ator set locations are pow						/
C.	ventilating systems r	itioning systems conform equirements within Secti sidered in Safety Paramet	on 9.2, exc	ent for enclosure of verti	and cal openings,	<b>V</b>		X
D.	Fuel-burning space h	eaters and portable elect	rical space	heaters are not used.		<b>V</b>		>
16.	There are no flue-fed	incinerators.				<b>√</b>		Ī
F.	An evacuation plan is and 19.7.1/19.7.2.	s provided and fire drills o	conducted	in accordance with 18.7.	I/18.7.2	<b>V</b>		$\geq$
G.	Smoking regulations	have been adopted and im	plemente	in accordance with 18.7	4 and 19.7.4.	<b>V</b>		$\geq \leq$
H.		peries, upholstered furnit with 18.7.5 and 19.7.5.	ture, matti	esses, furnishings, and d	ecorations is	<b>V</b>		
I.	Fire extinguishers ar	e provided in accordance y	with the re	quirements of 18.3.5.11 a	nd 19.3.5.11.	<b>V</b>		> <
J.	Exit signs are provid	ed in accordance with the	requirem	ents of 18.2.10.1 and 19.	2.10.	<b>V</b>		
K.	Emergency lighting i	s provided in accordance	with 18.2.	9.1 or 19.2:9.1.		<b>V</b>		
ونا.	Standpipes are provi	ded in all new high-rise b	uildings a	required by 18.4.2.				
refe	nences are to NFPA 101, Life		EET 4.7.1	1 CONCLUSIONS				
1. [	All of the checks in prescribed by the Li	Worksheet 4.7.9 are in the fe Safety Code.*	e "Yes" col	umn. The level of fire saf	ety is at least	equivale	nt to the	ıţ
2. [		hecks in Worksheet 4.7.9 lent to that prescribed by			f fire safety is	not shov	va by th	នៃ
c	considerations that are no	y this worksheet includes t t evaluated by this method 10, the Facility Fire Safety	. These mu	st be considered separatel	. These additio	nal consi	deration	s are

FIRE SAFETY EVALUATION SYSTEM FOR HEALTH CARE OCCUPANCIES

		WORKSHEE	T 4.7.1 COVE	R SHEET			
	Iniversity Transitional Se	·		- Main Bui	lding	ties	
Zoneis) evaluated _F		· · · · · · · · · · · · · · · · · · ·		Zone 13 of	f 18	<del></del>	<u> </u>
Evaluator M. Thuring							
•	heet for each zone. Whe						
*Fire/si	moke zone is a space sep	arated from all	other spaces by fl	oors, horiz	ontal ex	xits, er smoke bar	Tiers,
<u> </u>	WORKSHE	ET 4.7.2 OCC	UPANCY RISK	PARAME	ETER F	ACTORS	
Risk Parameters			Risk Factor	Values	<u> </u>	·	
1 Patient	Mobility Status	Mobile	Limited M	obility.	Not	Mobile	Not Movable
Mobility (M)	Risk Factor	1,0	1.6			3.2	4.5
2. Patient	No. of Patients	1-5	6-10	<u> </u>	1	1-30	>30
Density (D)	Risk Factor	1.0	1.2			1.5	2.0
3. Zone	Floor	lst	2nd or 3rd	4th to	6th	7th and Above	Basements
Location (L)	Risk Factor	1.1	1.2	1.4		1.6	1.6
4. Ratio of Patients to	Patients Attendant	1-2 1	3 <u>-5</u> 1	6-1 1	ō	>10. 1	One or More* None
Attendants (T)	Risk Factor	1:0	1.1	1.2	<b>,</b>	1.5	4,0
5. Patient	Age.	<65 Ye	ars and >1 Year			≥65 Years or ≤	1 Year
Average Age (A)	Risk Factor		1.0			1.2	]
*A risk fa	actor of 4.0 is charged to	any zone that h	ouses patients wi	thout any	staff in	immediate atten	dance.
	WORKSHEET	4.7,3 OCCUP	ANCY RISK FA	CTOR CA	ALCUL	AŢION	
Öce		M D 1.5	x 1.4	× 1,1	x [	$\begin{array}{c} A \\ \hline 1.2 \end{array} = \begin{array}{c} F \\ \hline 8.9 \end{array}$	]
WORKSHEET 4.7.	4 ÄDJUSTED OCCL DR — NEW BUILDING	JPANCY RISK	WORKS	SHEET 4.	7.5 A R — E	DJUSTED OCC	CUPANCY RISK DINGS
1.0×	R R			0.6	F 8.	$\begin{bmatrix} R \\ 9 \end{bmatrix} = \begin{bmatrix} 5.3 \end{bmatrix}$	
(For use with NFPA 1014	A-2010/NFPA 101-2009)				· · · · · · · · · · · · · · · · · · ·		(p. 1 of 4)

FIGURE 4.7 Worksheets for Evaluating Fire/Smoke Zones.

Safety Parameters				Parameter	Value	S			
1. Construction	Combustible Noncombustible Types III, IV, and V Types I and II								
Floor or Zone	Types III, IV, and V			211,2HH				1 and 1	222, 322, 4
First	-2	0	-2			.0.		2 .	2
Second		-2	-4	-2		-2		2	4
Third	-9	_ <del>_</del> _7	-9	-7				2	4
4th and Above	-18	-7	-13	-7		-y.9		.7	4
2. Interior Finish	Class C	Cla	ss B	Clase A		}			
(Corridors and Exits)	-5(0)f	. 00	1(E)	3				<u> </u>	
3. Interior Finish	Class C	Cla	ss B		<b>Š</b>	]			
(Rooms)	-3(1)!	10	(3)f	3		<u> </u>			
4. Corridor	None or Incomplete	<1/2	h.,	>1/2 hr to <1 hr			1_hr_	i	
Partitions/Walls	-10(0)*	<del>                                       </del>		1(0)4		2(0)4		1	
	-10(0)-	. 0 .		Light	· · · ·				
5: Doors to Corridor	No Door	<20 mi	n FPR	≥ <u>20 min FP</u> R		≥20 min FPR and Auto Clos.			
	-10°	0		1(0)d		2(0) <sup>d</sup>		1	
6. Zone Dimensions		Dead En	ď		No	Dead Er	ds >30 ft a	nd Zone	Length Is
o. Zone Dinichatolia	>100 ft	50 ft to 10	00 ft 30 ft	to 50 ft	>15	0 ft	100 ft to 1	50 ft	100 ft
	−6(0)b	-4(0) <sup>5</sup>	2	5(0) <sub>p</sub>		c(0)h	0(0)h	اللسيم	1
7. Vertical Openings	Open 4 or More		2 or 3				Indicated F	ire Resi	st.
	Floors		ors ,	<1 hr	· · ·	21 h	r to <2 hr		≥2 hr
	-14	-10		0		2(0)*		1	3(0)
8. Hazardous Areas		Deficiency  Outside Zone				eficienc		No	Deficiencies
	In Zone			<del> </del>		<del> </del>	In Adjacent Zone		
	<u>–11</u>	_:		-6			-2	<del>⊢</del> Ł	0
9. Smoke Control	No Control		Barrier s Zone			sisted Systems y Zone		-	
	_5(0)°					3		1	
40 B	<2 Routes			Multiple Routes				Di	rect Exit(s)
10. Emergency Movement		†		W/O Horiza		Hor	izontal	1	I GCC EXIC(8)
Routes		Defi	cient	Exit(s)			xit(s)		
	-8		2	- 0			1		5
11. Manual Fire	No Manua	l Fire Alar	TP1	manual Fire Alarm				1	
Alarm			<u> </u>	W/O F.D. C	onn.	W/ F	D Conn.	ļ	
<del></del>		4		1			2	<u> </u>	<del></del>
12. Smoke Detection	None	Corrid	lor Only	Rooms O	nlv		idor and t. Spaces	To	tal Spaces in Zone
and Alarm	0(3)8		3)8	3(3)8		تتقر	4		5
TO Associated	3(3)-	<del></del>	dor and	Entire				1	
13. Automatic Sprinklers	None	Habit	. Space	Buildin	or .				
· · · · · · · · · · · · · · · · · · ·	0	1	8	10		<u></u>		<u> </u>	
Use (0) where Parameter 5 is - Use (0) where Parameter 10 is Use (0) on floor with fewer that patients (existing buildings on Use (0) where Parameter 4 is Use (0) where Parameter 1 is b or on an unprotected type of co	–8. n 31. ly). 10. ased on first floor z	one pro	e ( ) if the arm is protect room with a rinklers, Par- te this value otected with te (0) where a	ed by autom existing Clas ameter 4 is in addition I quick-respo	etic sp ss C in greater to Para nse aut	rinklers terior fin than or meter 13 omatic s	and Parame ish is protec equal to 1, a if the entire prinklers.	ter 13 is ted by a ind Para e zone is	0; use ( ) if utomatic meter 13 is 0

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FIGURE 4.7 Continued

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

Safety Parameters	Containment Safety (S <sub>1</sub> )	Extinguishment Safety (S <sub>2</sub> )	People Movement Safety (S <sub>3</sub> )	General Safety (S <sub>4</sub> )
1. Construction	4	4		4
2. Interior Finish (Corr. and Exit)	3		3	3
B. Interior Finish(Rooms)	3			3
4. Corridor Partitions/Walls	2			2
5. Doors to Corridor	1		1.	1
s. Zone Dimensions			1	1
7. Vertical Openings	-10		-10	-10
3. Hazardous Areas	0	0.		0
). Smoke Control			0	0.
). Emergency Movement Routes			0	0
. Manual Fire Alarm		2		ż
2. Smoke Detection and Alarm		4	4	4
3. Automatic Sprinklers	10.	10	10 ÷.2 ≈ 5.	10
Total Value	S₁ = 13	S <sub>2</sub> = 20	S <sub>3</sub> = 4	S <sub>4</sub> = 20

	Containn	Containment (S <sub>a</sub> )		iment (S <sub>b</sub> )	People Movement ( $S_c$ )	
Zone Location	New	Exist.	New	Exist.	New	Exist.
1st story 2nd or 3rd story <sup>b</sup> 4th story or higher	11 15 18	5 9 9	15(12) <sup>a</sup> 17(14) <sup>a</sup> 19(16) <sup>a</sup>	4 6	8(5) <sup>a</sup> 10(7) <sup>a</sup> 11(8) <sup>a</sup>	1 3
but not high rise High rise	18.	<b>1</b> 7	19(16) <sup>a</sup>	16	11(8)3	7

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

#### WORKSHEET 4.7.8B MANDATORY SAFETY REQUIREMENTS — EXISTING NURSING HOMES

1	
10 10 16	0 2 2

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

Zone Location	Containment (S <sub>2</sub> )	Extinguishment ( $S_b$ )	People Movement $(S_c)$
1st story 2nd or 3rd story	13 <sup>7</sup> 17	17(14)* 19(16)*	8(5)* 10(7)*
4th story or higher	18	19(16)≝	11(8)*

<sup>\*</sup>Use ( ) in zones that do not contain patient sleeping rooms.

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

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<sup>&</sup>lt;sup>b</sup> 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:  $S_{\alpha} = 7$ ,  $S_{b} = 10$ , and  $S_{c} = 7$ .

	· · · · · · · · · · · · · · · · · · ·			$S_1$ $S_a$ $C$	Yes	s	No
	ntainment mi fety $(S_1)$	<b>Y</b>					
	tinguishment mifety $(S_2)$	· V					
	ople Movement $_{ m mi}$ fety $(S_8)$	$egin{array}{ll}  ext{Mandatory People} \  ext{Movement} \left(S_{c} ight) \end{array}$	> 0	$\begin{bmatrix} S_3 & S_c \\ A & - & 2 \end{bmatrix} = \begin{bmatrix} P \\ 2 & \end{bmatrix}$	V		
Ge (S	eneral Safety mi	inus Occupancy Risk (R)	≥ 0	$ \begin{array}{c c} S_4 & R & G \\ \hline 20 & - & 5 & = & 15 \end{array} $	/		
or ead	ete one copy of this wo ch consideration, selec	orksheet for each tacility. It and mark the appropriate o	olumn.	SAFETY REQUIREMENTS WORKS	Met	Not Met	Not Appli
A. B.		conform to the requirement	<del></del>	<del></del>	_		<u> </u>
.D.,	illumination of ge	nerator set locations are p	marms, eme powered as p	rgency communication systems, and rescribed by 18,5,1,2 and 18,5,1,3.	<u> </u>		_ <
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	e heaters are not used.	<b>V</b>				
E.	There are no flue-	V					
F.	An evacuation pla and 19.7.1/19.7.2,	l in accordance with 18.7.1/18.7.2	<b>/</b>		$\geq$		
G.	. <u>Se de</u>			d in accordance with 18.7.4 and 19.7.4.	<b>V</b>		$\geq$
Н.	limited in accords	ance with 18,7.5 and 19.7.5	5.	resses, furnishings, and decorations is	<b>V</b>		
I.	Fire extinguishers	s are provided in accordance	e with the r	equirements of 18.3.5.11 and 19.3.5.11.	<b></b>		$\geq$
J.	Exit signs are pro	ovided in accordance with	the τequiren	nents of 18.2.10.1 and 19.2.10.	<b>V</b>		
K.	Emergency lighting	ng is provided in accordan	ce with 18.2	.9.1 or 19.2.9.1.			<u> </u>
<u>L</u> ,	Standpipes are pr	rovided in all new high-ris	e buildings a	as required by 18.4.2.			<b>V</b>
	ences are to NFPA 101,	WORKS		11 CONCLUSIONS			<del></del>
1.	prescribed by the	e Life Safety Code.*		lumn. The level of fire safety is at least			
	system to be equ	iivalent to that prescribed	by the Life i			-	
2. [	he equivalency covere			ty of considerations covered by the <i>Life So</i> ust be considered separately. These addition			

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FIRE SAFETY EVALUATION SYSTEM FOR HEALTH CARE OCCUPANCIES

		WORKSHEE	T 4.7.1 COVE	RSHEE	Ţ		
	Fire/Smoke:	Zone Evaluation	n Worksheet for F	Iealth Ca	re Facil	ties	
	<u> Jniversity Transitional Se</u>						
	ourth floor West						
Evaluator M. Thuri	sheet for each zone. Whe					inclinations has been	A Coulth and the
"Fire/s	moke zone is a spaco ser	arated from all	otner spaces by 11	oors, nou	zontat e	xits, or smoke dar	riers.
<u></u>	WORKSHE	ET 4.7.2 OCC	CUPANCY RISK	PARAM	ETER I	ACTORS	·
Risk Parameters			Risk Factor	r Values			
1. Patient	Mobility Status	Mobile	Limited M	obility	No	t Mabile	Not Movable
Mobility (M)	Risk Factor	1:0	1.6			3.2	4.5
2. Patient	No. of Patients	15	6-10			11-30	>30
Density (D)	Risk Factor	1.0	1.2			1.5	2,0
3. Zone	Floor	1st	2nd or 3rd	4th to	o 6th	7th and Above	Basements
Location (L)	Risk Factor	1.1	1.2	1.	4	1.6	1.6
4. Ratio of Patients to	<u>Patients</u> Attendant	1-2	3 <u>-5</u> 1	6-	-10 L	<u>&gt;10</u>	One or More* None
Attendants $(T)$	Risk Factor	1.0	1.1	1.	2	1.5	4.0
5. Patient Average	Age	<65⊦Ye	ars and >1 Year			≥65 Years or ≤	1 Year
Age (A)	Risk Factor		1.0	1.0			
*A risk f	factor of 4.0 is charged to	any zone that h	ouses patients wi	thout an	y staff ir	immediate atten	dance:
	WORKSHEET	4.7.3 OCCUF	PANCY RISK FA	CTOR C	ALCUL	ATION	
Oca	cupancy Risk	M D 1.5		× 1.1	]. ×	A F 8.9	]
	.4 ADJUSTED OCCI		WORK			ADJUSTED OCC	CUPANCY RISK
1:0×	<u>F</u> = <u>R</u>				.6× 8.		
(For use with NFPA 101	A-2010/NFPA 101-2009)						(p. 1 of 4)

FIGURE 4.7 Worksheets for Evaluating Five/Smoke Zones.

Safety Parameters	Parameter Values								
1. Construction			ustible , IV, and V				Noncom Types l	bustible I and II	
Floor or Zone	000	111	200	211,2	HH.	000	11	11 2	22, 322, 44
First	-2	D	2		0	0.	2	,	2
Second	-7	-2	4	-;	2	-2	5	3	4
Third	-9	-7	_9		7	_7		2	4
4th and Above	-13	-7	-13		7	9		7.	4
2. Interior Finish	Class C	. Cla	ıss B	يمما کے		].	-	'	
(Corridors and Exits)	-5(0) <sup>f</sup>	0	(8)f	3					
3. Interior Finish	Class C		ass B	Close	Δ.	_			
(Rooms)	-3(1)f	1	(3)f	3.		ļ.			
4. Corridor	None or		(3L)	>½ hr. to		'			
Partitions/Walls	Incomplete		< <sup>1</sup> / <sub>2</sub> hr ≥				1 hr (0)a		
<u>_:</u>	-10(0)*	<u> </u>	<u></u>	1(0)	) <del>a</del>	<del>;                                    </del>	· · · · · · · · · · · · · · · · · · ·		
5. Doors to Corridor	No Door	<20 m	<20 min FPR ≥20 min FPR			n FPK and to Clos.			
	-10		0.	1(0		<del></del>	(O)d		
A 67 - Th		Dead Er	<u> </u>				ds >30 ft an	d Zone L	ength Is
6. Zone Dimensions	>100 ft	>50 ft to 10	00 ft 30	ft to 50 ft	>15	50 ft	100 0 + 15	O ft	<100 ft
	-6(0) <sup>b</sup>	-4(0)b	-	·2(0) <sup>b</sup>	-2(0	)c(0)h	0(0)h	1	1
7. Vertical Openings	Open 4 or Mo	re Open	2 or 3		Enclos	ed with:	ndicated Fi	re Resist	,
r. vertical Openings	Floors		oors	<1 l	hr:	≥1 h	r to <2 hr		≥2 hr
	-14		10	0			2(0)¢		3(0)°
8. Hazardous Areas	Doubl	e Defici <del>ency</del>		·· -	Single I	Deficienc	y	No De	eficiencies
o, Insaidansin cus	In Zone	Outsi	de Zone	In Zo	ne	In Adja	acent Zone		
	-11		5	<u>–6</u>		-1	-2	L	0
9. Smoke Control	No Control		Barrier	Me		ted Syst	ems	_	
			es Zone			Zone			
<del></del>	-5(0)c			35 32 3		3			
10. Emergency	<2 Routes			Multiple		1		Dire	ct Exit(s)
Movement Routes		Def	icient	W/O Hor Exit			izontal xit(s)		
imaeez	<b>−8</b> ·		-2	:0			1		5
to be direct		ual Fire Alaı			ranual I	ire Alan	<del></del>		
11. Manual Fire Alarm	2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 -			W/O F.D.			D. Copn.		
**********		-4		1			2		
12. Smoke Detection				_			idor and	Tota	d Spaces
and Alarm	None		for Only	Rooms		Hahi	- Spaces		Zone
	0(3)g		(3)g	3(3			4		5
13. Automatic	None		dor and t. Space	Enti Build					
Sprinklers	0		к. орасе В	10		-			

<sup>&</sup>lt;sup>a</sup> Use (0) where Parameter 5 is -10.

For SI units, 1 ft = 0.3048 m; 1 ft<sup>2</sup> = 0.092 m<sup>2</sup>.

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

(\*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.

s 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.

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FIGURE 4.7 Continued



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 $<sup>^{\</sup>rm h}$  Use (0) where Parameter 10 is -8.

<sup>&</sup>lt;sup>e</sup> Use (0) on floor with fewer than 31 patients (existing buildings only).

<sup>\*</sup>Use (0) where Parameter 4 is -10.

\*Use (0) where Parameter 1 is based on first floor zone or on an improtected type of construction (columns marked "000" or "200").

4	1 0	4 3 3 2 1 0
		3 2 1
	1 0	2
	1 0	1
	0	0
	0	0
	-10	-10
0		0
	0	0
	0	0
2		2
4	4 .	4
10	10 - 2 = 5	10
	10	0 2 4 4 10 10 - 2 = 5

	Contain	ment (S <sub>a</sub> )	Extinguish	ment (S <sub>b</sub> )	People Movement (S <sub>c</sub>		
Zone Location	New	Exist.	New	Exist.	New	Exist.	
1st story	13	5	15(12)a	4	8(5)a	1.	
2nd or 3rd storyb	15	9	17(14) <sup>n</sup>	6	10(7)3	3	
4th story or higher but not high rise	18	9	19(16) <sup>a</sup>	6.	11(8) <sup>a</sup>	3	
High rise	18	17	19(16) <sup>a</sup>	16	11(8) <sup>a</sup>	7	

<sup>\*</sup> Use ( ) in zones that do not contain patient sleeping rooms.

### WORKSHEET 4.7.8E MANDATORY SAFETY REQUIREMENTS — EXISTING NURSING HOMES

Zone Location	Containment (S <sub>a</sub> )	Extinguishment (S <sub>b</sub> )	People Movement ( $S_c$ )
Ist story	.0	10	0
2nd story 3rd story	2	10	2
4th story or higher	.8	16	

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

Zone Location	Containment (S <sub>a</sub> )	Extinguishment (S <sub>b</sub> )	People Movement (S <sub>c</sub> )
1st story	13	17(14) <sup>d</sup>	8(5)*
2nd or 3rd story	17	19(16)*	10(7)*
4th story or higher	18.	19(16)*	£1(8)*

<sup>\*</sup>Use ( ) in zones that do not contain patient sleeping rooms.

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

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<sup>&</sup>lt;sup>6</sup> 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  $S_c = 7$ .

		i					Ye	s	No
	entainment lety $(S_1)$	minus	Mandatory Containment $(S_n)$	≥.	0	$ \begin{array}{c c} S_1 & S_a & C \\ \hline 13 & -8 & =5 \end{array} $		/	
	tinguishment fety (Sy)	minus	Mandatory Extinguishment $(S_b)$	خ	Ó	$\begin{bmatrix} S_2 & S_b & E \\ 20 & -16 & =4 \end{bmatrix}$	V	,	
	ople Movement fety $(\hat{S}_{9})$	minus	Mandatory People Movement $(S_c)$	<b>&gt;</b>	.0.	$\begin{bmatrix} S_3 \\ 3 \end{bmatrix} - \begin{bmatrix} S_c \\ 2 \end{bmatrix} = \begin{bmatrix} 1 \\ 1 \end{bmatrix}$	V	,	
	eneral Safety	minus	Occupancy Risk (R)	≥	0	$ \begin{array}{c c} S_{4} & R & G \\ \hline 19 & 5 & = \boxed{14} \end{array} $	V	,	
mpi read	ete one copy of this ch consideration, s	workshe elect and		imn.		PETY REQUIREMENTS WORKS	Met	Not Met	Noi Appli
В.	In new facilitie	es only, l	ife-support systems, alı	ırms,	, emerg	ency communication systems, and scribed by 18.5.1.2 and 18.5.1.3.	- <del></del>		1
C.	Heating and a ventilating sys	ir condit stems rec	ioning systems conforn	with ion 9	h the ai	r conditioning, heating, and pt for enclosure of vertical openings,	<b>V</b>		$\searrow$
D.	Fuel-burning	space he	aters and portable elec	irical	space	neaters are not used.	<b>V</b>		$\triangleright$
Fì,	There are no f	lue-fed i	ncinerators.						
F.	An evacuation and 19.7.1/19.		provided and fire drills	cond	ucted i	accordance with 18.7.1/18.7.2	₹.		$\geq$
G.	Smoking regul	ations h	ave been adopted and in	nplen	nented	in accordance with 18.7.4 and 19.7.4.	<u> </u>		$\geq$
Н.			eries, upholstered furni with 18.7.5 and 19.7.5,	ture,	, mattre	sses, furnishings, and decorations is	<b>V</b>		
L.	Fire extinguis	hers are	provided in accordance	with	the req	uirements of 18.3.5.11 and 19.3.5.11.	<b>V</b>		$\geq$
J.	Exit signs are	provided	l in accordance with th	e req	uireme	nts of 18:2,10,1 and 19,2.10.	<b>V</b>		
K	Emergency lig	hting is	provided in accordance	with	18.2.9	1 or 19,2,9.1.	<u> </u>		
Ļ.	Standpipes ar	e provide	d in all new high-rise l	build	ings as	required by 18.4.2.	<u> </u>	<u> </u>	$\perp \checkmark$
refe	rences are to NFPA r	101, Life Sa		EÉT	4.7.11	CONCLUSIONS			
1. [	All of the che	cks in W	orksheet 4.7.9 are in the Safety Code.*	ie "Ye	es" colu	mn. The level of fire safety is at least	equivale	nt to tha	ŧĹ
οГ			ecks in Worksheet 4.7. nt to that prescribed by			No* column. The level of fire safety is fety Code.*	not shor	wn by th	ïs
2. [						of considerations covered by the Life Sa be considered separately. These addition			

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		WORKSHEE	T 4.7.1 COVE	SHEE	Ţ			
	Fire/Smoke 2	Zone* Évaluatio	n Worksheet for H	lealth Ca	re Facili	ties		
Pacifity Fairview L	Iniversity Transitional Ser	rvices	Building 01	- Main Bui	lding			
Zone(s) evaluated _	Fifth Floor North			one15 of:1	18			
Svaluator <u>M. Thusi</u>							<del>.</del>	
Complete this work	sheet for each zone. Whe	re conditions are	the same in seve	ral zones	, one wo	ksheet can be us	ed for those zones.	
*Fire/s	mokë zone is a spaco sop	arated from all	other spaces by fl	ors, hor	izontal e	cits, or smoke ba	rriers.	
	WORKSHE	ET 4.7.2 OC	CUPANCY RISK	PARAN	IETER I	ACTORS		
Risk Parameters			Risk Factor	Values	,			
1. Patient	Mobility Status	Mobile	Limited M	obility	No	: Mobile	Not Movable	
Mobility (M)	Risk Factor	1.0	1.6			3.2	4.5	
2. Patient	No, of Patients	1-5	6-10		1	1-30	>30	
Density (D)	Risk Factor	1.0	1.2			1.5	2.0	
3. Zone Location (L)	Floor	lst	2nd or 3rd	4th t	o 6th	7th and Above	Basements	
Location (E)	Risk Factor	1.1	1.2	1.	4	1.6	1.6	
4. Ratio of Patients to	Patients Attendant	<u>1-2</u>	<u>8–5</u> 1	6_	-10 1	>10 1	One or More <sup>b</sup> None	
Attendants (T)	Risk Factor	1.0	1.1	.1	.2	1.5	4.0	
5. Patient	Age	<65 Ye	ears and >L Year			≥65 Years or	1 Year	
Average Age (A)	Risk Factor		1.0			1.2		
*A risk	factor of 4.0 is charged to	any zone that l	nouses patients wi	thout an	y staff ir	immediate atter	idance.	
	WORKSHEET	4.7.3 OCCU	PANCY RISK FA	CTOR C	ALCUL	ATION		
Oc		M D 1:2	×	× 1.1	] ×	A R		
	4 ADJUSTED OCCU		WORKS	SHEET (	1.7.5 <i>A</i> OR — E	DJUSTED OC	CUPANCY RISK DINGS	
1.0×.	<u>F</u>			Ü	.6 × 7.	$\frac{R}{1} = 4.3$		
For use with NFPA 101	A-2010/NFPA 101-2009)						(p. 1 of 4	

FIGURE 4.7 Worksheets for Evaluating Fire/Smoke Zones.

Safety Parameters				Paramet	er Value	es				
1. Construction		Combu Types III,						combustible ses I and II		
Floor or Zone	000	111	200	211,	2HH	000	1	11.	222, 322, 44	
First	-2	" .:o	~-2		0			2	2	
Second	-7	-2	-4		-2			2	4	
Third	_9	7	9:		7	-7		2	4	
4th and Above	-1.3	<u>-</u> 7	- 13		7	-9		7	4	
2. Interior Finish	Class C	Cla	ss B	Class						
(Corridors and Exits)	-5(0)f	0(	3)f	3						
3. Interior Finish	Class C	Cla	as B	Placs A						
(Rooms)	-3(1) <sup>f</sup>	10	(3)f	- 3						
4. Corridor Partitions/Walls	None or Incomplete	< 1/2	hr	≥½ hr to	 i<1 hr	,	1 hr			
	$-10(0)^a$		i <sup>;</sup>	1(0	)·u	2	$(0)^{a}$			
5. Doors to Corridor	No Door	<20 mi	n FPR	≥20 mir	893		n r PR and to Clos,			
	10	. 0	. 0		ja i		(0) <sub>q</sub>			
6. Zone Dimensions		Dead En	d		Nο	Dead En	ds >30 ft ar		e Length Is	
o. Zishe ishinchistoris	>100 ft	>50 ft to 10	0 ft 30	ft to 50 ft	>1!	50 ft	100 0 +- 1	Q ft	<100 ft	
	-6(0)b	-4(0) <sup>b</sup>		$-2(0)^{b}$	-2(0	) <sup>c</sup> (0) <sup>h</sup>	0(Q)h	$\perp$	1	
7. Vertical Openings		Open 4 or More Open 2 or 3			Enclos	ed with I	ndicated Fi	re Res	ist.	
	Floors	Flo	ors	<1	hr	<u>≥1 h</u>	r to $<2$ hr		≥2 hr	
	-14		0.	0			$2(0)^{a}$	1	3(0)¢	
8. Hazardous Areas	Double	Deficiency		Single Deficiency		No	Deficiencies			
	In Zone	Outsid	e Zone	In Zone		In Adjacent Zone				
	11.	-8	5.	6			-2	[	0	
9. Smoke Control	No Control		Barrier	Me		sted Syst	ėms .	•		
			з Zопе	by Zone						
	-5(0) <sup>e</sup>		<u> </u>	36 316 3		3			<del></del>	
10. Emergency	<2 Routes			Multiple				Di	rect Exit(s)	
Movement Routes		Defi	cient.	W/O Hor _Evit			izontal xit(s)			
Teoures	-8	2001		0.		112	1		5	
		al Fire Alar				Fire Alarr			<u> </u>	
11. Manual Fire Alarm	710.34420.00	ar, E tres treat		W/Ö F.D			D Coun.			
Anai in		-4		1701.1			2			
12. Smoke Detection	None	-	or Only	Rooms	Only		idor and Snaces	Т	otal Spaces in Zone	
and Alarm	0(3)s		3)8	3(3		-	4		. 5	
13. Automatic Sprinklers	None	Corrie	lor and Space	Ent Build	ire			<del>i — i ' - i - ,</del> · ·		
Dennaters	0		3	. 10		1				

For SI units, 1 ft = 0.3048 m;  $1 \text{ ft}^3 = 0.092 \text{ m}^3$ .

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

to set 1) in the area of class 5 or 5 interior finish in the corrador 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.

8 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.

(p. 2 of 4)

FIGURE 4.7 Continued



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 $<sup>^{\</sup>rm h}$  Use (0) where Parameter 10 is -8.

Filse (0) on floor with fewer than 31 patients (existing buildings only).

<sup>&</sup>lt;sup>4</sup> Use (0) where Parameter 4 is -10. <sup>e</sup> Use (0) where Parameter 1 is based on first floor zone or on an unprotected type of construction (columns marked "000" or "200").

Safety Parameters	Containment Safety (S <sub>1</sub> )	Extinguishment Safety (S <sub>2</sub> )	People Movement Safety (S <sub>3</sub> )	General Safety (S <sub>4</sub> )
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
S. Zone Dimensions			0	o
7. Vertical Openings	-10		-10	-10
3. Hazardous Areas	0	0		0
). Stocke Control			0	0
). Emergency Movement Routes			o	0
l. Manual Fire Alarm		2		2
2. Smoke Detection and Alarm		4	4	.4
3. Automatic Sprinklers	10	10	10 + 2 = 5	10

	_ 11 1100t t17tb	C) ESCIBILITED III	301 111120, 0111	100 (1 2) 4 (14)		
	Contain	Containment (S <sub>a</sub> )		ment ( $S_b$ )	People Movement ( $S_c$ )	
Zone Location	New	Exist.	New	Exist.	New	Exist
1st story	11	5	15(12) <sup>a</sup>	4	8(5)3	1
2nd or 3rd storyb	15	9	$17(14)^{n}$	6	10(7)3	3
4th story or higher but not high rise	18	9	19(16)*	6	11(8) <sup>n</sup>	3
High rise	18.	17	19(16) <sup>a</sup>	16	11(8) <sup>a</sup>	7

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

#### WORKSHEET 4.7.88 MANDATORY SAFETY REQUIREMENTS - EXISTING NURSING HOMES

Zone Location	Containment (S <sub>e</sub> )	Extinguishment (S <sub>b</sub> )	People Movement ( $S_c$ )
1st story 2nd story	0	10	<u>0</u> .
3rd story 4th story or higher	ر ش	16	ا ا

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

Zone Location	Containment (S <sub>a</sub> )	Extinguishment ( $S_b$ )	People Movement (S <sub>c</sub> )
1st story 2nd or 3rd story	13 <sub>.</sub>	17(14)* 19(16)*	8(5)* 10(7)*
4th story or higher	18	19(16)*	11(8)*

<sup>\*</sup>Use ( ) in zones that do not contain patient sleeping rooms.

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

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<sup>&</sup>lt;sup>5</sup> 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  $S_{\alpha} = 7$ ,  $S_{b} = 10$ , and  $S_{c} = 7$ .

		Ye	<b>S</b> .	No
	intainment minus Mandatory $S_1$ $S_c$ $C$ fety $(S_1)$ Containment $(S_a)$ $\geq 0$ $S_1$ $S_c$ $C$	/	•	
	tinguishment minus Mandatory Extinguishment $(S_b) > 0$ $S_2$ $S_b$ $E$ $S_b$	<b>V</b>		
Pe Sa	ople Movement minus Mandatory People fety $(S_3)$ $S_0$ $S_$	/		
G <sub>(</sub> S	eneral Safety minus Occupancy Risk (R) $\geq 0$ $\begin{bmatrix} S_4 & R & G \\ 19 & - 4 & = 15 \end{bmatrix}$	<b>V</b>		<del></del>
r ea	WORKSHEET 4.7.10 FACILITY FIRE SAFETY REQUIREMENTS WORKSH ate one copy of this worksheet for each facility. The consideration, select and mark the appropriate column.	Met	Not Met	Not Appli
A. B.	Building utilities conform to the requirements of Section 9.1.  In new facilities only, life-support systems, alarms, emergency communication systems, and			
٠.	illumination of generator set locations are powered as prescribed by 18.5.1.2 and 18.5.1.3.			<b>V</b>
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.	<b>V</b>		$\times$
D.	Fuel-burning space heaters and portable electrical space heaters are not used.	<b>V</b> .		$\geq <$
R.	There are no flue-fed incinerators.	✓		<u> </u>
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.	<b>V</b>		>
H.	Combustibility of draperies, upholstered furniture, mattresses, furnishings, and decorations is limited in accordance with 18.7.5 and 19.7.5.	<b>/</b>		
I.	Fire extinguishers are provided in accordance with the requirements of 18.3.5.11 and 19.3.5.11.	$\checkmark$		$\supset$
J.	Exit signs are provided in accordance with the requirements of 18.2.10.1 and 19.2.10.	<b>V</b>		
К.	Emergency lighting is provided in accordance with 18.2.9.1 or 19.2.9.1.	<b>V</b>		
L.	Standpipes are provided in all new high-rise buildings as required by 18.4.2.			<b>V</b>
refe	ences are to NFPA 101, Life Safety Code.			
	WORKSHEET A 7 44 CONOL HOLONG			
-	WORKSHEET 4.7.11 CONCLUSIONS	<del>.</del>	<del></del>	
1.	All of the checks in Worksheet 4.7.9 are in the "Yes" column. The level of fire safety is at least e prescribed by the Life Safety Code."	quivaler	it to the	t.
2. [	One or more of the checks in Worksheet 4.7.9 are in the "No" column. The level of fire safety is system to be equivalent to that prescribed by the Life Safety Code:"	not.show	n by th	is
	The equivalency covered by this worksheet includes the majority of considerations covered by the <i>Life Saf</i> considerations that are not evaluated by this method. These must be considered separately. These addition overed in Worksheet 4.7.10, the Facility Fire Safety Requirements Worksheet. One copy of this separate y	ial consid	leration	are

01A-13

#### 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 Factor Values **Hisk Parameters** Mobility Status Mobile Limited Mobility Not Mobile Not Movable 1. Patient Mobility (M) Risk Factor 1.6 3.2 1.0 4.5 6 - 10No. of Patients 1-5 11-30 >30 2. Patient Density (D)1.5 2.0Risk Factor 1.0 1.2 Floor İst 2nd or 3rd 4th to 6th 7th and Above Basements 3. Zone Location (L)Risk Factor 1.1 1.2 1.4 1,6 1.6 Patients One or More\* $\frac{6-10}{1}$ 4. Ratio of None Attendant Patients to Attendants Risk Factor 1.0 1.1 1.2 1,5 4.0 5. Patient Age. <65 Years and >1 Year ≥65 Years or ≤1 Year Average Age (A)1.0 1.2 Risk Factor $^*$ 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 WORKSHEET 4.7.4 ADJUSTED OCCUPANCY RISK FACTOR — NEW BUILDINGS WORKSHEET 4.7.5 ADJUSTED OCCUPANCY RISK FACTOR — EXISTING BUILDINGS (p. 1 of 4) (For use with NFPA 101A-2010/NFPA 101-2009)

FIGURE 4.7 Worksheets for Evaluating Fire/Smoke Zones.

Safe	ety Parameters				. :	Paramete	er Value	:5			
1. Construction		Combustible Types III, IV, and V					Noncombustible Types I and H				
	Floor or Zone	000			00.	211, 2	HH	.000			222, 322, 44
	First	-2	(	) -	2		)	0		2	2
	Second	-7:		2 –	4	-2	2	÷2		2:	4
	Third	-9		7 –	9:		<i>i</i>	_7_		2	4
	4th and Above	-13	"	7 –	13	-7	,	-9		7.	4
. Inter	rior Finish	Class C	, [	Class B		نفيده الكيم	4				
	ridors and Exits)	-5(0)f		0(3)f		3					
l. Inter	rior Finish	Class C		Class B		Class	A				
(Roo.		$-3(1)^{f}$		1(3)f		3		1			
. Corr	idor itions/Walls	None or Incomplete	ė	<% hr		≥¼ hr to	<1 hr		>1 hr	-	
		$-10(0)^a$		0		1(0)ª		2	2(0)a		
. Door	s to Corridor	No Door		<20 min FPR		≥20 min	PPR		in FPR and to Clos.		
		-10	-10			1(0)d		2(0)d			
Zone	Dimensions		Ι	Dead End			No.	Dead Er	rds >30 ft ar	id Zone l	ength Is
· wono		>100 ft	>50	ft to 100 ft		to 50 ft		50 ft.	100 ft to 1	50 ft 🌈	-100 F
		-6(0) <sup>h</sup>		-4(0) <sup>6</sup>	-2	(0) <sub>F</sub>	-2(0)	) <sup>c</sup> (0) <sup>h</sup>	0(0)h		1
7. Vertical Openings Openings		Open 4 or Me	ure	Open 2 or 3	L	.=	Enclos	ed with	Indicated Fi	re Resis	
		Floors		Floors		<1.b	r	≥1·1	ar to <2 hr		≥2 hr
		-14		-10		0		<u>.l</u>	2(0)e		3(0)¢
. Haza	irdous Areas	Doub	ole De	Deficiency		· · · · · · · · · · · · · · · · · · ·		Deficiency		No D	eficiencies
		In Zone		Outside Zone	·	In Zo	ne	In Adj	acent Zone:	<u>.</u>	
				-5.		-6		<del>!</del>	-2		0
. Smol	ke Control	No Contro	1	Smoke Barrie		Me		ted Syst	tems		
			$\vdash$	Serves Zone	+			Zone			
<del></del>		<u>-5(0)°</u>	-	0	Щ,	NE 14 2 3		3	··········		
.0. Em	ergency	<2 Routes				Multiple l		1		Dire	ct Exit(9)
	vement iles			Deficient		W/O Hori Evití			rizontal lxit(s)		
	XXCD	_ <b>8</b>	-	-2		0			1		5
	. 3 774		nual F	ire Alarm			anual F	ire Alar			
ı. Mar Ala	nual Fire				$\dashv$	W/O F.D.		<del></del>	'D' Corin.		
			-4		-  -	1			2		
	oke Detection	None	T	Corridor Onl	v	Rooms	Only		ndor and it Spaces		al Spaces n Zone
and	l Alarm		+		_						5 5
g Aug	Anyaha			Corridor and	<del>.  </del>	Enti	re				
	inklers	None	_:[	Habit. Space	<u> </u>		eg.	]			
		. 0		. 8		.10					
3. Aut Spr se (0) v	omatic	0(3)s None 0		2(3)* Corridor and Habit. Space 8 f Use ( ) if room is pr	the an	rea of	3(3) Enti- 10 10 Clas auto ng Cl	3(3)s Entire 10 Class B or C.	3(3)8 Entire Stilling 10  Class B or C Interior Cautomatic sprinklers	3(3)s 4 Entire Stilling 10  Class B or C Interior finish in the cautomatic sprinklers and Paramet	3(3)s 4 Entire

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

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 ft<sup>2</sup> and distance from any point to reach a door in sincke barrier ≤200 ft.

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<sup>\*</sup>Use (0) where Parameter 4 is -10.

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

For SI units, 1 R = 0.3048 m;  $1 R^2 = 0.092 \text{ m}^2$ .

Safety Parameters	Containment Safety (S <sub>1</sub> )	Extinguishment Safety (S <sub>2</sub> )	People Movement Safety (S <sub>3</sub> )	General Safety (S <sub>4</sub> )
l. Construction	4	4		4
2. Interior Finish (Corr. and Exit)	3		3	3
3. Interior Finish(Rooms)	3			3
I. Corridor Partitions/Walls	2			2
í. Doors to Corridor	1		1	1
S. Zone Dimensions			1	.1
7. Vertical Openings	-10		-10	-10
. Hazardous Areas	0	0		0
). Smoke Control			0	o.
). Emergency Movement Routes			0	0
i. Manual Fire Alarm		2		2
2. Smoke Detection and Alarm		4	4	4
3. Automatic Sprinklers	10	10	10 ÷ 2 = 5	10

		<del>,</del>					
•	Containn	nent ( <i>S<sub>a</sub></i> )	Extinguish	ıment (S <sub>b</sub> )	People Movement (Sc)		
Zone Location	New	Exist.	New	Exist.	New	Exist.	
1st story	11	5	15(12) <sup>a</sup>	4	8(5) <sup>a</sup>	1	
2nd or 3rd storyb	15	9	17(14)3	6	$10(7)^a$	3	
4th story or higher but not high rise	181	. 9	19(16) <sup>3</sup>	6	11(8) <sup>a</sup>	3	
High rise	18	.17	19(16)a	16	11(8) <sup>a</sup>	7	

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

#### WORKSHEET 4.7.8B MANDATORY SAFETY REQUIREMENTS — EXISTING NURSING HOMES

Zone Location	Containment (S <sub>a</sub> )	Extinguishment (S <sub>b</sub> )	People Movement ( $S_c$ )
1st story 2nd story	0	10 10	0
3rd story	<u> </u>		
4th story or higher	8	16	2

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

Zone Location	Containment (S <sub>a</sub> )	Extinguishment (S <sub>b</sub> )	People Movement (S <sub>c</sub> )
1st story 2nd or 3rd story	13° 17	17(14)* 19(16)*	8(5)* 10(7)*
4th story or higher	18	19(16)*	£1(8)*

<sup>\*</sup>Use ( ) in zones that do not contain patient sleeping rooms.

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

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<sup>&</sup>lt;sup>5</sup> 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:  $S_{\alpha} = 7$ ,  $S_{b} = 10$ , and  $S_{c} = 7$ .

		Ye	19	No
	ntainment minus Mandatory $S_1$ $S_d$ $C$ fety $(S_1)$ : Containment $(S_a)$ $\geq 0$ 13 $-$ 8 $=$ 5		/	
	tinguishment minus Mandatory $S_2$ $S_b$ $E$ fety $(S_2)$ Extinguishment $(S_b) \ge 0$ $20$ $ 16$ $=$ $4$	\ \ \	,	
	ople Movement minus Mandatory People fety $(S_3)$ Movement $(S_c)$ > 0 $\begin{bmatrix} S_3 & S_c & P \\ 4 & - & 2 \end{bmatrix} = \begin{bmatrix} 2 & 1 & 1 \\ 2 & - & 2 \end{bmatrix}$	V	/	
Ge (S	meral Safety minus Occupancy $Risk(R)$ $\geq 0$ $\begin{bmatrix} S_4 & R & G \\ 20 & - & 2 \end{bmatrix} = \begin{bmatrix} 18 \end{bmatrix}$	V	/	
	WORKSHEET 4.7.10 FACILITY FIRE SAFETY REQUIREMENTS WORkete one copy of this worksheet for each facility. The consideration, select and mark the appropriate column.  Building utilities conform to the requirements of Section 9.1.	KSHEET Met	Not Met	No Appi
В.	In new facilities only, life-support systems, alarms, emergency communication systems, and	i i		
Ċ.	illumination of generator set locations are powered as prescribed by 18.5.1.2 and 18.5.1.3.  Heating and air conditioning systems conform with the air conditioning, heating, and ventilating systems requirements within Section 9.2; except for enclosure of vertical openis which have been considered in Safety Parameter 7 of Worksheet 4.7.6.	ıgs, 🗸		×
D.	Fuel-burning space heaters and portable electrical space heaters are not used.	V		$\geq$
E.	There are no flue-fed incinerators.		ļ	
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.	<b>V</b>		$\triangleright$
G.	Smoking regulations have been adopted and implemented in accordance with 18.7.4 and 19.	.4. 🗸	1:	
Н.	Combustibility of draperies, upholstered furniture, mettresses, furnishings, and decoration 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, 🗸		$\geq$
J.	Exit signs are provided in accordance with the requirements of 18.2.10.1 and 19.2.10.		ļ	
K.	Emergency lighting is provided in accordance with 18.2.9.1 or 19.2.9.1.		<b></b>	1
.L.	Standpipes are provided in all new high-rise buildings as required by 18.4.2.		<u> </u>	1 🗸
reler	ences 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 le prescribed by the <i>Life Safety Code</i> ."	east equivale	nt to th	at
2.	One or more of the checks in Worksheet 4.7.9 are in the "No" column. The level of fire safe system to be equivalent to that prescribed by the Life Safety Code."	ty is not sho	wn by ti	ais
0	he equivalency covered by this worksheet includes the majority of considerations covered by the <i>Lig</i> onsiderations that are not evaluated by this method. These must be considered separately. These accovered in Worksheet 4.7.10, the Facility Fire Safety Requirements Worksheet. One copy of this separately for each facility.	ditional cons	ideration	is are



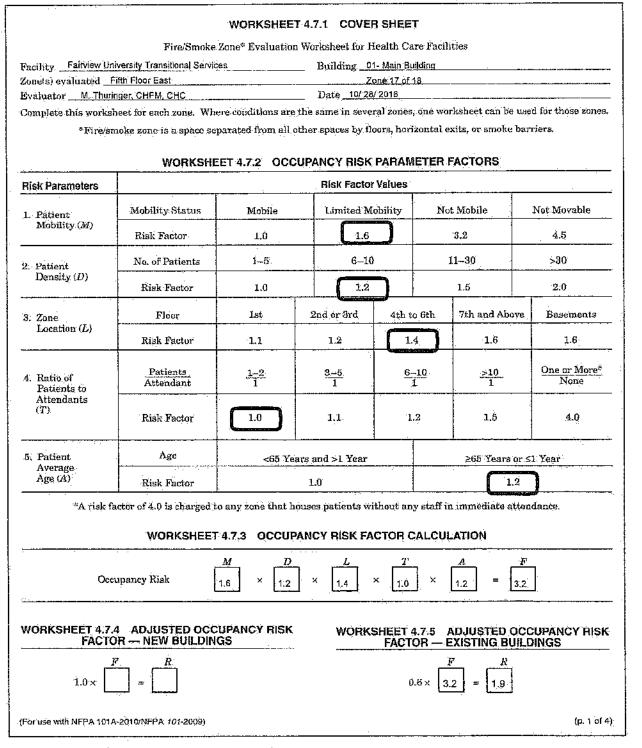


FIGURE 4.7 Worksheets for Evaluating Fire/Smoke Zones.

Saf	ety Parameters	·			Paramete	r Value	95			
1. Con	struction		Combu	stible	Noncon					
-;,			Types III, I		037 6	7777	Types 000 1			222, 322, 44
	Floor or Zone	000	111 200		211, 2HH				~~~~	were my annual processing
	First.	-2	0	2	- 0		0	2		2
	Second	-7	-2	-4	-2		-2	2		4
	Third	_9	<u>-7</u> -7		-7 -7		<u>-7</u>	2		-4-
	4th and Above	-13	Clas		Class					4
	rior Finish rridors and Exits)	Class C -5(0)f	003		3	<del>"</del> "	+			
	**		Clas	<del></del>	Class		<del> </del>	<del></del>		
	erior Finish	Class C -3(1) <sup>1</sup>		3)f	3	<u> </u>	-{			
(Tio	oms)	None or	10	3),	-	——	<del> </del>			
4. Cor	ridor titions/Walls	Incomplete	<1/2	hr	≥½hr to	 <1 hr		<u>&gt;1 hr</u>		
rar	ucions/wass	-10(0)#	0		1(0)	>		2(0)*		
			ļ:				≥20 ਜ	in FPR and		· · · · · ·
5. Dec	rs to Corridor	No Door	<20 mir	ı FPR	≥20 min			ito Clos.		
		10 <sup></sup>	0		1(0) <sup>d</sup>		2(0)d			
6 Zon	c Dimensions		Dead End	<u> </u>	•	No	Dead E	nds >30 ft and	l Zone	Length Is
01 2011	C. Differentia		>50 ft to 100		to 50 ft		50 ft	100 ft to 15	oft .	
		-6(0)b	-4(0) <sup>5</sup>		2(0) <sup>6</sup>	-2(0	)ċ((j) y	0(0)p		1
7. Verti	tical Openings	Open 4 or More	Open 2	ors _		Encles	ed with	Indicated Fir	e Resi	st.
		Floors	Plot	rs .	<1 h	r	≥1	hr to <2 hr		≥2 hr
		14	-1	0	0			2(0)2	<u> </u>	3(0)%
8. Haz	tardous Areas	Double Deficiency				Single I		···	No l	Deficiencies
		In Zone	Outside	e Zone	In Zo	ne	În Ad	jacent Zone		
		-11	-5	·	-6	<del></del>	<u> </u>	-2	_[	0
9. Sme	cke Control	No Control	Smoke Barrier Serves Zone				isted Systems Zone			<u> </u>
		F40.10								
	· · · · · · · · · · · · · · · · · · ·	-5(0)¢	0		Námicznie i		3	+		
	nergency	<2 Routes	1		Multiple Routes W/O Horizontal		Horizontal		Du	rect Exit(s)
	ovement outes		Defic	ient	W/O 110rt			Exit(s)		
****	·9·00	-8	-2	<del>  </del>	0	<b>—</b>	-	1		5
		I	l Fire Alarn	ia	IV.	anual I	ire Ala	rm		
	anual Fire arm		• • • • • • • • • • • • • • • • • • • •		W/O F.D. Conn.					
*	·	-	-4	- t	1			2		
10.0	- 1- P-212 i-		T		· ·		Coz	rider and	Tu	tal Spaces
	noke Detection d Alarm	None	Corrido	or Only	Rooms	Only	Hal	vit Spaces		in Zone
		0(3)g	2(3		3(3)			4		5
	itomatic	None .	Corrid		Enti:		-			
Sp	minklers	ixone.	Habit.	<del></del>	10		4			
Use (0) Use (0) patients Use (0) Use (0) or on ar	where Parameter 5 is— whore Parameter 10 is on floor with fewer than s (existing buildings only where Parameter 1 is b a unprotected type of co 4 "000" or "200").	-8. a 31 <sup>.</sup> ly). ased on first floor 2	root the spr g Use pro s h Use	m is protect room with inklers, Par this value tected with	ed by auto existing Cl ameter 4 is in addition quick-resp zone area s	matic ap ass C in s greater to Para onse au 22,500 :	rinklers terior fir than or uneter 1 tomatic	finish in the c and Paramete ish is protecte equal to 1, an 3 if the entire sprinklers, istance from a	r 13 is d by a d Para zone is	0; use ( ) if utomatic meter 13 is 0.

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FIGURE 4.7 Continued

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

Safety Parameters	Containment Safety (S <sub>1</sub> )	Extinguishment Safety (S <sub>2</sub> )	People Movement Safety ( <i>S</i> <sub>3</sub> )	General Safety (S <sub>4</sub> )
. 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	<u> 1</u> 1
i. Zone Dimensions			1	1
7. Vertical Openings	-10		-10	-10
. Hazardous Areas	0	0		0
). Smoke Control			0	0
). Emergency Movement Routes			.0	0
Manual Fire Alarm		2		2
. Smoke Detection and Alarm		4	4.	4
3. Automatic Sprinklers	10	10	10 ÷ 2 = 5	10
Total Value	S <sub>1</sub> = 13	<b>S</b> <sub>2</sub> = 20	S <sub>3</sub> = 4	S <sub>4</sub> = 20

	Containn	nent ( <i>S<sub>a</sub></i> )	Extinguish	ment (S <sub>b</sub> )	People Movement (Sc)	
Zone Location	New	Exist.	New	Exist	New	Exist.
1st story	11	5	15(12) <sup>a</sup>	4	8(5) <sup>a</sup>	1
2nd or 3rd storyb	15	.9	17(14) <sup>a</sup>	6	10(7)1	3
4th story or higher but not high rise	18	∴9	19(16) <sup>a</sup>	6	11(8) <sup>a</sup>	3
High rise	18	17	19(16)a	16	11(8)a	7

<sup>&</sup>lt;sup>a</sup> Use ( ) in zones that do not contain patient sleeping rooms.

### WORKSHEET 4.7.88 MANDATORY SAFETY REQUIREMENTS — EXISTING NURSING HOMES

Zone Location	Containment (Sa)	Extinguishment $(S_b)$	People Movement ( $S_c$ )
1st story	0.	10	0
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 <sub>a</sub> )	Extinguishment (S <sub>b</sub> )	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)**

<sup>\*</sup>Use ( ) in zones that do not contain patient sleeping rooms.

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

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FIGURE 4.7 Continued

<sup>&</sup>lt;sup>5</sup> 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  $S_c = 7$ .

					2 2 2	Ye	s .	. No
	ontainment minus ifety (S <sub>1</sub> )	Mandatory Containment $(S_a)$	≥	0.	$ \begin{array}{c c} S_1 & S_2 & C \\ \hline 13 & - & 8 & = 5 \end{array} $	•		
	stinguishment minus	$\begin{array}{c} {\rm Mandatory} \\ {\rm Extinguishment}\left(S_b\right) \end{array}$	ج ز	0	$\begin{bmatrix} S_2 & S_b & E \\ 20 & -16 & =4 \end{bmatrix}$			
	cople Movement minus afety $(S_3)$	Mandatory People Movement $(S_c)$	^	o o	$\begin{bmatrix} S_3 & S_c & P \\ 4 & - & 2 \end{bmatrix} = \begin{bmatrix} 2 & 1 \\ 2 & - & 2 \end{bmatrix}$			
	eneral Safety minus	Gecupancy Risk (A)	≥	6	$ \begin{array}{c cccc} S_4 & R & G \\ \hline 20 & 2 & = 18 \end{array} $			
ompl orea	WORKS ete one copy of this worksl ch consideration, select an	heet for each facility.	•	IRE SA	FETY REQUIREMENTS WORKS	HEET Met	Not Met	Not Appli
Α.	Building utilities con	form to the requirement	s of S	ection !	9.1.	<u> </u>	ļ	$\geq$
B.	In new facilities only	. life-support systems, al	arms,	emerg	ency communication systems, and scribed by 18.5.1.2 and 18.5.1.3.			
Ċ.	1				r conditioning, heating, and			V
Ψ,	ventilating systems r	equirements within Sec	tion 9	2, exce	pt for enclosure of vertical openings,			$+\times$
	which have been considered in Safety Parameter 7 of Worksheet 4.7,6.						-	$\leftarrow$
D.	Fuel-burning space heaters and portable electrical space heaters are not used.						<del> </del>	
E. F.	There are no flue-fed incinerators.  An evacuation plan is provided and fire drills conducted in accordance with 18,7.1/18.7.2						<del> </del>	<b>\</b>
	and 19.7.1/19.7.2.		JUJA		1 1100, 441100 7/101 10, 1/10 10/1/12			X
G.	Smoking regulations	have been adopted and i	mpler	nented	in accordance with 18.7.4 and 19.7.4.			$\geq$
Н.	Combustibility of dra	peries, upholstered furn with 18,7,5 and 19,7,5.	iture,	mattre	sses, furnishings, and decorations is			
l.	<del>                                     </del>			the rec	uirements of 18.3.5.11 and 19.3.5.11.	- V		> <
J.	Exit signs are provid	ed in accordance with th	ie red	uireme	nts of 18.2,10.1 and 19.2.10.	- Y		<u> </u>
K,	· · · · · · · · · · · · · · · · · · ·	s provided in accordance	<del> </del>			\\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\		
L.		ded in all new high-rise	<del></del>	· · ·	· · · · · · · · · · · · · · · · · · ·	<del></del>	ļ:	1./
refe	rences are to NFPA 101, Life						•	
		WORKS	HEET	4.7.11	CONCLUSIONS	<del></del> .		
1. [	$ \mathcal{A} $ All of the checks in prescribed by the $L$	Worksheet 4.7.9 are in t ife Safety Code.*	he "Yo	es" colu	nn. The level of fire safety is at least	equivale	nt to th	iţ
2. [		checks in Worksheet 4.7 lent to that prescribed b			No* column. The level of fire safety is fety Code.*	not sho	wn by th	iis
	onsiderations that are no	t evaluated by this metho	d. The	se mus	of considerations covered by the <i>Life So</i> be considered separately. These additions to the considered separately. These additions were supported to the separate of this separate.	nal consi	deration	s are



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FIRE SAFETY EVALUATION SYSTEM FOR HEALTH CARE OCCUPANCIES

		WORKSHEE	T 4.7.1 COVE	RSHEE	T			
	Fire/Smoke 2	Cone® Evaluation	Worksheet for E	lealth Ca	re Facili	ties		
Facility Fairview U	Iniversity Transitional Se	rvices	Building 0	1- Main B	uilding			
Zone(s) evaluated _F				e 18 of 18				
Evaluator M. Thuri			Date 10 /28/ 2016					
	heet for each zone. Whe							
*Fire/sr	noke zone is a space sep	arated from all o	ther spaces by fl	oors, hori	zontał ex	cits, or smoke bar	riers.	
	WORKSHE	ET 4.7,2 OCC	UPANCY RISK	PARAM	ETER F	ACTORS		
Risk Parameters			Risk Factor	Values				
1. Patient	Mobility Status	Mobile	Limited M	obility	Not	: Mobile	Not Movable	
Mobility (M)	Risk Factor	1.0	1.6		C	3.2	4.5.	
2. Patient	No. of Patients	1-5	6-10	)	I	1-30	>30	
Density (D)	Risk Factor	1.0	1.2			1.5	2.0	
3. Zone	Floor	Ist	2nd or 3rd	4th te	e 6th	7th and Above	Basements	
Location (L)	Risk Factor	1.1	1.2	1.4	4	1.6	1.6	
4. Ratio of Patients to	Patients Attendant	1-2 1	<u>3–5</u> 1	6-	<b>-10</b>	<u>&gt;10</u>	One or More* Nane	
Attendants (T):	Risk Factor	1.0	1.1	1.	.2	1.5	4.0	
5. Patient Average	Age	<65 Ye	ars and >1 Year		≥65 Years or ≤1 Year			
Age (A)	Risk Factor		1:0			1.2	]	
*A risk fa	actor of 4.0 is charged to	any zone that h	ouses patients wi	ithout an	y staff in	immediate atten	dance.	
	WORKSHEET	4.7.3 OCCUP	ANCY RISK FA	CTOR C	ALCUL	ATION		
Oce	upancy Risk	M D 3.2 × 1.5	× 1.4	× 1.0	] × [	A F 8.0	]	
	4 ADJUSTED OCCU		WORK			DJUSTED OCC	CUPANCY HISK DINGS	
1.0×	F R			0.	6 × 8.	$ \begin{array}{c} R \\ 0 \end{array} = \begin{bmatrix} A \\ 4 \\ 8 \end{bmatrix} $		
(For use with NEPA 101/	A-2010/NFPA 101-2009)	·					(p. 1 of 4)	

FIGURE 4.7 Worksheets for Evaluating Fire/Smoke Zones.

1. Construction										
		Combu: Types III, l					Noncombustible Types I and II			
Floor or Zone	000	111			211, 2HH		000 1		222, 322, 44	
First	-2	0	-2		5	0		2	2	
Second	-7	-2	-4	-2	3	-2		2	4	
Third	-9	-7	9		7	-7		2		
4th and Above	-13	-7	-13			<u>∹</u> 9 .		~7	4	
2. Interior Finish	Class C	Clas	8 B	Class	À			ļ	***************************************	
(Corridors and Exits)			3)f.							
3. Interior Finish	Class C		Class B					1		
(Rooms)	-3(1)f	1(3	3)1	3_						
4. Corridor Partitions/Walls	None or Incomplete	<1/41	hr	≥% hr to	<1 hr	<u> </u>	≥1 hr			
I di diciona watta	-10(0)s	0		1(0)	fit.	1	3(0)a	7		
5. Doors to Corridor	No Door	<20 mir	FÖR	≥20 min	FPR		in FPR an to Clos.	ď	<del></del>	
	-10	0	1111	1(0)			5(Q)q.	-		
		Dead End	<u> </u>					and Zor	e Length Is	
6. Zone Dimensions	>100 ft	>50 ft to 100		t. to 50 ft	<del></del>	0 ft	100.0		<100 ft	
	6(0)b	-4(0)b		2(0)6	-2(0		0(0)	_	1	
7. Vertical Openings	Open 4 or More	Open 2	2 or 3	· · · · · · · · · · · · · · · · · · ·	Enclos	ed with	Indicated	Fire Re	sist.	
is version Openings	Floors	Floo		<1 hr		≥1 hr to <2 hr		-	≥2 hr	
	-14	-10	0	0			2(0)e		3(0)e	
8. Hazardous Areas	Double	Deficiency			Single I	eficienc	У	No Deficienc		
	In Zone	Outside	e Zone	In Zo	ne	In Adj	acent Zon	е		
	-11	-5		<u>-6</u>			<b>–2</b>		0	
9. Smoke Control	No Control	Smoke		Мe	ch, Assis		enis			
	E.O.E	Serves				Zene 3		<b></b>  .		
	-5(0) <sup>c</sup> <2 Routes	0		Multiple		3		+	50 A 30 COO S	
10. Emergency Movement	<2 Routes			W/O Hor	<del> </del>	LF	rizontal	L	irect Exit(s)	
Routes		Defic	ient	Exit!		Exit(s)				
	8		2	Ð			1.	1	5	
11. Manual Fire	No Manua	No Manual Fire Alarm inamual Fire Alarm								
Alarm			W/O F.D. Cenn. W/F		Conn.					
	-	-4		1			2			
12. Smoke Detection and Alarm	None	Corrido	or Only	Rooms	Only		ndor and it. Spaces	7	fotal Spaces in Zone	
and maint	0(3)g	2(3		3(3	)g		4		5	
13. Automatic	NY:	Corrid	or and	Enti						
Sprinklers	None 0	Habit.		10	27	-				
Use (0) where Parameter 5 is -		-1				<u> </u>		!	or and exit or	

For SI units, 1 ft = 0.3048 m; 1 ft<sup>2</sup> = 0.092 m<sup>2</sup>.

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

Use this value in addition to Parameter 13 if the entire zone is protected with guick-response automatic sprinklers.
 Use (0) where zone area ≤22,500 ft² and distance from any point to reach a door in smoke barrier ≤200 ft.

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d Use (0) where Parameter 4 is -10.

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

Safety Parameters	Containment Safety (S <sub>1</sub> )	Extinguishment Safety (S <sub>2</sub> )	People Movement Safety (S <sub>3</sub> )	General Safety (S <sub>4</sub> )
1. Construction	4	4		4.
2. Interior Finish (Corr. and Exit)	3		.3	3
8. Interior Finish(Rooms)	,3			3
4. Corridor Partitions/Walls	2			2
5. Doors to Corridor	1		.1	1
5. Zone Dimensions			0 .	0
7. Vertical Openings	-10		-10	-10
3. Hazardous Areas	0	0		0
9. Smoke Control			0	Ö
). Emergency Movement Routes			0	0
l. Manual Fire Alarm		2		2
2. Smake Detection and Alarm		4	4	4
3. Automätic Sprinklers	10	. 10	10 + 2 = 5	10

	Contain	ment (S <sub>a</sub> )	Extinguist	iment (S <sub>b</sub> )	People Mov	rement $(S_c)$
Zone Location	New	Exist.	New	Exist.	New	Exist.
1st story	11	5	15(12) <sup>a</sup>	4	8(5)3	A
2nd or 3rd storyb	15	9	17(14) <sup>a</sup>	-6	10(7) <sup>a</sup>	3
4th story or higher but not high rise	18.	9	19(16) <sup>a</sup>	:6	11(8) <sup>a</sup>	3
High rise	18	17	19(16) <sup>a</sup>	16	11(8) <sup>a</sup>	7

<sup>\*</sup> Use ( ) in zones that do not contain patient sleeping rooms.

### WORKSHEET 4.7.88 MANDATORY SAFETY REQUIREMENTS — EXISTING NURSING HOMES

Zone Location	Containment (S <sub>a</sub> )	Extinguishment ( $S_b$ )	People Movement ( $S_c$ )
1st story	0	10	0.
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 <sub>a</sub> )	Extinguishment (S <sub>b</sub> )	People Movement $(S_c)$
1st story 2nd or 3rd story	13 17	17(14)* 19(16)*	8(5)** 10(7)**
4th story or higher	18	19(16)3	11(8)*

 $<sup>^{\</sup>pm}\mathrm{Usc}\left( \right.$  ) in zones that do not contain patient sleeping rooms.

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

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FIGURE 4.7 Continued

<sup>&</sup>lt;sup>b</sup> 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  $S_c = 7$ .

				$S_1$ $S_4$		Yes	No
, .	ontainment min fety $(S_1)$	nus Mandatory Containment (S <sub>a</sub> )	≥ 0	13 - 8 = 5			
	ttinguishment min fety $(S_2)$	nus Mandatory Extinguishment (	$S_b$ ). > 0	$\begin{bmatrix} S_2 & S_b \\ 20 & -16 \end{bmatrix} = \begin{bmatrix} 4 & 16 & 16 \end{bmatrix}$	E		
	ople Movement $_{ m min}$ fety $(S_3)$	ous Mandatory People Movement $(S_c)$	; > 0	$\begin{bmatrix} S_3 \\ 3 \end{bmatrix} \sim \begin{bmatrix} S_c \\ 2 \end{bmatrix} = \begin{bmatrix} 1 \end{bmatrix}$	P		·
G∈ (S	eneral Safety min	nus Occupancy Risk (R)	≥ 0	$\begin{array}{c c} S_4 & R & \\ \hline 19 & - & 5 & = \boxed{1} \end{array}$	<del>G</del> 4		
mple r eac	ete one copy of this wor			AFETY REQUIREMENTS V	VORKSHEET Met	Not Met	Not Appil
A.	Building utilities c	conform to the requireme	ents of Section	9.1.			_><
В.	In new facilities or illumination of ger	ily, life support systems, erator set locations are	alarms, emer powered as p	gency communication systems, escribed by 18.5.1,2 and 18.5.1	and l.3.	1	1
C	ventilating system	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	e heaters and portable e	lectrical space	heaters are not used.			$\rightarrow$
E	There are no flue-f	<u> </u>					
F.	An evacuation plan and 19.7.1/19.7.2.	n is provided and fire dr	ills conducted	in accordance with 18,7.1/18.7	.2		$\geq$
G.	Smoking regulation	ns have been adopted an	d implemente	l in accordance with 18.7.4 and	19.7.4:		$\geq \leq$
Н.	Combustibility of d	draperies, upholstered funce with 18.7.5 and 19.7	miture, matt .5.	esses, furnishings, and decora	tions is		
I.	Fire extinguishers	are provided in accordar	nce with the re	quirements of 18:3.5.11 and 19	.3.5.11.		
J.	Exit signs are prov	vided in accordance with	the requirem	ents of 18.2,10.1 and 19.2.10.			
K.	Emergency lightin	g is provided in accorda	nce with 18.2.	9.1 or 19,2.9.1.			
L.	Standpipes are pro	ovided in all new high-ri	se buildings a	s required by 18.4.2.			<b>V</b>
refer	rences are to NFPA 101, L		SHEET 4.7.1	1 CONCLUSIONS			
1.	All of the checks in prescribed by the	in Worksheet 4.7.9 are it Life Safety Code.	n the "Yes" col	ump. The level of fire safety is	at least equiva	lent to th	at
2. [		e checks in Worksheet 4 valent to that prescribed		"No" column. The level of fire afety Code."	safety is not sh	own by ti	his
e	ansiderations that are	not evaluated by this met	hod. These mu	y of considerations covered by the st be considered separately. Thes nts Worksheet. One copy of this	e additional cor	ısideratior	ns are