^ ‰]. • Œ] ‰ Ÿ } v } (š Z] •Ww µ] v P ‰ ‰ o
^ Ÿ }•v ð ì ò X X X ý ñ ì î X ï X ó X í

}ŒŒ ‰‰o] o š }voÇ µ]o]vP • o À Œ•µ• šU~w]w]vÀ] µŒo]šÁ oc

ð

tZ v o š }8] o•]• }À Œ šZ š u} o } • Œ]vP µ• š} • š •] š
‹µ •Ÿ}v • š} ÁZ šZ Œ vÇ ‰ Œš }(šZ } •Z}µo }‰š }Œ]u‰o u
v ŒPÇ } •]• oŒ Ç µwŸÇvPh^Zµo Œ ð}nŒ•v v}(o P]•o š ‰}o] Ç
}µvš Œ‰Œ} µ ŸÀ š} šZ µ• }(v ŒPÇ 8] v Ç v v ŒPÇ ‰}o] ÇX

ñ

[illegible] š P

š]o • Œ]‰Ÿ}v }(Z}Á šZ]••µ]vP ‰‰ o Á

‰‰ ovv vš

ED, ‰Œ•}À]À}] (}Œ u Œ] [• ‰ Œšu vš]v µ•šŒÇPX]kvµŒo ou u‰ŒšZ]%

šZ ‰ Œšu vš]v µ•šŒÇU]v oµ]vP }Áv ŒUZv]‰Uv v ÀXo£‰µ vŒšU‰uŒv• Pvš

šZ ‰Œ]v]‰ o }8 Œ• }(šZ ‰ Œšu vš]v µ•šŒÇ[• o ŒP •š v u}•š %

KD /vš Œv Ÿ}v o]• šZ o]vP šŒ ••}] Ÿ}v (}Œ }uu Œ] o Œ o •

íìì Ç Œ•X /š Œ ‰Œ • vš• šZ }Áv Œ•U u v P Œ•U • ŒÀ] ‰Œ}À] Œ

€}v}u(ujŒEéu]u oŒ µ]oo]}vP –Bš>Œ%á •y® Œ]µ•šœEÀ]Œ¤v P µ8]U o]µv }Œ \â• •^ … Î!¹ OT$9 0 u0

ó

dZ v u • v u]o]vP Œ •• • }( ]v]À] µ o• v }ŒP v]
]vš Œ •š]v }Œ + š Ç šZ W © Œ]vP ‰ ‰ o

D] Z o :}µ v Z
>µšŒ}v
óîìì ^µš Œ Z}
}}‰ Œ• µŒP
ui}µ v Z›oµšŒ}vX }u

v Œ Á <o]v
µ]o]vP
íííí íñšZ ^šŒ
t •Z]vPš}vU îìììñ)bw•EHN°Ÿ3

Pacific Northwest
NATIONAL LABORATORY

311/

(QHUJ\ &UHGLWV $SSOLFDWLRQ *XL $6+5$(6WDQGDUG

-XO\

5 +DUW
' 0DGGR[
0 7LOORX
0 5RVHQEHUJ

U.S. DEPARTMENT OF

3UHSDUHG IRU WKH 8 6 'HSDUWPHQW RI (QHUJ\
XQGHU &RQWUDFW '($&

DISCLAIMER

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor Battelle Memorial Institute, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or or auselndisclaccuron the ponsore0028(s)5.99w (gal)-ou4 (s)5.99l.004

```
        +HDOWKFDUH +RW &OLPDWH =RQH &UHGLW 3DFNDJ
        +HDOWKFDUH 0RGHUDWH &OLPDWH =RQH &UHGLW 3
        +HDOWKFDUH &ROG &OLPDWH =RQH &UHGLW 3DFND
    +RWHO 0RWHO %XLOGLQJ $SSOLFDELOLW\
        +RWHO 0RWHO +RW &OLPDWH =RQH &UHGLW 3DFND
        +RWHO 0RWHO 0RGHUDWH &OLPDWH =RQH &UHGLW
        +RWHO 0RWHO &ROG &OLPDWH =RQH &UHGLW 3DFN
    2IILFH %XLOGLQJ $SSOLFDELOLW\
        2IILFH +RW &OLPDWH =RQH &UHGLW 3DFNDJH ([DPS
        2IILFH 0RGHUDWH &OLPDWH =RQH &UHGLW 3DFNDJI
        2IILFH &ROG &OLPDWH =RQH &UHGLW 3DFNDJH ([DP
    5HVWDXUDQW %XLOGLQJ $SSOLFDELOLW\
        5HVWDXUDQW +RW &OLPDWH =RQH &UHGLW 3DFNDJ
        5HVWDXUDQW 0RGHUDWH &OLPDWH =RQH &UHGLW 3
        5HVWDXUDQW &ROG &OLPDWH =RQH &UHGLW 3DFND
    5HWDLO %XLOGLQJ $SSOLFDELOLW\
        5HWDLO +RW &OLPDWH =RQH &UHGLW 3DFNDJH ([DP
        5HWDLO 0RGHUDWH &OLPDWH =RQH &UHGLW 3DFND
        5HWDLO &ROG &OLPDWH =RQH &UHGLW 3DFNDJH ([D
    (GXFDWLRQ %XLOGLQJ $SSOLFDELOLW\
        (GXFDWLRQ +RW &OLPDWH =RQH &UHGLW 3DFNDJH
        (GXFDWLRQ 0RGHUDWH &OLPDWH =RQH &UHGLW 3D
        (GXFDWLRQ &ROG &OLPDWH =RQH &UHGLW 3DFNDJH
    :DUHKRXVH %XLOGLQJ $SSOLFDELOLW\
        :DUHKRXVH +RW &OLPDWH =RQH &UHGLW 3DFNDJH
        :DUHKRXVH 0RGHUDWH &OLPDWH =RQH &UHGLW 3D
        :DUHKRXVH &ROG &OLPDWH =RQH &UHGLW 3DFNDJH
    2WKHU %XLOGLQJ $SSOLFDELOLW\
0HDVXUHV WR $FKLHYH &UHGLWV
    (QHUJ\ &UHGLW 0HDVXUH 7\SHV
        (QHUJ\ (IILFLHQF\ 0HDVXUHV
```

)LJXUH 3RWHQWLDO (QHUJ\ &UHGLW %XLOGLQJ 7&SHLPDWHG &UHGLWV
)LJXUH *HQHUDO $SSURDFK WR (QHUJ\ &UHGLW 5HTXLUHPHQW '
)LJXUH *HQHUDO $SSURDFK WR $FKLHYHG &UHGLW 'HWHUPLQDW

7DEOHV

7DEOH (QHUJ\ &UHGLW 0HDVXUH $SSOLFDELOLW\
7DEOH 5HQHZDEOH $GMXVWPHQW RI 5HTXLUHG &UHGLW ([DPSO
7DEOH %ODQN (QHUJ\ &UHGLW)RUP IRU 3DFNDJH (YDOXDWLRQ
7DEOH ([DPSOH +RWHO (YDOXDWLRQ RI 7KUHH $OWHUQDWH 3DF
7DEOH ([DPSOH $ 0XOWLSOH %XLOGLQJ 8VH 7\SHV IRU &OLPDWH
7DEOH ([DPSOH % 0XOWLSOH %XLOGLQJ 8VH 7\SHV IRU &OLPDW
7DEOH 0DWUL[RI &RVW (IIHFWLYH 'HPRQVWUDWLRQ 3DFNDJH (IILFLHQF
0DWUL[d ÖÄ#Ð ÉÚ ` ¤ ¤ ¤

7DEOH (QHUJ\ &UHGLW 3DFNDJHV IRU 5HVWDXUDQW %XLOGLQJV =RQHV
7DEOH (QHUJ\ &UHGLW 3DFNDJHV IRU 5HVWDXUDQW %XLOGLQJV LQ &RO
7DEOH (QHUJ\ &UHGLWV 5HTXLUHG DQG $YDLODEOH IRU 5HWDLO
7DEOH (QHUJ\ &UHGLW 3DFNDJHV IRU 5HWDLO %XLOGLQJV LQ +
7DEOH (QHUJ\ &UHGLW 3DFNDJHV IRU 5HWDLO %XLOGLQJV LQ 0
7DEOH (QHUJ\ &UHGLW 3DFNDJHV IRU 5HWDLO %XLOGLQJV LQ &
7DEOH (QHUJ\ &UHGLWV 5HTXLUHG DQG $YDLODEOH IRU (GXFDW
7DEOH (QHUJ\ &UHGLW 3DFNDJHV IRU (GXFDWLRQDO %XLOGLQJV L
7DEOH (QHUJ\ &UHGLW 3DFNDJHV IRU (GXFDWLRQ %XLOGLQJV L =RQHV
7DEOH (QHUJ\ &UHGLW 3DFNDJHV IRU (GXFDWLRQ %XLOGLQJV L
7DEOH (QHUJ\ &UHGLWV 5HTXLUHG DQG $YDLODEOH IRU :DUHKRXVH
7DEOH (QHUJ\ &UHGLW 3DFNDJHV IRU :DUHKRXVH %XLOGLQJV L
7DEOH (QHUJ\ &UHGLW 3DFNDJHV IRU :DUHKRXVH %XLOGLQJV L =RQHV
7DEOH (QHUJ\ &UHGLW 3DFNDJHV IRU :DUHKRXVH %XLOGLQJV L
7DEOH (QHUJ\ (IILFLHQF\ &UHGLW 0HDVXUHV

,QWURGXFWLRQ

7KH SXUSRVH RI WKLV GRFXPHQW LV WR DVVLVW EXLOGLQJ GHVL
DGRSWHG HQHUJ\ FUHGLW5SURJUDP(6WDQGDUG(QHUJ\
6WDQGDUGL]HG0HDVXUQG GLQJV H[LVWHSWH/RZG HQWLDO%5%XLOGLQJV
KHUHDIWHU UHIHUUHG WR DV 6WDQGDUG 7KHVH QHZ UHTXLU

àWUHG Hpàa”PÂ •rd #— àW O • 0 @ PU O € P € ™eÀ0 À

(QHUJ\ &UHGLW 5HTXLUHPHQW 'HYHORSPHQW

(QHUJ\ FRGHV KDYH WUDGLWLRQDOO\ EHHQ GHYHORSHG E\ LQGLYLGXDO LQVWLWXWLRQV
UHTXLUHPHQWV WR PHHW WKHLU RZQ VSHFLILF QHHGV 7KLV KDV UHVXOWHG LQ D ODUJH QXPEHU RI
WUDGHG ZLWK RWKHU HIILFLHQF\ PHDVXUHV DQG JRYHUQPHQW SROLFLHV 7KLV KDV PDGH LW
SHUIRUPDQFH SDWK 5HFHQW HGLWLRQV RI WKH ,QWHUQDWLRQDO
LQFOXGH H[WUDFWLRQ RI FUXGH RLO DQG QDWXUDO JDV XVHUV PXVW EH VHOHFWHG WR
³DGGLWLRQDO UHTXLUHPHQWV UHTXLUHPHQW LV VWDWHG
HDFK PHDVXUH DVVLJQHG SRLQWV 6WDWHV WKDW KDYH
LVV XUUHQW\ HPSKDVL]HG &LQ RI ,(& DQG GLPLQLVK DSSURDFKHV
LQ VHYHUDO VWDWHV EXLOGLQJ

)RU 6WDQGDUGHQHUJ\ VZHUHGLWDGWRXJK DGGHQGXP LQFOXGHG
LQ WKH UHQXPEHUHG 6HFWLRQ RI WKH HQHUJ\ SROLFLHV DQG
RI SURYLGLQJ LQFUHDVLQJ OHYHOV RI SHUIRUPDQFH WKDW WHFKQRORJLHV DQG HIILFLHQF\ P
HDFKDUWLSFUXROHDF W

2YHU6XOPDU\

+HUHZGLVFXVVWRKEHQHGLWV RI HQHUJ\ FGUHHGLWRSDRXWOLQH WKH
FRVWHWHFWLYHQHVVLGHUDWLRQV

+LVWRU\(QHUJ\ &UHGLWV

2ULJLQGHFWLRQ & DSSHDUHG LQ WKH W,K&&RHDWLRQVHDSHFWRR
IRU DGGLWLRQ7KLHDSEHQRFWXROYHG RYHU WKHR[SHULRQKWLQFOX
,(&DQGLJRSWLRQVLQ(&& ,Q WKH ,(& GHOWHUJ\DFXHV ZHU
H[SDQGHPHDVXUHPDVXUWKDWHV WKH XVHU ZLWKPHMXVXQHQLELOLW\ V
FRPELQDWLRQ WKDW DFKLHYHVZKLFKOHWVHTXLYDOHQW SURLQSUR
HQHUJ\ VDYLQJ6WFWLRQ (QHUJ\ &UHGLWV $QDO\VDWRFXPHQWDW
IRU D PRUH FRPSOHWH KLVWRU\

7KH FUHGLWVLQSWR6WDQGDUG WKURXJK DGGLWLRQFGXFHHQHUJ\
HIILFLHQF\EHZDEOHDQGHOJRDG PDQDJHPHQW\WLVQSHFLILF WDUJHWV
ZHUH GHYHORSHG ZLWKEXLOGLQJ\ FRWRWDYLQJV

H €ð %UëÂL¼aÈ–VHFÂ2i¸pULWJ\ RIUHGLVÂ2i‰• HW FRVW VeHGL
H €ð
7KH HQHUJ\ FUHGL™`Q1B†M

- 'HWHUPLQHGRWVPHDVXUHV WKDWSDUWLFLSDQWVKDYHFRQVW DYLQJV HTXLYDOHQF\
- 8VH PHDVXUH GHVFULSWLRQV WKDW DUH EDVHG RQUHVHDUFK SHUPRXFKDQF DQDO\VLV
- :KHUH SRVVLEOHQHJDWLYH FUHGLWV ZLWKLGRUVHSDUDWHO\ FDWHJRULHV DWK HQYSHOÀa"åù O `

PREFACE

Introduction

The International Energy Conservation Code® (IECC®) establishes minimum requirements for energy-efficient buildings using prescriptive and performance-related provisions. It is founded on broad-based principles that make possible the use of new materials and new energy-efficient designs. This 2021 edition is fully compatible with all of the International Codes® (I-Codes®) published by the International Code Council® (ICC®), including the International Building Code® (IBC®), International Existing Building Code® (IEBC®), International Fire Code® (IFC®), International Fuel Gas Code® (IFGC®), International Green Construction Code® (IgCC®), International Mechanical Code® (IMC®), International Plumbing Code® (IPC®), International Private Sewage Disposal Code® (IPSDC®), International Property Maintenance Code® (IPMC®), International Residential Code® (IRC®), International Swimming Pool and Spa Code® (ISPSC®), International Wildland-Urban Interface Code® (IWUIC®), International Zoning Code® (IZC®) and International Code Council Performance Code® (ICCPC®).

This code contains separate provisions for commercial buildings and for low-rise residential buildings (3 stories or

Maintenance

The IECC is kept up to date through the review of proposed changes submitted by code enforcement officials, industry representatives, design professionals and other interested parties. Proposed changes are carefully

&+$37(5 >&(@ 6&23($1' $'0,1,675$7,21

8VHU QRWH

About this chapter: Chapter 1 HVWDEOLVKHV WKH OLPLWV RI DSSOLFDELOLW\ WKH FRGH LV WR EH DSS Chapter 1 DQG LQWHUSUHWHG 3DUW ²6FRSH DQ DQG 3DUW ²$GPLQLVWUDWLRQ Section 101(QLGHUVWDQGLQJ ZKDW EXLOGLQ DSSOLDQFHV DQG HTXLSPHQW IDOO XQGHU LWV SXUYLHZ DQG UH 6WDQGDUGV DQG FRGHV DUH VFRSHG WR WKH H[WHQW UHIHUHQF

7KH FRGH LV LQWHQGHG WR EH DGRSWHG DV D OHJDOO\ HQIRUFHDE ZLWKRXW DGHTXDWH SURYLVLRQV IRU LWV DGPLQLVWUDWLRQ Chapter 1 HVWDEOLVK WKH DXWKRULW\ DQG GXWLHV RI WKH FRGH RIILFLDO D DQG DOVR HVWDEOLVK WKH ULJKWV DQG SULYLOHJHV RI WKH GHV RZQHU

3$57 ²6&23($1' $33/,&$7,21

6(&7,21 &
6&23($1' *(1(5$/ 5(48,5(0(176

& 7LWOH 7KLV FRGH VKDOO EH NQRZQ DV WKH 1RQ(&2GH -85,6',&7,21@ DQG VKDOO EH FLWHG DV VXFK ,W LV UHIHUUHG \

& 6FRSH 1RW VXEMHFW WR 7KH SXEOLFDWLRQV WR WKH GHVLJQ D EXLOGLQJV QRW FRYHUHG E\ WKH VFRSH RI WKH ,(&& ± 5HVLGHQ

& $SSHQGLFHV 3URYLVLRQV LQ WKH DSSHQGLFHV VKDOO QRW DGRSWHG

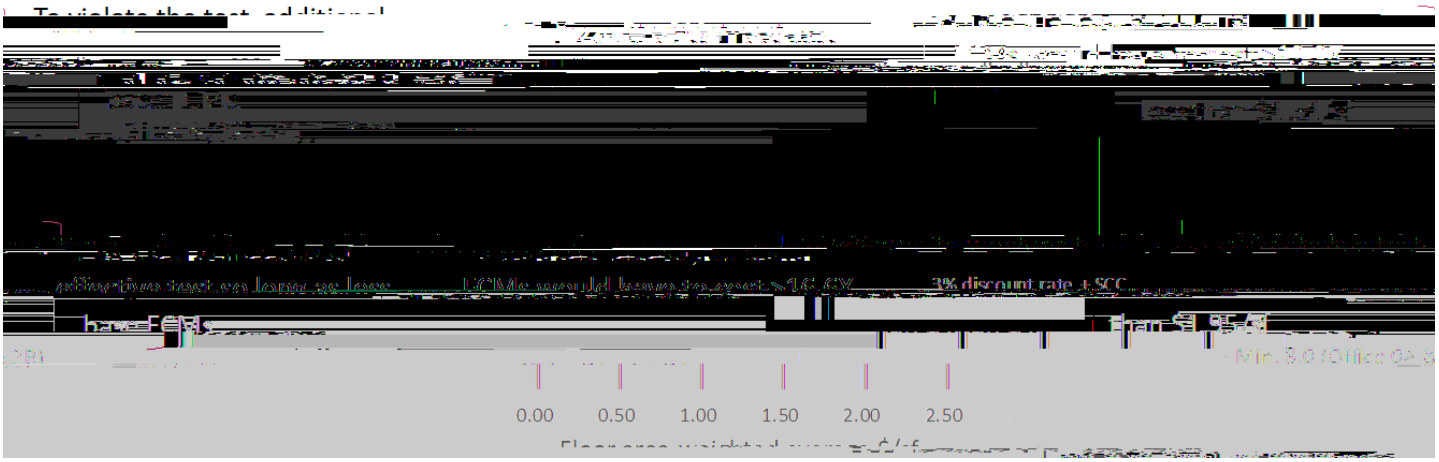
& ,QWHQW 1RW VXEMHFW 7KH SXEOLFDWLRQDO (QHUJ\ &RQV &RPPHUFLDO 3URYLVLRQV SURYLGH PDUNHW GULYHQ HQIRUFH FRQVWUXFWLRQ RI FRPPHUFLDO EXLOGLQJV SURYLGLQJ PLQLPX WKDW UHVXOW LQ WKH PD[LPXP OHYHO RI HQHUJ\ HIILFLHQF\ WKD OLIH F\FOH FRVW HIIHFWLYH FRQVLGHULQJ HFRQRPLF IHDVLELOL IRU FRQVXPHUV DQG EXLOGLQJ RZQHUV DQG UHWXUQ RQ LQYHVW MXULVGLFWLRQV ZLWK VXSSOHPHQWDO UHTXLUHPHQWV LQFOXGL WKDW OHDG WR DFKLHYHPHQW RI]HUR HQHUJ\ EXLOGLQJV SUHVH]HUR HQHUJ\ EXLOGLQJV E\ DQG RQ DGGLWLRQDO WLPHOLQ DFKLHYHPHQW RI DGGLWLRQDO SROLF\ JRDOV DV LGHQWLILHG E\ WK DSSURYHG E\ WKH %RDUG RI 'LUHFWRUV 5HTXLUHPHQWV FRQWDLQ OLPLWHG WR SUHVFULSWLYH DQG SHUIRUPDQFH EDVHG SDWKZD DSSHQGLFHV LQFRUSRUDWLQJ DGGLWLRQDO HQHUJ\ HIILFLHQF\ D GHYHORSHG E\ WKH &RGH &RXQFLO DQG RWKHUV 7KH FRGH ZLOO IDFLOLWDWH WKH FRGH¶V XVH DQG FRPSOLDQFH UDWH 7KH FRGH L VXEVHTXHQW HGLWLRQ SURYLGLQJ LQFUHDVHG HQHUJ\ VDYLQJV RY WR SURYLGH IOH[LELOLW\ WR SHUPLW WKH XVH RI LQQRYDWLYH D LQWHQW 7KLV FRGH LV QRW LQWHQGHG WR DEULGJH VDIHW\ KHDO LQ RWKHU DSSOLFDEOH FRGHV RU RUGLQDQFHV

& & &RPSOLDQFH 5HVLGHQWLDO VEXLOGLQJV WKH SURYLV ,(&&²5HVLGHQWLDO &RGH 7HFKQLFDO EXLOGLQJV WKH SURYLV

!

: 3 !"% $ /

$ +



7 &/ 3 .AA2

3

3 .AA2 3 ;

7 #F

) (3

((

) ((

) 1 3

(< (3

) (

, 3 (

/ $ 3 & 3

!

! "" # $ # # #

% &' (&) #*

+ % &' (*

"(, & ,))' - Fg Fg Fg)' - “) % &' (3 3;

) * ") (./ *) %)) (4 -($ * *
4 $ 4($ **(* ($ * 7
) ! * * (**(* * $ 6 4 ./ *) 4($ **(*
$) ") $ % ! * * $ -($ 3** **(*)
**(* ((* ./

8< &'.,)-
* $ $ 8) *) % 0,9) * $ -($ (($
4($ $ % $ (* ($((

) (/0 (2.' * =3.(;)'- 0 3. 2.)/ <<3&)<0 !(,3&

3. 2.)/ <<3&)<0	!(,3& .; ' >,)																		
: : . $	/0	//	/;	;;	<,	</	<,	<	,	</	,	,	</	,	,	;	<	<,	;<
	.	.	<	;	/	<			,	/	/	0	.	.	..	./	.;	0,	0
:	/	/	//	/0	;,	;	;;	<,	<.	<	<	<<	<0	</	,	<	<;	<;	
'	/	/	/.	//	//	/0	/.	/.	/<	;,	;	;.	;	;	;;	;	;.	;	;	
3	;,	;,	;	;	;0	;0	;,	;	<	/	;.	;<	/;	;	;<	/,	/;	0;	0
=	<,	;	<	;	<	<.	/;	;.	<;	<,	//	/0	;	/	0,	;0	/;	;0	0
	0/	0;	00	0<	0<	0;	0	/	0	/	//	/	/.	/;	/;	/0	/;	/	(
$	/	/,	/	/,	0<	0	.	0.	/	<0	/<	;0	,	<	;	,	<	,	
3 >)							,		/	0	0	0	;	/	/	/	;	/	.

3. 2.)/ ,(? %)2).'. 3. 2@ 3' ,)-'(3<'.,)

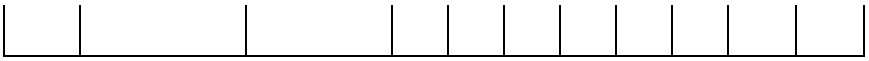
) ($ * $) $ 4($ (* (* * *) 4 **

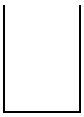
" -(

$) 4($) * ")) " +

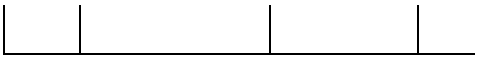
)) * ($ * 123 % * ") ") *)

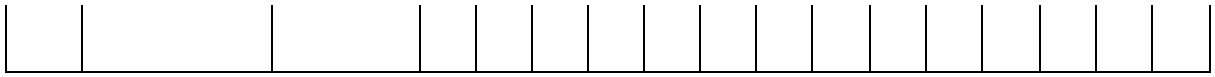
") -((")) ! *) ! *) *) %





	- (																			
D , .	? ($ *																			
À 2P?R Æ9eg"•VVx eg•VVx eg•VVx eg•VVx VVx VV&g0 ,																				



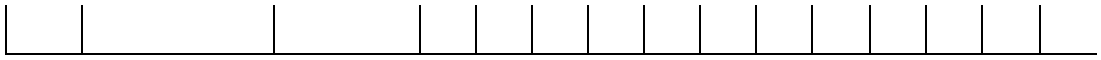


D ,	* %	. , / ;																					
D ,	* 8 *) -(	. , / ;	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
D ,	: $ 8 *) -(	. , / ;			,	,	,														'		,
D , .	? ($ *	. , /	; .																				

E5E $ * * $ % 4) (

-) (/0 (2.'- 9,(!(,3& <<3&)<. -

	$ * 344 % $	A																					
, 3	6	(pu(I™,™€ u(I™™ 3 3 ' 3 '													3 '		'	3 '					
	, '																						



	$(*																					
D,	* %	., / ;	.	.	.	.	0	0	0	0	0	0	0	0	0	0	0	.	0			
D,	* 8 *) -(	., / ;	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5			
D,	: $ 8 *) -(	., / ;	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5			
D,.	? ($ *	., /	; .																			

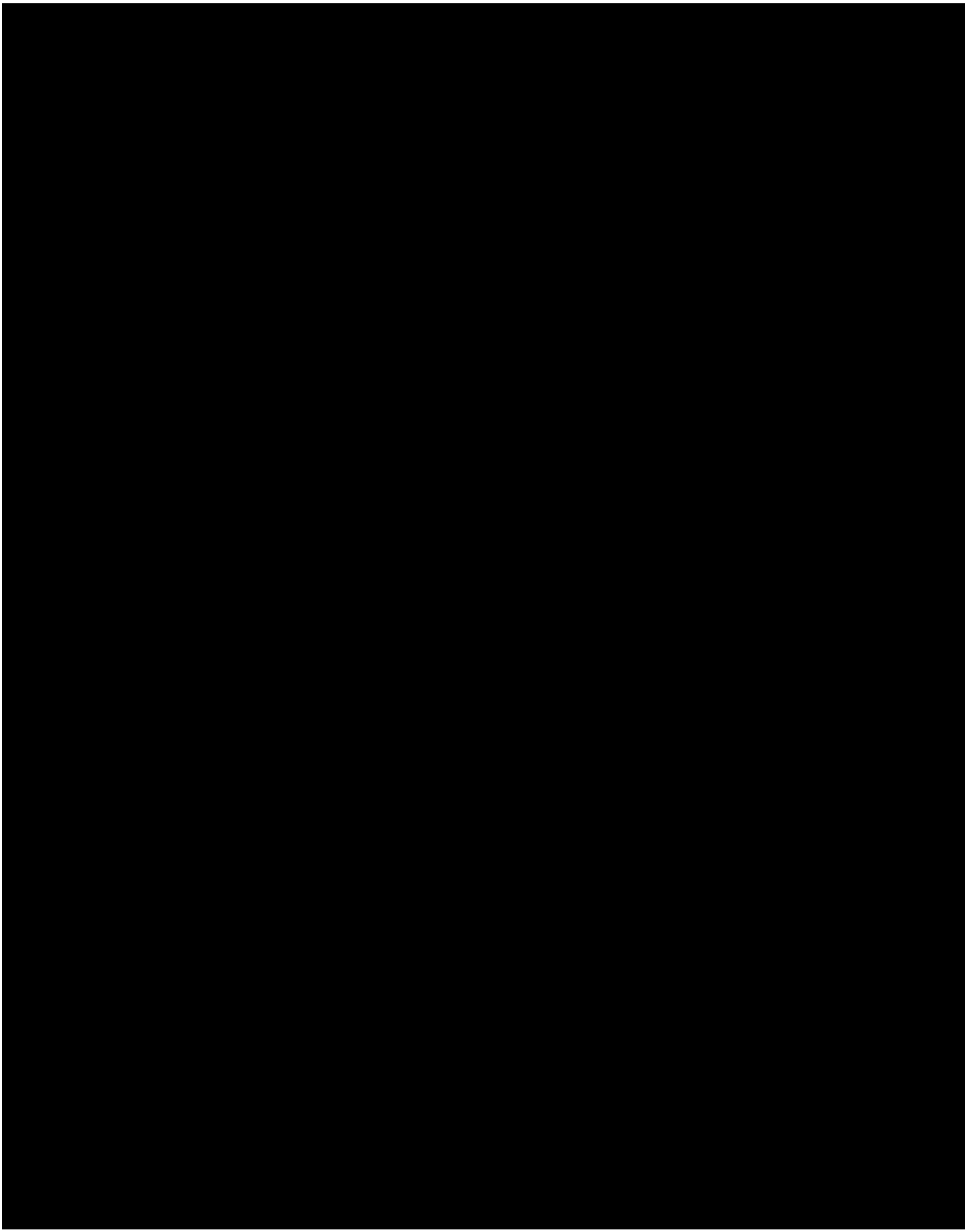
E5E $ * (% 4 4($ **(*) * 7

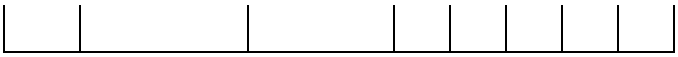
-) (/0 (2.'- 9,(!(,3& @ <<3&)<. -

",('.,)- ,9 '),' -%,) (; .) 3)<%)/ 2

1 , .	: $ 1 2 3 *	. , /	.	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
1 , 0	> 3 B *	* y € 3 8 (, €	0	€	€	m	À	.	;	/	€	,	€	1	3	0	.	1	3	0	1	3	0	/	.	0	;	<	<	0	/	0	0	0	<	1	3	0	/	À	;	"	à	0	0	0	0	<	.	€	;	,	7	€	;

| | | |





, 0	(")	. , /	<	,		,					.			.			.				
, /	6) 4 % % 4	* . , /																			
, ;	1) *	. , / *	0	0	0	0	/	/	/	/	;	/	/	;	0	/	:	0	0	0	
, <	1 (4	. , /					0	/	<	<			,			,	.	;	,	<	
,	1 $ 4 (7	. , /	0		,	/	0	.	.	. <	. <	0 /	0 ,	0	0	0	0	.	/	. ;	0
,	) ") * %	. , /	/	/	/	;	;	<		,	,		,			,			,		,
,		. , /	.	.	.																.
@ ,	@) *	. , /	0	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
@ ,	@) $ C (	. , /	0	0	0	0	0	/	/	0	/	;	0	0	0	.	.	0			
@ ,	* * *	. , /	0	0	/	/	/	;	;	/	;	<	0	/	/	.	0	/		.	
@ , .	* $)	. , /	0	.	;	<		<			<	<	,	/	;	;	0	/	/	.	0	0
@ , 0	: $) *	. , /	0	0	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
@ , /	@) $ (*	" . , /	0	;	;	;	<	;	<	<	;	<		0	;	/	.	0	/	.	.	
D ,	* %	. , /	;	.	.	0	.	0	0	0	0	/	.	0	0	.	.	0		.	
D ,	* 8 *) - (	. , /	;	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
D ,	: $ 8 *)	. , /	;	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5

	8) -(																				
D , .	? ($ *	. , / ; .																.		.	.

E 5 E $ * (% 4) (

>) **(* (* ($ F (5 * F (3 ' = $:

2 2 . ' . ,)) (/ 0 9 9 . < .) < 0 (2 . ' - < % . 1 2

*) * * * $ (($ * $ -( ) ! *)) % *

-(* . ,) ( ) . , 0 = ($) ! *)) -(

. , / ;) *) %) 4 * $ $) ($ **(* 6 4 . , / &

* *(-($ 4 * . , /) ( ) . , / ; * $) 4 * $) * $

B * 4 * * 67 * + 4 * *!5 * #

&& .< .; ' >,)+-8.;3; 7@4 <',(		+ 8.;3; C!	+.).;3; B
	? 5 $ > 4		
,	, .0 , 0	,	, <
	, , ..	,	, ,
. 0	, , <	, .	, .
/ ;	, / ,	, <	, ..
<	, . , <	, <	, ..

+,(99.<.)' CB =3.&;)' " (9,(;)<
3) $ *)) (-(* ., $ * * %
(* * $ 6 4 * $ 4 * .,) (* * -(
)) $ * * * ($: :B $ * *
% (@2& 3? -( ))) 5 (* * $ * $ 6 4
) (7) % ($) * * -( ) * $ -( )
$ % $( ) * %) ! *) %) 4) ") $ %
$ % $(* *
$ *) % 123 * $ 4) -( ) +

. , / 1 ,

. , / 1 ,

. , / 1 ,

. . , / . 1 , .

0 . , / 0 1 , 0

/ 3 * 4 1 , 1 , 1 , . $ 1 , 0

; 6) * 4 1 , 130 €

1 2 3 %) 4 * $ (* * % 4 * 8

) $ * 6) (*) 4 * ($ % $ 4 * 8 $ (* * (

4 * 8 $) 4 * ($ * ! (* ")) " +

3 (* $ % * 4 *) *) 4 * 8 $ %

( ) $ " ($ * $ $ P 1 B = 4 * 8 Q

> * * (* *)) * 4 $ ") $ " *) 4 * 8 $

1 2 3 ( ) $ " ") , (* 4 % * $ $

> * * (* 130 @ 12P €0 13130 ªªªª£3% $s3 * "0 *s3 12P ° À Ð

30 %s3 * $ * , 0 3 (3 ` ° 12S% 33 • 333

> * * ($ *s3 330 Ã3 * 3 *3 12S% %0 À 0

Ð êª1 > *Ó0 0 * & êª1 3%360 ª§ À êª3%33 3

! * $ *) % * $ * $) * 4)

. , / 0 @ ,

. , / 0 @ ,

. , / 0 . @ , .

. . , / 0 0 @ , 0

0 . , / 0 / @ , /

/ 3 * 4 @ , @ , . @ , 0 $ @ , /

; 3 * 4 @ , @ , $ @ , .

)) * $ (* ($ $ (*) "))) *) % :

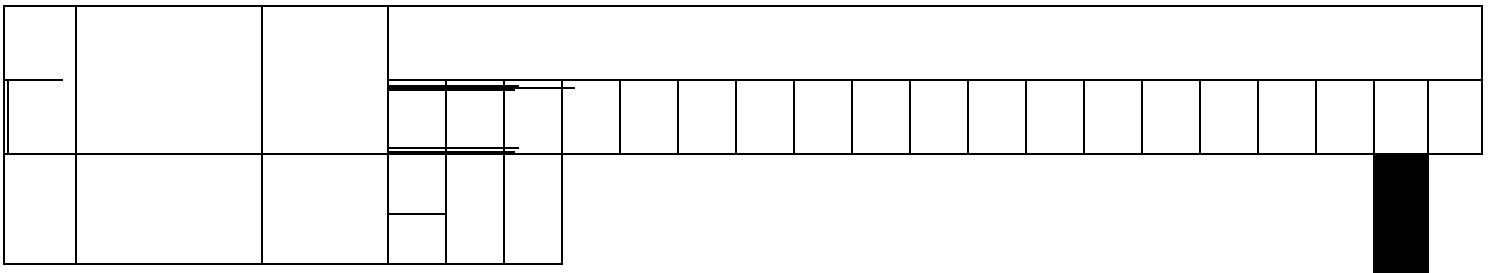
((* % * $ P 6) * % (* * Q ") *) * ($

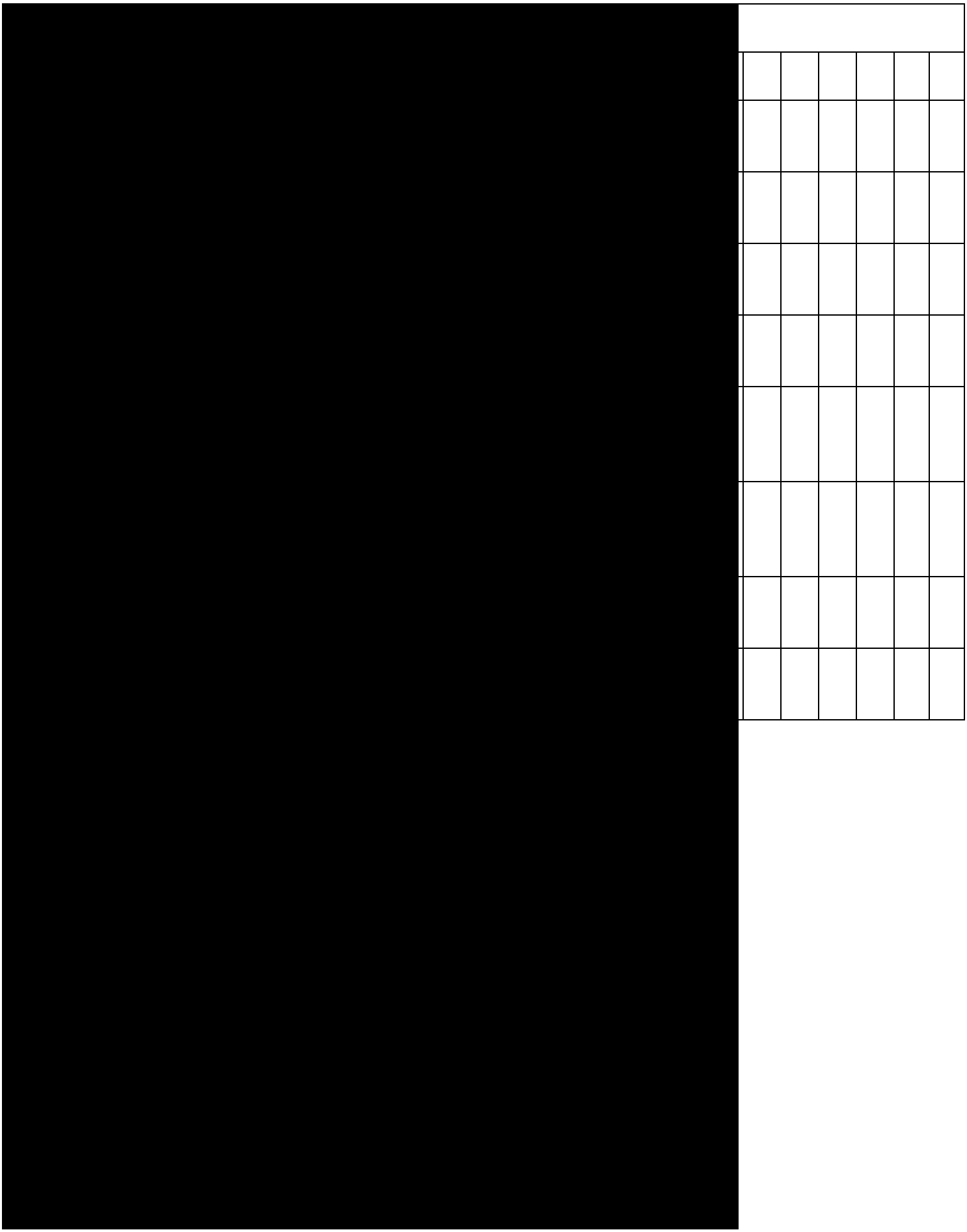
(* % % (3 M B : R R $ $

. / % ' .) / - 0 - ' ; & (9 , (;) < (- (1 2

) %) < 2 2 . / . ' . / % ' .) / < ,) ' (, -

#	) (/0 (2.' (1. ' 2 .'																				



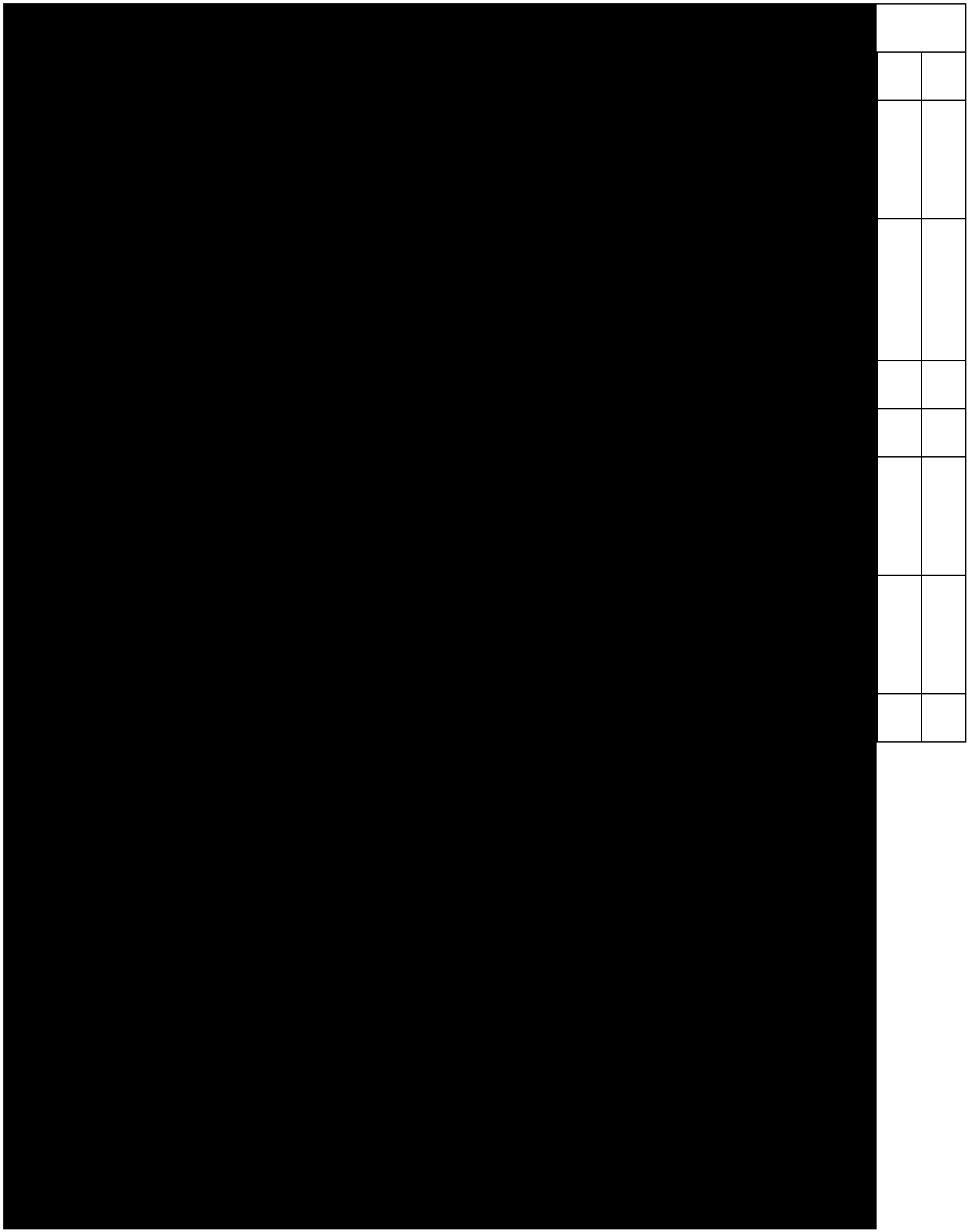


#	) (/0 (2.' <'.,) (1. ' 2 .'		.; ' >,)																		
:,	: " 4	., /									.										
F,	@)	.$ /	.	.	0	0	.	0	0	0	0	.	0	0	.	.	0	.	0	.	
F,	123	$., /		/	;	<		/	;			,	;	.					/		.
F,	3($) $	., / .	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
F,.	* *	., / 0	.	.	.	.	0	0	0	0	.	.	.	.		.	.	.			
F,0		., / /	0	.	;	<			,	,	/	/	0	;			.			.	5
F,/	1	., / ;			0	.	0	/	/	;		/	;		/	;	<	0	/	.	
F,;	'($)	., / <			0		;		<		,		/	0	.	<	<	,	/		<

5 I $ 5* ($ $) ($ * 7

*))2 , 2 +) / ;)' (2.'- 9,(!(,3& + <<3&)<. -

#	) (/0 (2.' <'.,) (1. ' 2 .'	.; ' >,)																		
:,	: " 4	., /			/	.	/	<	;	,			<			0	.			,
F,	@)	.$ /			.	.	.	/	0	/	.	.	/	/		.	/	.		
F,	123	$., /	.	.			,				<	<	,	;	/	<	.		.	
F,	3($) $	., /	. 0	/	;		<		;		<	0		;	0	<	;	0	/	/
F,.	* *	., /	0 .	0	/	0	/	;	;	<		/	;	;	0	/	;	.	0	.
F,0		., /	/ <	;	.	0	0		0		,	.				;	;		<	
F,/	1	., /	;				,											,		,
F,;	'($)	., /	< /			.			/	,	. .	.			.	.	0	,		



@( )) % $ * 4 $ (* $ *)) $("
$(8 $ 6) $ *) $(*) " ;0 *) 4(
") % $) 0 ( )) ;0 * 4(0,
* $) * $ 6 4 ., /) 4 $ " +
K4($ ")) $ 9L 5 K 4 * $., / L B ;09
-(. <&
8< &'.,)) (4($) 4 $ *) %) * $ 4 "
) " ;0 *) 4($ ") ($ $!($ 4 -(. <

! ! CB , 2 +) / ;)'
3(* $ *) 4 * ($+
) * * * ($(*) * 4 O? ;O
$(* * % * * * /,9 $ * * $( ) 8 $
) * *) ($($ *)) 4 O? ;O
$(* * %) * * /,9 $ * * $( ) 8 $
) 123 % (7 $) %) ;, * ($ -($
% $ 5* ($ * $) 8 $ $ $(* ($ 4 , *
** $ * ") 3 1:3 $ $ / * / 0) 6 $ %
) = *) * $ * ., >($ 3 " :

! 3',; ' 2 % 2./ , 2 +) / ;)'
) ( ) $ " 5 (5* $, * " $ *
" +

3M B 63 ,.0 ' ^ , < = $((* * =

: M)
../ = /)
* =3, /,

)' () '.,) <'(,' <%).< ,;;.--.,)
/ ;./ , , < * 4 " *($) "
+ > ($ $ $

&) #*

> 3 : 3
" $: $ (
: 3 .0<

&) #* &) #* .)<> 3 : , $,4 ^ , + * * 4($: (*

22) 2 9.).'.,) - 9, , -

*!5 * B *5 *
*)) $ 4(4 ( ) ($ ($ % $ $ 4) $ * 4 ") (
$ 4(4 (5 $ *

-

22) ' 8' - 9, , -

*!5 * B *5 #F7 +

3 (*) ( ) 4 $ ** $ (* (H (* $,

% * ") -($ (

5) 4 $ *)) " * +

(

* * B *) *

? $

. @ 4

0 % 4 4

/) *

; 2) *(*

< 8)

) *) % ($

, : * *) % ($

5 * *

*

5 B))* *

.))* *

0) *)))* *

/ @ 4 $

; @ 4 *8

< $ (* (

-((* (*

, @ " 4 (* (*

*

: ("))

: (") B (B*)

. 1

0 M

/ ' 8 * %

; ($ *

< @ ($ B")

= $ * ( ))* *

, 6 $ *))* *

=((

< < 3 &)' -)-,(<,)'(, 93)<'.,)

5) (* ( ) ") , (**( ) %

* ") .,0 /) " **(!( ) -($

5* + * ") (*)(* ($ $ **(*( ) (

$(*) ") , * (" ") , (*!( )

* ") .,0) (* ( )

) (" $ $ 4 ($ * $ % 5 *
* " ($ 4 % 6 4 0 @

O L J K W L Q J LVQ VLWHPP Q W L U H W \

5HYLVHG7DEOHRI&RQWHQWV

7$%/(
%8,/',1*19(/23(5(48,5(0(176(1(675$7,21

&/,0$7(=21(

6\VWHP DGMXVWPHQWV DQG $LU 6\VWHP &RQWURO 6\VWHPV VKDOO EH DGMXVWHG DQG EDODQFHG FRUGZDLQWHQHUDOO\
DFFHSWHGQHJGQHWUDQJSDUDPHWHUDZDWKDUZDWKDEOHPHDVXUHPHQWVDQGGLVSODFHPHDVXUHPHQWV
ZLWKLQ RI GHVLJQ UDWHV 7HVW DQG EDODQFH DFWLYLWLHV VKDOO LQ

$LU V\VWHPV EDODQFLQJ (DFK VXSSO\ DLU RXWOHW DQG]RQH WHUPL
EDODQFLQJ FRUGZDLQWHUHTXLUHPHQWVDQGWKHWHUQDWLRQDOHGLWLRQ
GDPSHUV DUH SURKLELWHG RQ FRQVWDQW YROXPH IDQV DQG YDULDE
ODUJHU\VWHPVKDOOEHDOORZHGRQPDLQVXSSO\DQGUHWXUQGXFWV
SRZHU RI JUHDWHUDQWKDQ KS EH DGMXVWHG WR PHHW GHVLJQ IO

([FHSWLRQZLWKRWRUVSHFO

+\GURQLF V\VWHPV EDODQFLQJ ,QGLYLGXDO K\GURQLF KHDWLQJ DQG
EDODQFLQJFRUGZLWKHTXLSPHQWPDQXIDFWXUHUVUHFRPPHQGDWLRQV
ILUVW PLQLPL]H WKURWWOLQJ ORVVHV WKHQ WKH SXPS LPSHOOHU VK
PHHW GHVLJQ IORZ FRQGLWLRQV (DFK K\GURQLF V\VWHP VKDOO KDYH
WKH SXPS RU WHVW SRUWV DW HDFK VLGH RI HDFK SXPS

([FHSWLRQV

3XPSZLWKPRWRUVRI
:KHQWKURWWOLQJVDUHXVHGWRDGMXVWKHDGORVVHVGRZQWRWKHDSSURSULDWH
WKH LMPELLER ZHUH WULPPHG

)XQFWLRQDORUPDQWHVWLQJRIHTXLSPHQWDQGV\VWHPVRUDOORUPDQFHWHVWLQJ
6HFWLRQ)XQFWLRQDO WHVWLQJ RI +9$& FRQWUROV VKDOO EH L

(TXLSPHQW IXQFWLRQDO SHUIRUPDQFH WHVWLQJ
GHPRQVWUDWH WKH FRUUHFW LQVWDOODWLRQ DQGRSHUDWLRQDO SHUIRUPDQFH
UHODWLRQVKLSV LQ DFFRUGDQFH ZLWK DSSURYHG SODQV DQG VSHFLILFDW
IXQFWLRQDOSHUIRUPDQFH WHVWLQJ RI HTXLSPHQW DQG V\VWHPV VKDOO
RSHUDWLRQ LQFOXGLQJ

RI $OPOR GHDWG HVFULEH@ÀRQHG

DR

_____ &RPSOHWLRQ UHTXLUHPHQWV GRFXPHQWV VKDOO UHTXLUH W
DFFHSWDQFHRIILFLDOVRFXPHQWDWLRQ DQG VKDEORURYLGHG
WKH EXLOGLQJ RZQHU RU WKHLU GHVLJQDWHG UHSUHVHQWDWLYH E\ WKH P

_____ 'UDZLQJVQVWUXFWLRQDOLQHRIILFLDOVLDOOLQFOXGHPLQLPXPFRQWHQWV
HDFK SLHFH RI HTXLSPHQW

_____ 0DQXDOSOHUDWLRQVDOOQXDQGPDLQWHQDQFHPDQXDOVKDEHOLFFRUGZLWKHGXDWLRQHG
VWDQGDUGV DQG VKDOO LQFOXGH DW D PLQLPXP WKH IROORZLQJ

&DSDFLWLVSXUWXSDUWHTXLPHQWDEHRIVKLHTXLSPHQW
2SHUDWQRQLQWHPDQXDOVFKLHTXLSPHQW
0DQXIDFWXUHU¶V RSHUDWLRQ PDQXDOV DQG PDLQWHQDQFH PDQXDOV
PDLQWHQDFHTXLSPRQWUDVKHGWKSHURMHFWXUHVPDQHWDQERQV
VKDOO EH FOHDUO\ LGHQWLILHG
1DPHDVQGGUHVVHVWHRQWHUYLJHQF\
+9$& FRQWURO V\VWHP PDLQWHQDQFH DQG FDOLEUDWLRQ LQIRUPDW
FRQWHRXHGHFWVFULSWLRQHGHWHUPLP4PLP4PLP4PGPHL P4PLP4PLRQPL

7$%/(

+,*+/,0,76+872)&217527237,216625$,5(&2120,=(56

&/,0$7(=21(6	$//2:(' &217527/7<3(6	352+,%,7('&217527/7<3(6
E E E F E F E F E	)L[HG GU\ EXOE 'LIIHUHQWLDO HQWKDOS\ (OHFWURQLF HQWKDOS\ 'HZSRLQ DQG EXOE WHPSHUDW	)L[HGQWKDOS

5HOHDVH[HFXWLYH2IILFHU'LUHFWRU\VWHPSURYLGHGDQGWKHOHDGHUVKLSJURXSDQG
HFRQRPL]HU RSHUDWLRQVDQGPDLQWHQDQFHSURYLGHGWKHEXLOGLQJ 7KH UHOLHI DLU RXW
UHFLUFXODWLRQ LQWR WKH EXLOGLQJ

'HOHWHGWKHGXEVWDWHPHQWV

(FRQRPL]HUSURYLGHUV VKDOO EH SURYLGHG RQ HDFK FRR

6 H F W L R Q 7 L P &O R&FRQ W U R O V ,y.¼ ™o ™‡9VÐ θ H F W a''ëÂ –ñ'W8 a#À P H

%XLOGLQJ3DSHU 3(5)250,1*$576+($7(5 $XGLHQFH $UHDV	:KROH%XLOGLQ	6SDFH6SDFH

-

7$%/(

81,7$5$1'$33/,('+($7380(/(&75,&$//<
23(5$7(' ()),&,(1&<5(48,5(0(176

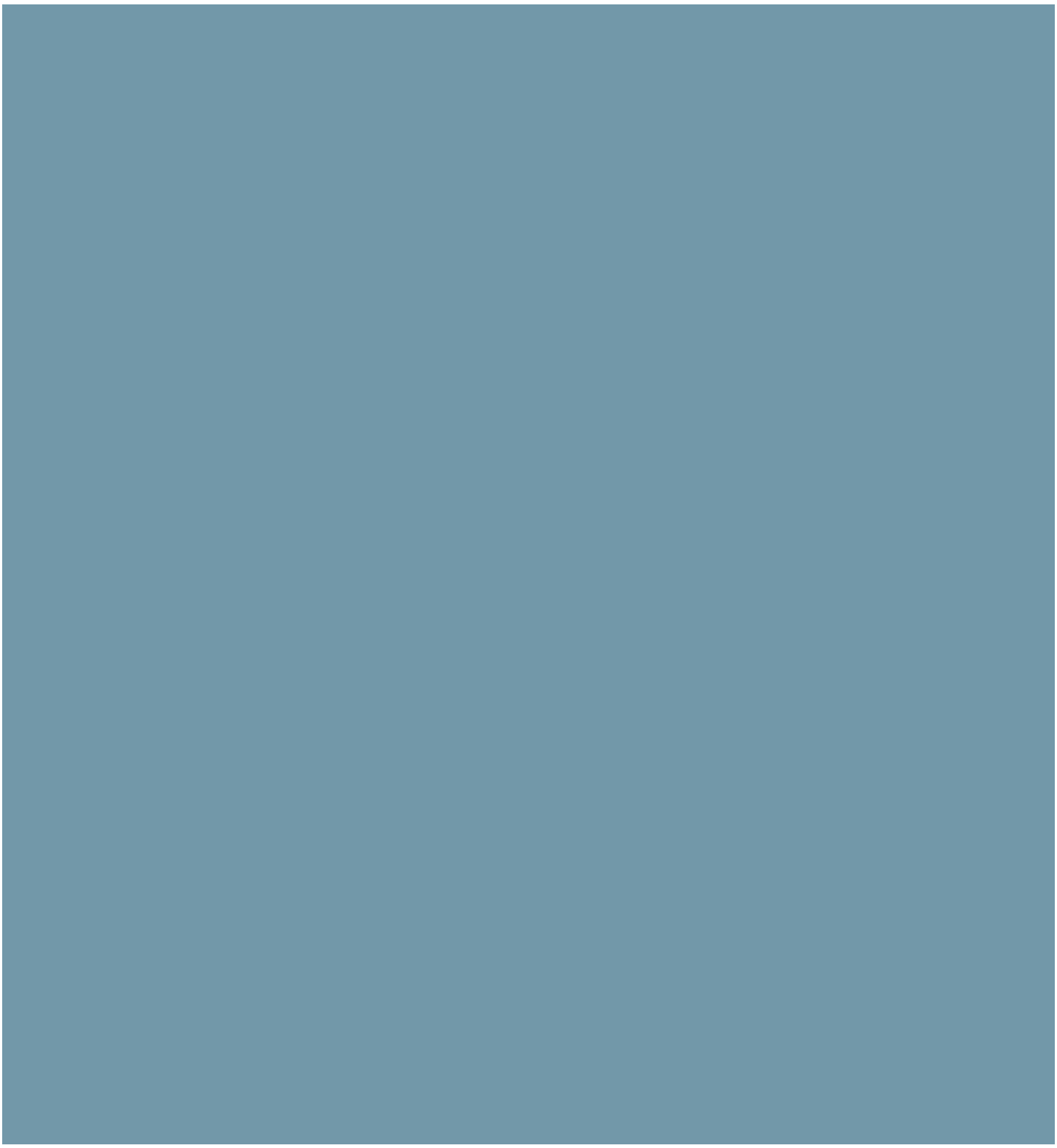
(48,30(17<3(	6,=(&$7(*25<	68%&$7(*25<5	5(48,5('
$LFURROHG &ROORPLQGH	%WX KG	5$7,1*&21',7,21	()),&,(1&<D

8QLWV PXVW DOVR LQFOXGH DQ ,,' LQWHUPLWWHQW LJQLWLRQ GHYLFH
YHQWLODWLQJ DXGLEOH SLSHG FRQGLWLRQHG DFFHVVLEOH RXWGRRU
FRQGLWLRQHG VSDFH
:KHUHWKHUH DUH QR LQWHUQDO RYHUKDQJLQJ
JUHDWHU WKDQ RU HTXDO WR %WX K > N:@ VKDOO FRPSO\ ZLWK HLWKHU UDWLQJ
(W 7KHUPDO FLHQF\
(F &RPEXVWLRQ HQFORVXUH
(IILFLHQF\ DFFHVVLEOH VXUQDFHV
PDQXIDFWXUHU V GHVLJQDWLRQ RI WKH IXUQD)i" DD™FjQ `W HDLQ6–wÐ JQDQ

7KH FRGH RMLKEDOODOEH SURYLGHG ZLWK DQ HQHUJ\ DQDO\VLV DV GH
WKDW GRFXPHQWV HZDEOH HQHUJ\ SURGXFWLRQ LV FDSDEOH RI SUR
WKH WRWDO HVWLPDWHG QDWXUDO OLSXLGV FRQGHQVDWH \LHOG DQG
FRGH DOFXODWRQ WKDW RQVWUXFWLRQ RGXFWLRQ RGXFWLRQ
QRPLQDO PD[LPXP UDWLQJ RI DW OHDVW %78V RU DW OHDVW
FRQGLWLRQHG IORRU DUHD

$GGQHZ VWDQGDORQH VWDWHPHQWV

$670
(6WDQGDORQH VWDWHPHQW WKDW GHWHUPLQHV DQG 5HJLVWHUV DQ
3UHVVXUL]DWLRQ
(6WDQGDORQH SURFHGXUH DQG VWDWHPHQW
6\VWHP5HVHUYRLU6LPXODWLRQ :DOOV
(6WDQGDORQH VWDWHPHQW WKDW 3HUPDQHQWO\ 6XUIDFH DUHDV
(6WDQGDORQH VWDWHPHQW WKDW GHWHUPLQHV DQG 5HWULHYHV
$VVHPEOLHV
& 6WDQGDORQH VWDWHPHQW WKDW GHWHUPLQHV DPLVVLRQ FRQWHULDOV



Regulation: 40.6 Percent of the Cost of a Multifamily Developmen

Perhaps more importantly, some of these regulatory mandates can discourage developers from building in the marketplaces that have the greatest need for more housing. This can prove to be particularly burdensome in a rising costs. For example, 47.9 percent of multifamily developers said they avoid building in jurisdictions with po as inclusionary zoning, and a full 87.5 percent will avoid building in a jurisdiction with rent control in place.

There are also significant obstacles to development at the community level that are unrelated to governmental For instance, our research shows that “Not in My Backyard” (NIMBY) opposition to multifamily development ad average of 5.6 percent to total development costs and delays the delivery of new housing by an average of 7.4 mont While most Americans agree that we need more housing and more housing a ordable to middle-income house too many change their opinion when someone proposes to put that new housing in their neighborhood. The in opposition is escalated if that housing is rental housing.

About the Research

NAHB and NMHC distributed an identical survey in April 2022 to their respective memberships to access a wid of development scales across the United States. The primary purpose was to quantify how much regulation ex developers to contend with and how much that regulation is adding to the cost of developing new multifamily p

Some of these questions quantify the impact of regulations, such as inclusionary zoning and rent control, that n directly increase the costs of projects that are built but a ect the supply and cost of housing in the community b some pray

Total Cost of Regulations

Regulatory costs that exist during the multifamily development process can be divided into several categories. Table 1 shows the share of developer respondents subject to these various regulations and the average cost of each category as a percentage of the total development cost.

Most respondents (91.8 percent) were also required by their local jurisdiction to include certain design features project design that go beyond what they would ordinarily include. Examples include energy-e iciency upgrades design requirements for facades. When present, complying with these requirements amounted to an average c percent of total development costs.

Governments can also require developers to leave a portion of the development site dedicated for government unbuilt. This requirement reduces the amount of developable area, which means the revenue from that area is must either be absorbed or made up for elsewhere. This requirement was present for approximately half (51.0 respondents; when present, it represented an average of 4.7 percent of total development costs.

The increase in costs to comply with changes to building codes over the past 10 years was the largest driver o development cost, amounting to 11.1 percent of total development costs.

Most jurisdictions have been adopting, revising and enforcing building codes for decades, and an entire indust emerged supporting and encouraging changes to existing building codes. While building codes play an import protecting resident safety and building integrity, they have evolved well beyond their original purpose and now used to promote public policies like energy e iciency and sustainability.

Building code development and adoption are complex, and it is essential to consider impacts to housing a orda throughout the process. State and local jurisdictions adopt and enforce building codes, but federal policymaker active in the development of international model codes, and they promote the adoption of certain code editions example, the U.S. Department of Energy encourages states to adopt the most stringent versions of the model codes. Various policy groups, industry organizations and individual companies also advocate for code changes promote specific goals. These changes do not always balance the needs of housing a ordability and have the drive up construction costs[2] without improving building safety or integrity.

Developers are also subject to complying with Occupational Safety and Health Administration (OSHA) requirem and other labor regulations throughout the development process. While measures to protect the safety and he construction workers are essential, NAHB has argued that some OSHA policies, like its ladder standards residential construction, simply drive construction costs up without impacting health or safety.

Fully 93.9 percent of respondents said they had to comply with these regulations and that they added 2.7 perc development costs.

Almost all respondents (95.9 percent) also reported that complying with regulations caused some sort of delay typical project. We estimate that “pure” cost of delay—the financial cost that taking the time to comply with that would incur—would be an average of 0.5 percent of total development costs. This may not seem like a substan but in an era of rising costs and diminishing a ordability, any additional cost can impact project feasibility.

A ordability Mandates and Neighborhood Opposition Can Discourage Development Altogether

Aside from increasing development costs, some regulations and restrictions can impact whether development which is incredibly harmful given the nation’s shortage of housing.

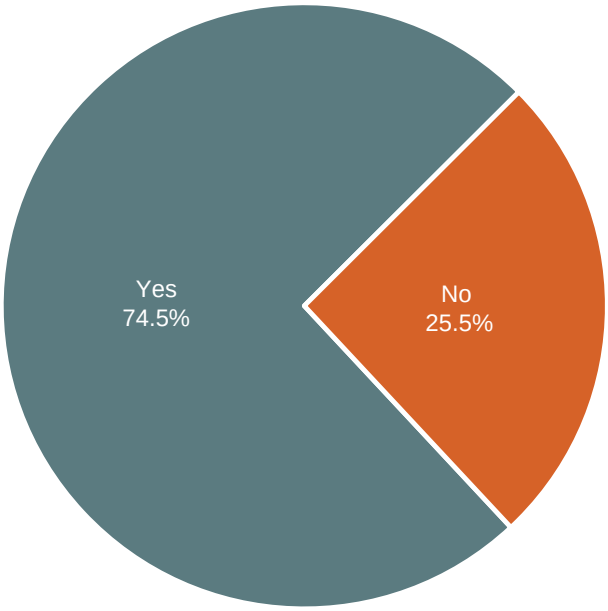
There are many factors a developer considers when choosing a potential site for a future development; primar them is the market demand for the proposed units. Increasingly, however, developers are also forced to consid their chosen jurisdiction imposes a ordability mandates on new development. Two of the most popular mandat inclusionary zoning and rent control because they are wrongly deemed to be “quick and free” fixes to housing challenges.

[2] NAHB’s subsidiary Home Innovation Research Labs has recently produced a report showing that codes adopted in 2018 increase costs for standard types of multifamily buildings between $2,500 and $25,000.

Research has shown, however, that these quick fixes, particularly rent control, have many pitfalls. One major pitfall of both,

average of 7.4 months.

Figure 4. Have Developers Encountered Neighborhood Opposition To Multifamily Construction? (Percent Of Respondents)



Source: NAHB and NMHC

Conclusion

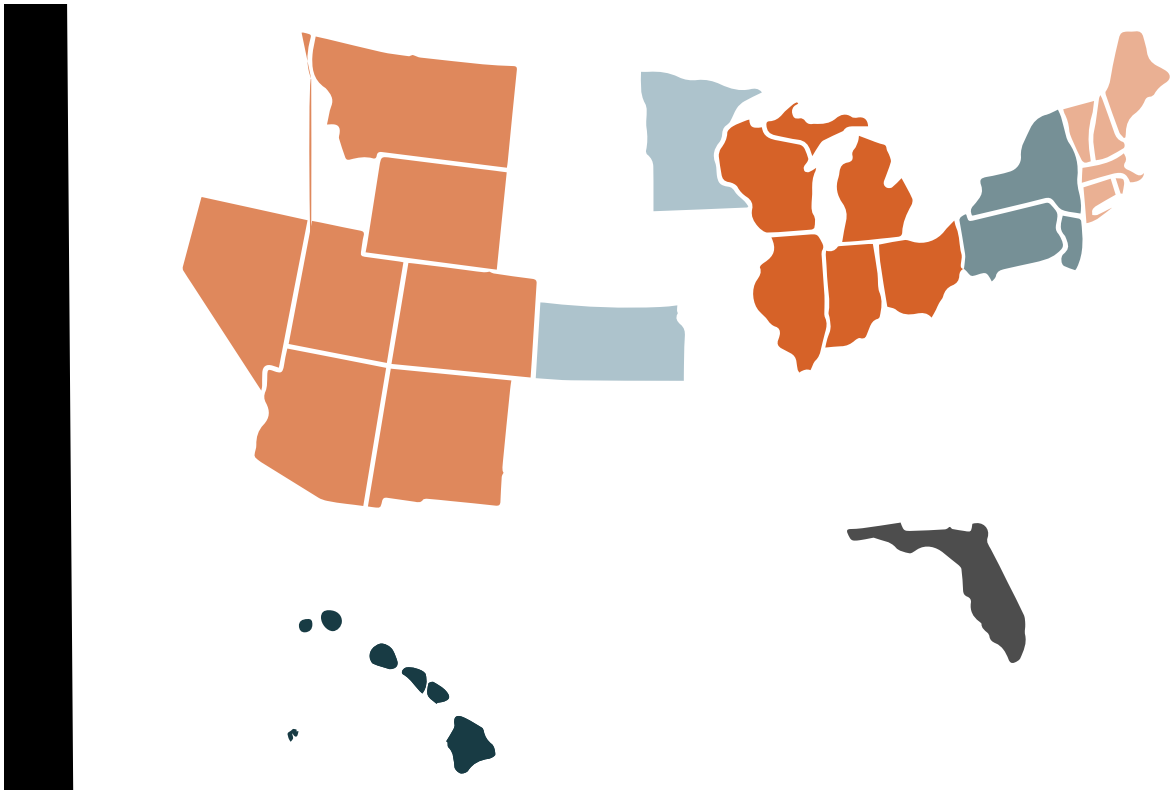
As the above discussion has demonstrated, multifamily development can be subject to many regulatory costs, i
broad range of fees, standards and other requirements imposed at di erent stages of the development and cons
process. Because of this, it may not be surprising that regulation imposed by all levels of government accounts
percent of multifamily development costs on average.

Respondent Profle

A total of 49 usable responses were received from multifamily developers, with a slightly higher concentration o members than NMHC members (and no duplicates). In one instance, two survey responses were accepted fro member company because the respondents represented di erent geographic areas.

All geographic areas in the United States were represented (see Figure 5). Respondents were able to choose one region of operation. The South Atlantic region (DE, DC, FL, GA, MD, NC, SC, VA, WV) had the largest rep with 42.9 percent of respondents operating there, followed by the Mountain region (AZ, CO, ID, NM, MT, UT, N 30.6 percent and the Pacific region (AK, CA, HI, OR, WA) with 22.4 percent. The West North Central (IA, KS, ND, SD) and West South Central (AR, LA, OK, TX) had the lowest representation at 6.1 percent of respondent

Figure 5. Share of Respondents Who Build in Each of the Nine Census Divisions



Source: NAHB and NMHC; U.S. Census Bureau

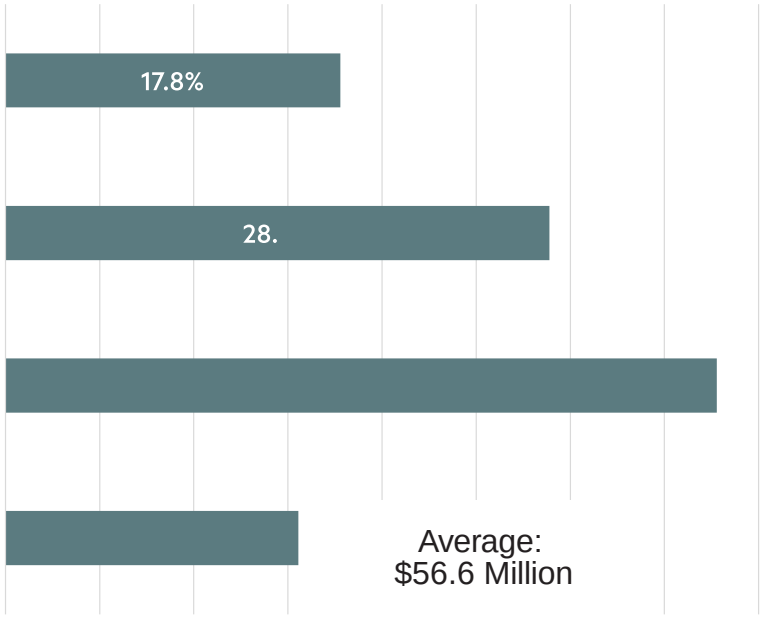
The respondents' typical project size varied widely: from fewer than 10 units to 499 (see Figure 6). The majorit respondents (54.2 percent) reported a typical project size of 150 to 349 units. Note that this is project size, not size, meaning that each category could comprise both garden-style communities, which frequently have units s

Figure 6. Number of Apartments in Respondent's Typical Project (Percent of Respondents)

Source: NAHB and NMHC

The typical total development cost varied as well but was slightly more evenly distributed (Figure 7). The avera development cost of respondents for a typical project was $53.6 million. Barely over one-third (37.6 percent) re typical development cost of $50 to $99.99 million. Small and large projects were equally represented, with 17.8 respondents reporting a cost of less than $10 million and 15.6 percent indicating the typical project costs at lea million.

Figure 7. Total Development Costs for Respondent's Typical Project (Percent of Respondents)



Source: NAHB and NMHC

Regulation: 40.6 Percent of the Cost of a Multifamily Developmen

Appendix 2: Survey Questionnaire

1. What regions do you build in? Please select all that apply.
   - o New England (CT, ME, MA, NH, RI, VT)
   - o Mid Atlantic (NJ, NY, PA)
   - o South Atlantic (DE, DC, FL, GA, MD, NC, SC, VA, WV)
   - o East North Central (IN, IL, MI, OH, WI)
   - o West North Central (IA, KS, MN, MO, NE, ND, SD)
   - o East South Central (AL, KY, MS, TN)
   - o West South Central (AR, LA, OK, TX)
   - o Mountain (AZ, CO, ID, NM, MT, UT, NV, WY)
   - o Pacific (AK, CA, HI, OR, WA)

2. How many units does your typical multifamily project have?
   - o 2-4 Units
   - o 5-9
   - o 10-49
   - o 50-149
   - o 150-349
   - o 350-499
   - o 500 units or more

3. What is the total dollar amount spent on development costs in your typical project?

   $_____

4. For a typical piece of land, how much does it cost to apply for zoning approval as a % of total development cost? (Include costs of fiscal or tra ic impact or other studies and any review or other fees must be paid by the time of application. Please enter “0” if application costs are Zero percent).

   _____%

5. For a typical project, how many months does it take between the time you apply for zoning approval and the time you begin site work?

   _____months

6. How much does it cost to comply with regulations when site work begins, as a % of total development costs? (Include costs of complying with environmental or other regulations as well as the cost of hook-impact or other fees.) Please enter “0” if cost of complying with these regulations is Zero percent.

   _____%

7. How much do development requirements that go beyond what you would otherwise do (in terms of property layout, landscaping, materials used on building facades, etc.) add to your cost as a % of total development costs? (Please enter “0” if the jurisdiction’s requirements don’t go beyond what you would normally do.)

_____%

8. In the typical case, what is the value of any land that must be dedicated to the local government or otherwise left unbuilt (for parks, open green space, etc.) as a % of total development cost? (Please ent “)” if dedicating land is required infrequently.)

_____%

9. How many months does it take between the time you begin site work and the time you obtain authorization to begin construction of the apartment building(s)?

_____months

10. How much extra time (in months) overall does complying with regulations add to the development process? (Please enter “0” if regulations typically cause no delay).

_____months

11. When you obtain authorization to begin construction, how much do you pay in additional fees as a % o total development costs? In many cases, this will be only a permit fee but include any additional impac or hook-up or inspection fees if they kick in at this time. (Please enter “0” if fees paid during or after construction are Zero percent).

_____%

12a. In the typical case, does a jurisdiction have inclusionary zoning/a ordable housing requirements that apply to your project?

- o Yes
- o No

12b. [If the answer to 12a is “yes”]. In the typical case, how much do these requirements (or a fee in lieu o a ordable housing) cost as a % of total development cost? (Please enter “0” if inclusionary zoning/ a ordable housing mandates/fees in lieu of a ordable housing are encountered infrequently).

_____%

12c. [If the answer to 12a is “yes”]. In the typical case, how much do these additional requirements raise t rents of market-rate units?

_____%

13. Do you typically avoid building in a jurisdiction if it has an inclusionary zoning requirement?

- o Yes
- o No

14. Do you typically avoid building in a jurisdiction that has rent control?

- o Yes
- o No

15. Over the past 10 years, how much have changes in construction codes and standards added to the cost o building a typical multifamily project as a % of total development costs? (Please enter “0” if code changes have had minimal impact on costs).

_____%

- o Please select if you have not been in operation for the past 10 years

16. How much does complying with OSHA or other labor regulations cost, as a % of total development cost? (Please enter “0” if labor regulations have no impact on development costs).

_____%

17. Have you experienced added costs or delays due to neighborhood opposition to multifamily construction?
    - o Yes
    - o No

18. In the typical case, how much costs are added to a project due to neighborhood opposition to multifamily development as a % of total development costs?

_____%

19. In a typical case, how much extra time (in months) does it take to address neighborhood opposition to multifamily development?

_____months

20. Comments:

ICC MEMORANDUM

TO: Energy Code Development Committees, Subcommittees and Interested Parties
FROM: Mike Pfeiffer, PE, Senior Vice President of Technical Services
RE: Discount Rates and Code Content
DATE: February 15, 2022

The Code Council appreciates the considerable effort to date by members of the Commercial and Residential Consensus Committees, Subcommittees and interested parties to develop the 2024 International Energy Conserva (al)-303.007 (En)13.007 u998 (s)-1oue d Ina(o)-9938 (e)-3.007 (r)12.002 u5rfe rest(d)2.998 (te)-2.998

The scope and intent of ICC codes and standards are set by the Board of Directors in accordance with Council Policy 28. The Board has not previously provided updates or clarifications to the scope or intent of codes or standards during an active development process, allowing the development process to proceed to resolution. If a topic is contained in the scope or intent statement, it may be included either in the base of the code or as an appendix, as determined by the consensus body. Generally, appendices in the I