



# An Assessment of Fire Safety in Australia's International Student Housing

An Interactive Qualifying Project, submitted to the faculty of  
Worcester Polytechnic Institute in partial fulfillment of the requirements for the  
Degree of Bachelor of Science

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## **Abstract**

An assessment of international student awareness in fire safety issues with respect to their housing in Australia was performed by this project, which was commissioned by the Australasian Fire and Emergency Services Authorities Council. As a basis to characterize this situation, pieces of fire safety legislation, education materials, and techniques for multicultural pedagogy were gathered and analyzed. A survey was administered to collect data from a representative population of students throughout Australia. Lapses in fire safety knowledge and compliance made apparent through the research were addressed in FireAway, an education plan, and legislative recommendations.

## **Authorship**

This project was completed through a combined effort from all group members. Each individual contributed equally throughout the project. Tasks, such as researching relevant information, writing and editing the report, analyzing project data, and creating deliverables, were divided amongst the members.

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## **Executive Summary**

The world's communities have become more interconnected in the twenty-first century. As a result, there has been an increase in the number of individuals studying and working abroad. Australia is host to a large number of international students and itinerant workers, which stimulate the country's economy. These populations are constantly in need of temporary housing.

However, recent reports have indicated that the accommodations are sometimes non-compliant with fire safety standards. Due to recent fire fatalities in some substandard lodgings, the public has become more aware of these deficiencies and has called for change. Individuals at the Metropolitan Fire and Emergency Services Board (MFB) have taken an active role in assessing the situation and implementing solutions in Melbourne, Victoria. However, this is a national problem and as such any proposed solution must include all of Australia. Our Interactive Qualifying Project (IQP) was proposed by the Australasian Fire and Emergency Services Authorities Council (AFAC) to examine and recommend improvements in the state of fire safety awareness in housing for international students and itinerant workers throughout Australia. We accomplished this goal by completing the following objectives:

1. Evaluating provisions for fire safety in current accommodations,
2. Determining the knowledge of fire safety in the target populations, and
3. Addressing related issues in the current legislation.

International students accounted for 15% of the revenues generated by higher education in Australia in 2005. In addition to the fiscal benefits these students bring, they also increase the skilled workforce and enrich the country's culture. With the many ways the nation is reimbursed for being a host, it is in Australia's best interest to take measures to sustain or even increase the international student population studying within the country. Itinerant workers provide valuable labor by traveling between jobsites depending on the needs of industries, but it is more difficult to quantify their economic impact because many of these workers are illegal and harder to track. Due to the nature of this population and the time constraints of this project it was found that gathering adequate data on itinerant workers was not feasible. Thus, our efforts of this project were refocused to emphasize international students.

As a basis for assessing the awareness of fire safety concerns surrounding international student housing, our group gathered information by the following means:

- Reviewing the legislation governing these lodgings,
- Obtaining student fire safety education materials currently in use,
- Researching methods for effectively teaching a diverse multicultural audience, and
- Administering a fire safety survey to international students throughout Australia.

The temporary accommodations sought by international students are regulated by a number of laws. The Building Code of Australia (BCA) defines the building standards, including the necessary safety equipment. Additionally, the Residential Tenancies Act (RT Act) outlines the rights and responsibilities of landowners and tenants in a lease agreement. We also examined legislation in different states in Australia and interviewed fire safety experts in order to assess the current system and regulations. It was found that the fire safety provisions are generally adequate, but areas of weakness exist.

Our team identified two fire and emergency service organizations, the US National Fire Protection Association (NFPA) and the MFB, that have specific fire safety education programs targeted towards students. Additional sources were found on teaching methods for English as a Second Language (ESL) and for multilingual audiences. These resources indicated that an effective fire safety education plan should include both active and passive elements. Active education usually takes the form of demonstrations or seminars and has proven to be an effective means of ensuring the retention of information. However, it can be expensive and time consuming. Passive education, which can be conveyed in pamphlets and brochures, is sometimes less effective in delivering a powerful message, but more efficient for mass distribution.

In order to get the widest response from all over Australia we created an electronic fire safety survey targeted towards international students. The survey questions fell into three main categories: the students' knowledge of fire safety, the availability of housing, and the demographics of the responder. The document was created on SurveyMonkey, an online survey provider, which offered an array of data export and analysis tools. No information that was collected in the survey was personally identifiable. Initially, the group contacted many Australian universities and TAFE schools requesting that the survey be sent to their students. However,

after few positive responses were received new ways were sought to distribute it. Phone calls were placed to presidents of student clubs asking for their organizations' help, and students were surveyed in person at Victoria University. Responses were collected over a four week period.

As of April 22, 2009, 1619 surveys had been collected, 480 of which were from international students. Thus, 29% of responses were from overseas students. This sample is a realistic representation of the student population in Australia, since, 26% of students studying in Australia in 2006 were international. The survey responses were filtered into two groups: responders who were international students and those who were not. Since we were specifically interested in the fire safety awareness of international students, non-international student responses served as a control. Any worrisome answers from the international students that were not reflected in the control group were identified as specific problems for students studying abroad in Australia. Responses were collected from all Australian states, with the majority of answers from New South Wales. International students identified themselves as being from sixty-six countries, with the greatest percentage from China, followed by Malaysia and Singapore.

Some trends seen in the results were surprising. A higher percentage of international student respondents said that they had fire blankets, fire extinguishers, and sprinklers in their place of residence than the control group. Unfortunately, over 50% did not know how to correctly use this equipment. Furthermore, 18% did not know that the emergency phone number in Australia is 000. On the other hand, 83% of international students did have smoke detectors in their place of residence, which was only slightly lower than the 91% positive response seen in the control group. Of those international students who did have smoke alarms, only a third have tested the alarm within the last month and only 44% knew how to perform the test.

Our IQP group addressed the lapses in fire safety knowledge uncovered by the survey by suggesting a series of legislation recommendations and creating **FireAway**, a student fire safety education plan that could be adapted by a number of organizations.

FireAway is structured for a multicultural audience by having a minimum number of learning barriers, such as complex language. The utilization of active and passive materials resulted in a two-pronged approach to provide a dynamic learning experience. FireAway consists of fire safety information in the forms of:

1. Active elements, including:
  - a. New student orientations, and
  - b. Demonstrations, such as live burns and hands-on fire extinguisher training.
2. Passive elements, including:
  - a. PowerPoint presentation,
  - b. Flyer and brochure, and
  - c. ESL worksheet.

FireAway has the potential to impact the large number of students previously uneducated in fire safety.

Our group identified the following areas of weakness within the legislation: deficiencies in enforcement, ambiguities in interpretation, and inconsistencies in identifying high risk shared accommodations. To address these shortcomings, our project team proposed the following recommendations:

**1. Increase communication between the different inspecting officials.**

Currently, several inspecting authorities exist and each has a different responsibility, which creates a disjointed system of building inspection. Increased communication amongst these groups would coordinate their efforts and minimize lapses in compliance with building codes.

**2. Allocate enforcement power to the fire brigades.**

Members of the community that do not follow preventative fire safety measures complicate the duties of the fire brigade. Increasing the fire brigade's enforcement power would allow a more proactive process of implementing fire safety procedures.

**3. Clarify the definitions in state legislation.**

Vague wording in and misinterpretations of the applicable legislation have led to high-risk accommodations being overlooked by some officials. Clarifying the problematic definitions could lead to these structures being properly regulated.

**4. Impose stricter penalties on owners for non-compliance.**

Owners of high-risk accommodations should be held accountable when their facility is not compliant with the building codes and other legislation. Additionally,

the legal responsibility to educate tenants on proper fire safety procedures specific to that structure should fall upon the building owners.

**5. Develop and expand a high-risk accommodation identification program.**

This system could aid in the finding and tracking of high-risk accommodations that require inspection. The implementation of such a program could increase the code compliance and fire safety of the residences.

These recommendations are designed to preemptively increase the level of fire safety afforded to international students who occupy shared-housing accommodations. They also consider the resource constraints that most government agencies are experiencing.

It was our original intent to include itinerant workers in our study to the same extent as international students. However, the investigation into the situation of itinerant workers proved to be impractical and challenging due to time and resource constraints. Attempts to retrieve information about itinerant workers supplied insufficient results from which to draw conclusions. Although this topic could not be fully investigated, the information that was collected is provided in an appendix and may serve as the foundation of a future project.

Fire safety in international student housing is a multifaceted problem in Australia and it is hard to predict when improvements will be made due to the economic and political elements involved. Any efforts to eliminate this social issue will lead to better protection of international students, who are so vital to the Australian economy. The utility of this project, including the legislative recommendations and education plan, will be applicable at any time. This IQP provided the unique experience of being able to examine the challenges that international students face from the perspective of American students also studying abroad.

## Chapter 1: Introduction

In an age of increased globalization where technology eases communication and transportation, the world's resources have become more accessible. It is becoming increasingly common for people to travel, work, and study abroad. Students and itinerant workers are seeking education and employment in locations other than their native countries. The host country benefits from the influx of people, as it means an increase in their exports and gross domestic product (GDP). At the same time, the country is strained by the expanding demands of the migrating population; Australia is no exception to this growing concern.

International students and itinerant workers (ISIW) are of great importance to Australia. They are a vital source of revenue for many Australian universities and other sectors of the economy. Moreover, their presence increases the diversity of the region, making Australia a cosmopolitan country. Despite the obvious benefits, these groups also bring an increased demand on the housing sector. While this problem has been apparent for some time, it has only recently caught the public's attention. In January of 2008, three Indian students perished when a fire broke out in the single room they were jointly subletting in an apartment. Fire authorities believed that the overloading of the room's electrical system, caused by multiple computers being plugged into a single power board, started the fire.<sup>1</sup> The tragedy resulted in fire agencies, student unions, and the public calling for action on the overcrowded and unsafe housing situation. Australia is under pressure to increase the amount of safe and affordable housing in order to adequately meet the needs of these populations. The main focus of the concern has been directed towards the substandard living conditions that many international students and itinerant workers experience.

The key societal issue is that groups that seek inexpensive housing are exposed to living conditions that are sometimes unsafe. Typically, low-income accommodations lack proper maintenance and attention from the property owners. These types of lodging may not have fire safety features or information to teach the tenants the proper usage of the equipment.<sup>2</sup> Some are

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<sup>1</sup> M. Rout. (2008, January 9). Deaths prompt calls for better student housing. *The Australian*: 17

<sup>2</sup> Australian Building Codes Board. (2008). Building code of Australia. Australia. Vol. 1. Part C and D

not covered by or are exempt from building regulations.<sup>3</sup> Ultimately, international students and itinerant workers bear the negative effects of living in substandard conditions.

Recent increases in the reporting of unsafe accommodations have led to an image crisis, resulting in a decline in higher education enrollment. According to a news report, the cause of the downturn was that “There have been concerns about students being crammed into housing, as well as escalating rents for less than ideal accommodation.”<sup>4</sup> Regions that lack sufficient affordable housing for itinerant workers have also suffered negative consequences. Government efforts to address this concern have been inadequate.

The overwhelming demand for affordable housing indicates that there should be an increase in its supply, but the solution is not that simple. Many developers are working to increase construction, but they still cannot keep up with the influx of students and workers. Demand is rapidly outpacing supply. Additionally, many investors who fund the construction of such accommodations view purpose-built housing as too specific a niche to warrant the investment.<sup>5</sup> Other solutions are therefore necessary to deal with housing that lacks adequate safety provisions.

The Metropolitan Fire and Emergency Services Board (MFB) conducted a survey on fire safety focusing on international students in Melbourne, and published the report in July of 2008; it led to some startling and worrisome conclusions.<sup>6</sup> The document found that while international students reported no fire safety concerns where they lived, one fifth could not verify that they had a working smoke alarm in their residence. Moreover, a third of those surveyed did not know the emergency phone number. Another striking outcome was that only half of the respondents to the survey reported receiving any fire safety information in Australia. While the survey only focused on international students in Melbourne, two conclusions can be made from it. First, the living arrangements that these groups are subject to may not comply with fire safety provisions. Second, many people living in these accommodations are not properly educated in preventing and reacting to fire emergencies.

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<sup>3</sup> Residential Tenancies Authority. (2003). Student accommodation research project. 18

<sup>4</sup> E. Burke. (2007, September 20). Students in flight – Brisbane losing its overseas appeal. *The Sunday Mail*. 39

<sup>5</sup> P. Tomlinson. (2007, June 13). Tapping into the student niche. *South China Morning Post*. 5

<sup>6</sup> Metropolis Research Pty Ltd. (2008). *Metropolitan fire and emergency services board international students' survey* (Survey Report No. ABN 39 083 090 993). Metropolitan Fire and Emergency Services Board.

Although the review by the MFB provided key insights, it did not consider the larger picture of fire safety in low-income housing. The report only focused on Melbourne and did not include any data on the itinerant worker population who commonly face the same challenges as students. To fully investigate the topic, a more comprehensive study needs to be done which includes international students and itinerant workers throughout Australia, as the problem is not specific to the Melbourne area. By expanding the scope of the study, a more holistic solution can be reached.

These same shortcomings were identified by the Australasian Fire and Emergency Services Authorities Council (AFAC), which decided to commission an investigation into safe and affordable accommodations for both international students and itinerant workers in Australia. The goal of this project is to identify and improve the state of fire safety in housing for international students and itinerant workers throughout Australia. Three specific objectives of the project are assessing fire safety in current accommodations, determining the knowledge of fire safety in the target populations, and addressing issues concerning fire safety in the current legislation. Improving awareness of fire safety issues will aid Australia in maintaining its positive and beneficial international image as one of the safest and most livable places on Earth.<sup>7</sup>

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<sup>7</sup> United Nations. (2008). *Statistics - human development reports*. Retrieved 02/24, 2009, from <http://hdr.undp.org/en/statistics/>



## Chapter 2: Background

Fire safety in temporary housing for migrant populations is a problem in Australia that is continually growing. The goal of this project is to identify the state of fire safety in housing for international students and itinerant workers in Australia. In order to accomplish this goal, a basic understanding of research that has already been done in this subject must first be achieved. This section provides an overview of international student and itinerant worker populations in Australia, available temporary accommodations, the fire and safety legislation that regulates them, and an introduction into fire safety education.

### 2.1. Migrant Populations in Australia

Australia has experienced a steady population growth for the past ten years at a rate of one or two percent each year.<sup>8</sup> This increase is due to high birth rates, increasing longevity, and immigration. Approximately one quarter of the Australian population was born overseas, with the majority of settlers coming from New Zealand, Great Britain, and Asian countries.<sup>9</sup>

Mobile populations, those that are away from their permanent place of residence for varying periods of time each year without formally changing their permanent residence address,<sup>10</sup> account for a surprisingly significant proportion of the total population in Australia. The national census of Australia in 2006 indicated that nearly one million people were not at their place of residence during the census.<sup>11</sup> Temporary population movements occur for a variety of reasons, including business and education. Migrant peoples moving throughout Australia is not a new phenomenon. Other examples of such behavior include the nomadic lifestyle of the Aboriginal Australians and the migration patterns of miners during the height of mineral harvesting in the 1850's.<sup>12</sup> Many miners were individuals living in Australia who merely

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<sup>8</sup> F. Clarke. (2002). *The History of Australia*. Greenwood Press. 3

<sup>9</sup> F. Clarke. (2002). 4

<sup>10</sup> C. Elin, B. Martin, & B. Dominic. (2008, April 1). Where people move and when: Temporary population mobility in Australia. *People and Place*, 21(10). 2

<sup>11</sup> C. Elin, B. Martin, & B. Dominic. (2008, April 1). 1

<sup>12</sup> M. Bell & G. Ward. (1998). Patterns of temporary mobility in Australia: Evidence from the 1991 census. *Australian Geographical Studies*. 61

relocated for the opportunity to get rich quick. The majority of miners were from other countries. In fact, the nation's population doubled as people migrated to Australia during the gold rush.<sup>13</sup>

The "hypothesis of the mobility" includes that an increase in mobility and movement of migrant populations will result in modernization of the society they inhabit.<sup>14</sup> As a result, migrant populations increase globalization and promote the unification of the world's economies and cultures. Increased foreign workforces and university students, as well as mobile domestic workforces, will lead to an increase in modernization in Australia. However, this benefit comes with a cost to the country. The increased demand for services and space at the destination location has an immediate effect on the local economies. In addition to taxing the ecosystem, health care providers, and public safety officers in a region, there is a drastic increase in the need for consumables, housing, and infrastructure to support the migrant populations.<sup>15</sup> While most surges are seasonal and can be predicted in advance, such as school sessions or harvest seasons, the great influx still causes a demand for goods and services greater than the carrying capacity, the number of individuals an environment can support, of each city.<sup>16</sup>

### **2.1.1. International Students**

One of the major migratory groups in Australia is international students. Since the 1980s, Australia has been developing the education sector, specifically international education, as a robust and profitable industry. In 2005 alone, over 950,000 students were pursuing higher education from Australian providers.<sup>17</sup> Of those students almost 240,000, or about 25%, were students who came from overseas. This is a high percentage, especially when compared with the United States. The U.S. Census Bureau reported in 2006 that there were about 20.5 million students enrolled in U.S. universities; and in 2008, the Institute of International Education

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<sup>13</sup> B. Bryson & W. Roberts. (2001). *Down Under*. Black Swan. 112

<sup>14</sup> W. Zelinsky. (1971). The hypothesis of the mobility transition. *Geographical Review*, 61(2), 219-249. Retrieved from <http://www.jstor.org/stable/213996>. 221-222

<sup>15</sup> C. Elin, B. Martin, & B. Dominic. (2008, April 1). 1

<sup>16</sup> C. Elin, B. Martin, & B. Dominic. (2008, April 1). 5

<sup>17</sup> The Department of Education, Science, and Training. (2007). *Higher education report 2005* DEST. Retrieved from [http://www.dest.gov.au/sectors/higher\\_education/publications\\_resources/profiles/highered\\_annual\\_report\\_2005.htm](http://www.dest.gov.au/sectors/higher_education/publications_resources/profiles/highered_annual_report_2005.htm). 6

reported that there were about 620,000 international students,<sup>18</sup> about 3% of the total student population.

A large population of international students has a number of advantages for the country that they inhabit. These benefits include, but are not limited to, direct economic stimulation, an increase in a skilled workforce, and an overall increase in the diversity in university cities. In terms of economic benefit, international students often come to Australian universities in a full fee-paying capacity. This provides an important source of revenue for the colleges. In 2005, international students provided 15% of all revenue within the higher education sector.<sup>19</sup> In fact, in the 2007-08 fiscal year, international education contributed A\$12.6 billion to the Australian economy between the expenditure of students and their visitors.<sup>20</sup> This averages to each student adding \$29,000 in economic stimulus and providing 0.29 full time job equivalents for Australia.<sup>21</sup> In 2004, international students brought more money into the country than some of Australia's major exports wheat and beef, valued at \$3.2 billion and \$4.5 billion respectively.<sup>22</sup> Altogether, in 2005, 375,000 overseas visitors came to Australia for educational purposes.<sup>23</sup> The significant numbers of internationals seeking education provide a rationale for Australia to consider investments in maintaining the virility of the education market.

### **2.1.2. Itinerant Workers**

In addition to students, itinerant workers are a significant portion of Australia's migrant population. Itinerant workers are workers that move from job to job based on the demand of certain industries. Due to their nomadic lifestyle, itinerant workers typically are employed in mining, agriculture, accommodation, and food services. Generally, they are single men between the ages of 20 and 34.<sup>24</sup> This demographic is especially true for those in mining and agriculture.

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<sup>18</sup> The Institute of International Education. (2008). *International students on U.S. campuses at all-time high*. Retrieved February 5, 2009, from <http://opendoors.iienetwork.org/?p=13153>.

<sup>19</sup> The Department of Education, Science, and Training. (2007). 101

<sup>20</sup> Access Economics. (April 2009) The Australian education sector and the economic contribution of international students. Access Economics Pty Ltd. i

<sup>21</sup> Access Economics. (April 2009). i

<sup>22</sup> S. Linacre. (2007). International students in Australia. *Australian Social Trends, 2007*. 109

<sup>23</sup> S. Linacre. (2007). 109

<sup>24</sup> Veda Advantage. (2008). *Itinerant workers*. Retrieved February 2, 2009, from [http://www.vedaadvantage.com/landscape\\_au/small-towns-and-beyond/itinerant-workers.aspx](http://www.vedaadvantage.com/landscape_au/small-towns-and-beyond/itinerant-workers.aspx).

The itinerant workforce can be broken into two groups: documented and undocumented workers. The documented portion of the workforce consists of individuals holding Temporary Business (Long Stay) - Standard Business Sponsorship (Subclass 457) visas and backpackers employed under the Working Holiday Maker Scheme (Subclass 417).<sup>25</sup> Details about these two visa groups are discussed in the following paragraphs, but in general, migrants holding either of those visas are allowed to work temporarily in Australia for a set amount of time. While many itinerant workers live and work legally within Australia, there are also many who do so illegally. This undocumented workforce includes both “unauthorized residents (primarily from Pacific Island, Southeast Asian, and Chinese backgrounds)”<sup>26</sup> and people overstaying their temporary visas, commonly known as overstayers. The illegal workforce will undoubtedly be hard to track, but is an important group to consider within the scope of the project.

The most common visa acquired by migrant workers, the Temporary Business (Long Stay) - Standard Business Sponsorship (Subclass 457), allows applicants to work with a sponsored company for between three months and four years.<sup>27</sup> In 2008, 58,820 people were granted 457 temporary business entry visas.<sup>28</sup> A labor shortage in the agriculture industry has caused a shift towards temporary visa workers taking on seasonal positions. In New South Wales, between 2007 and 2008, the agriculture industry alone experienced an 85% increase in 457 visa registrations.<sup>29</sup> Some organizations, like the National Farmers Federation, have advocated for programs that bring workers from overseas to fill vacancies.<sup>30</sup> “About 2500 skilled and semi-skilled workers from four Pacific island countries including Papua New Guinea will be recruited to work in Australia under the seasonal workers scheme in the New Year [2009].”<sup>31</sup> As the need for these workers will only grow, the migrant worker population

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<sup>25</sup> M. Bell & J. Hanson. (2003). *Queensland's fruit and vegetable industry: The seasonal labour force*. Brisbane: Queensland Centre for Population Research.

<sup>26</sup> P. Mares. (2005). *Seasonal migrant labour: A boon for Australian country towns?* Retrieved February 5, 2009, from <http://www.latrobe.edu.au/csarc/fact2/refereed/mares.pdf>. 1

<sup>27</sup> Department of Immigration and Citizenship. *Employer sponsored workers*. Retrieved February 6, 2009, from <http://www.immi.gov.au/skilled/skilled-workers/sbs/>.

<sup>28</sup> *Subclass 457 business (long stay) - state/territory summary report 2008-09*. (2009). Department of Immigration and Citizenship.

<sup>29</sup> *Subclass 457 business (long stay) - state/territory summary report 2008-09*. (2009).

<sup>30</sup> P. Mares. (2005). 1

<sup>31</sup> B. Noho. (2008). Seasonal workers.

will continue to develop and affect the Australian community, particularly because of programs that market for seasonal workers.

The Working Holiday Maker (WHM) Scheme allows tourists between 18 and 30 years of age from eligible countries to work in Australia for a year.<sup>32</sup> Figure 1, below, organizes the eligible countries by continent.

<b>Asia</b>	<b>Europe</b>	<b>North America</b>
Hong Kong SAR	Belgium	Canada
Japan	Republic of Cyprus	
Republic of Korea	Denmark	
Taiwan	Estonia	
	Finland	
	France	
	Germany	
	Republic of Ireland	
	Italy	
	Malta	
	Netherlands	
	Norway	
	Sweden	
	United Kingdom	

**Figure 1: Eligible Countries for Working Holiday Maker Scheme**

The goal of this program is to allow young tourists to travel throughout Australia while making supplemental money. Since WHMs are only allowed to work for any one employer for a six-month maximum, this causes them to be mobile.

Unauthorized residents and overstayers are harder to characterize since they are illegally in the country and are thus not accounted for by traditional government censuses. Unauthorized residents in Australia are equivalent to illegal aliens in the United States that enter into the country without going through customs. Overstayers are defined as temporary overseas workers that have stayed more than 28 days after their visa has expired or after becoming unemployed. In 2004 to 2005, 3,870 illegal workers were located by the Department of Immigration and

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<sup>32</sup> Department of Immigration and Citizenship. (2008). *Fact sheet 49 - working holiday program*. Retrieved February 8, 2009, from <http://www.immi.gov.au/media/fact-sheets/49whm.htm>.

Citizenship.<sup>33</sup> The actual number of illegal workers is much greater because many cannot be located and essentially vanish into the community.

## **2.2. Temporary Accommodations for International Students and Itinerant Workers**

It has been demonstrated that the number of students, especially internationals, and itinerant workers is rapidly increasing in size in Australia. While the benefits to the country have been discussed, there are certain challenges that arise with such an increase in population. Chief among these challenges is the availability of housing for these groups. The members of these groups generally need temporary housing instead of permanent residences, and both have housing needs which differ from tenants that are more traditional.

The special requirements of individuals attending institutions of learning set the student housing market apart from others.<sup>34</sup> First and foremost, a student needs housing to be within a short commutable distance from their university. Ideally, this is within either walking distance or in an area where both the housing and university are covered by public transportation. It is possible for students to live within driving distance, but the added expense of providing one's own transportation is often too great for a student's traditionally frugal budget. The relatively low funds most students have to spend on housing are another key constraint of their housing market. Many students depend on either academic loans or low-income jobs to fund their accommodation, so they can only afford the lowest tier of housing. The combination of these two factors means that students in Australia have a very narrow range of housing options that they must compete for near their university.

Low vacancy in university cities adds complications to students seeking housing. This results in many students going without proper housing. An article published in *The Age* recently on this 'housing crisis' in Melbourne reported that as of early 2009, there were 220 homeless students attending Melbourne University.<sup>35</sup> Students unable to find housing are forced to either move like nomads from place to place, often times resulting in staying in unhygienic or generally unsafe conditions, or crowd into small residences with other students. "The 'hot bedding'

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<sup>33</sup> *Subclass 457 business (long stay) - state/territory summary report 2008-09.* (2009).

<sup>34</sup> D. Rhodes. (1999). "Students and Housing," in *Young People, Housing, and Social Policy.* Routledge: London.

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<sup>35</sup> C. Povey. (2009, January 12). Wanted: A place to call home; comment & debate. *The Age.* 9

phenomenon, where students share a bed and sleep in shifts, is rife among international students, with reports last year of unscrupulous landlords cramming 48 students into a six room house.”<sup>30</sup> While the student housing shortage in Victoria is a large problem, it is not unique to the region. Many other school-rich areas around Australia face the same problem. The similar lack of affordable housing in Western Australia has forced some students into situations similar to that of Victoria.<sup>36</sup> This problem seems to particularly affect international students. International students, who are often more likely to be unaware of housing regulations or their rights as tenants, are more easily forced into unfit and unsafe housing situations.

Compounding the housing problem is that while the number of students requiring housing is increasing, the rate of construction of dwellings in Australia has been more or less stagnant in the last decade. The total number of dwelling units approved for construction in Australia in 1991 was 150,200 and in 2006, that number had barely increased to 151,555.<sup>37</sup> In that time, there was a trend away from one-story houses to three or more story apartment buildings,<sup>38</sup> but the overall building rate has nevertheless remained more or less constant. Some university towns have begun to recognize the problem and made initiatives to construct student housing. For instance Joondalup, a city in Western Australia with a large student population, recently approved \$85 million in residential and commercial developments near Edith Cowan University.<sup>39</sup> The purpose is to alleviate the stresses that colleges booming population has put on the local housing market. While there recently has been a push to deal with the lack of available and affordable student housing, it does little to help the masses of students currently living in unfavorable conditions. Likewise, there is not much currently being done to help another group affected by a lack of proper accommodations: itinerant workers.

Itinerant workers, like students, have a special set of requirements that differentiate them from most tenants. Just as students need to stay close to their schools, itinerant workers need to reside near their place of employment. Most of these workers do not have personal transportation, so the areas in which they can live are limited to those that either provide public transportation to their work or are within walking distance. Many are forced to utilize on-site

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<sup>36</sup> B. Taylor. (2007, March 3). Uni students face rental squeeze in tight market. *The Western Australian*. 61

<sup>37</sup> Australian Bureau of Statistics. (2008). *Building approvals* No. 8731.0) Australian Bureau of Statistics. 7

<sup>38</sup> Australian Bureau of Statistics. (2008). 8

<sup>39</sup> C. Saunders. (2008, March 5). Joondalup to develop new uni housing. *The West Australian*. 59

employer provided housing, which can be less than desirable for them. Another key restriction on itinerant worker housing is their need to stick to non-binding short term leases. This is especially important for those involved in agriculture harvests. These jobs usually only last a short period of time, so multiple months or year leases would not be an option for these workers. The problem with this constraint is that many landowners are not willing to provide leases on such a short time scale, as it can result in a loss of profitability due to irregular occupation of their property. The last condition, which limits itinerant worker housing, is their need for low-rent accommodations. Many itinerants work jobs so that they can save money to send back to their family in their home country. With that in mind, they often are not willing or able to allocate their limited funds to moderate or high tier accommodations for themselves. The restrictions students and itinerant workers have on their accommodation leave only a narrow range of housing types that they can choose from in Australia.

### **2.3. Available Accommodations**

Within the realm of temporary accommodations, there are a few different options students and itinerant workers have to choose from in terms of housing types. The factors affecting which accommodation they choose include those discussed above and continually differ from person to person in each of the target groups. These further factors may include their current financial situation, the region in which they are looking to live, and innumerable other personal nuances that cause them to choose one type over another.

#### **2.3.1. Student On-Campus Accommodations**

Colleges and universities typically provide on-campus housing for a specific portion of their student body; however, the amount of available accommodation varies from school to school. This is typically the case in Australia where the lack of housing is a growing issue. “There are nearly 6000 students residing in over 30 on-campus colleges around Queensland, some operated by the universities and others owned and operated by church and community organizations.”<sup>40</sup> There is a serious lack of affordable housing for students throughout Australia;

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<sup>40</sup> Residential Tenancies Authority. (2003). *Student accommodation research project*. 14



“vacancy rates in metropolitan Melbourne are at a 20-year low of just 1 per cent compared with 4-5 per cent that is needed for what analysts call a balanced market.”<sup>41</sup> The problems with finding housing have led some universities to offer help to those that are struggling. The University of Melbourne offers what they call Emergency Housing for those “experiencing a housing crisis and are in need of short term housing.”<sup>42</sup> The amount of emergency housing available is limited and cannot aid everyone. More university provided housing, such as the emergency housing, could greatly improve the living conditions of students in Melbourne.

### **2.3.2. Student Off-Campus Accommodations**

There are a few different types of housing options available for students who do not live in university provided housing. These include private apartments, student hostels, and homestay programs. Private apartments are properties rented by students, just as any other tenant would, and involve a written contract between the landowner and student. The advantages of renting an apartment versus the other options are that students are given more control over their living environment (i.e. furniture, decorations, roommates, etc). The downside is that private apartments are often more expensive than other options and they remove the student from the social support the other housing options can offer. In a private apartment, the students are responsible for their apartment’s maintenance, depending on their lease terms, as well as making specific utilities payments. Without people charged with their wellbeing, students living in private apartments are vulnerable to lapses in cleanliness and building safety.

For those students who want a more structured student-specific experience, there are a number of professionally run student hostels in the major education centers of Australia. These buildings equate to privately owned versions of dormitories more common at universities in the United States. Students in these accommodations are provided with rooms, sometimes with roommates, and share common amenities such as bathrooms, cooking areas, and recreational areas. A benefit of living in a student hostel is that they do not have to worry about building

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<sup>41</sup> A. Trounson. (2009, January 7). Melbourne University housing squatters face eviction. *The Australian*. Retrieved February 3, 2009, from <http://www.theaustralian.news.com.au/story/0,25197,24884536-12332,00.html>.

<sup>42</sup> A. Narayan. (2007). *Emergency housing*. Retrieved February 6, 2009, from <http://www.services.unimelb.edu.au/housing/emergency/index.html>.

safety. Living in a communal atmosphere where they can easily meet fellow students is another benefit of these hostels. This becomes doubly important for international students who often times come to a university with little knowledge of the area's customs and people. By living with other students, they are more likely to become integrated into the social fabric of the local student community. Furthermore, many of these student hostels include services such as laundry, a catering plan, and even organized social activities. Generally, these hostels are priced within the realm of other housing in the area, which can sometimes be on the high side.

If the prospect of leaving the home experience is too intimidating for a student, there are a number of different homestay programs they can utilize. A homestay program involves the student taking residence with a person or family in their home and paying a boarding fee that covers their utilities, rent, and sometimes meals. These are good for students coming from backgrounds where they are highly dependent on their family and would benefit greatly from a domestic support structure. Homestay programs are focused specifically on international students and are often times arranged through their university. However, there can be some risk in partaking in a homestay arrangement. While not common, there have been reports of abuse with host families.<sup>43</sup> There is no large-scale oversight of these programs and universities are often forced to adopt their own set of guidelines and policies for students who decide to participate. Even this becomes irrelevant if students choose not to utilize their institution's residential services in finding a homestay accommodation. While many homestay companies provide guidelines to students, this is no guarantee of safe or ethical accommodation from the provider.

### **2.3.3. Itinerant Workers: Employer Provided Housing**

Employer provided housing is a convenient option for many itinerant workers since accommodations would be located on or near site of employment, which is one of their key housing requirements. Based on a survey conducted by the Department of Immigration and Multicultural and Indigenous Affairs (DIMIA) targeting holders of 457 visas, "...one-third of all respondents said their employers...provided housing on arrival."<sup>44</sup> The issue that arises with

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<sup>43</sup> L. McKenny. (2008, November 30). Girls' removal raises homestay concerns. *The Sun Herald*.

<sup>44</sup> Department of Immigration and Citizenship. *457 Survey Report*. Retrieved from [http://www.immi.gov.au/media/publications/pdf/457s\\_survey\\_report.pdf](http://www.immi.gov.au/media/publications/pdf/457s_survey_report.pdf). 40

employer provided housing is that they are typically overcrowded rooms that are unsuitable for the number of people living there. In addition, employers normally take out a fee for providing housing. For example, “Nayeem...received the standard 38 hours pay for 50 hours work per week, minus the Australian \$100 that his employer deducted for ‘accommodation’ (a two-bedroom converted office shared with five other workers).”<sup>45</sup> Employers take advantage of itinerant worker’s lack of knowledge of their housing options, rights, and fire safety.

Often times these workers are not likely to complain about their living conditions, especially if they are employed illegally. For many, the risk of being deported and losing an important job will outweigh their need for a comfortable and safe residence. Even those with valid visas are not aware of their rights; therefore, employers get away with exploiting their workers.

#### **2.3.4. Itinerant Workers: Private Leasing**

For those itinerant workers who are not given the option of employer provided housing or choose to branch beyond it, the remaining option is private leasing. Private leasing covers a large segment of the housing stock, but only a small portion applies to itinerant workers. In the United States, a lease is normally a year contract with monthly payments. For Australia, the contracts can be binding or not, but usually are based on weekly rent. Since itinerant workers move job to job, they obviously are looking for weekly rent without a contract. The most popular renting option for itinerant workers is caravan parks, which provide temporary accommodations at an affordable price. The housing in caravan parks is classified as movable dwellings that can be removed within 24 hours.<sup>46</sup> “Since the 1980s there has been an increased demand for longer-term accommodation in caravan parks in Australia, especially to cater for mining, construction and itinerant workers.”<sup>47</sup> Due to the increasing popularity of caravan parks, most states in Australia have passed laws that govern the use of caravan parks. The Consumer Affairs of Victoria published, “Caravan parks: A guide for residents, owners and managers,” which highlights the

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<sup>45</sup> N. Bhandari. (2008). *Call for equal pay for migrant workers in Australia*. Retrieved January 24, 2009, from [http://www.thaindian.com/newsportal/world-news/call-for-equal-pay-for-migrant-workers-in-australia\\_10056397.html](http://www.thaindian.com/newsportal/world-news/call-for-equal-pay-for-migrant-workers-in-australia_10056397.html).

<sup>46</sup> D. Bewsher & S. Yeo. (2006). *Victoria caravan parks flood risk survey*. Bewsher Consulting Pty Ltd.

<sup>47</sup> E. Greenhalgh & R. Reed. (2004). Caravan parks as a provider in the affordable housing market. 22(5), 396-409.

laws in Victoria that residents and caravan park owners must follow. Caravan park owners are required to provide a resident with this guide on or before the day they move in or could face a \$500 fine.<sup>48</sup> Caravan parks provide more privacy than employer provided housing, but may lack the amenities of an apartment or home.

There is a small portion of itinerant workers that acquire private leases that are not at caravan parks, but this is a less likely case. The main reason this choice is not utilized is because itinerant workers are not educated on their options. Even if they were aware of this option, the constant relocation of itinerant workers causes most private leasing options to not be ideal. Itinerant workers are not given substantial options for temporary housing that are both close to their work and affordable.

## **2.4. Fire and Safety Regulations**

In order to better understand the current issues of fire safety in international student and itinerant worker accommodation, a concise understanding of the legislation that regulates fire safety must be achieved. The legislation that governs housing with respect to fire and safety regulations, tenancy agreements, and building codes in Australia are The Residential Tenancies Act 1997 (RT Act), Building Code of Australia (BCA), and other territory specific legislation. The RT Act regulates housing in Australia and the agreements under which a landlord gives a tenant the right to occupy a property. “The BCA is a uniform set of technical provisions for the design and construction of buildings and other structures,” outlining the fire and safety regulations with which they must comply.<sup>49</sup> Other regulations such as the Health Act and Privacy Act also implement certain housing safety provisions. These regulations, in conjunction with each other or on their own, provide a basis by which the Australian government, either at a territorial or local level, attempts to protect tenants’ rights.

The recent fire related incidents and the highlighted lack of safety in housing make evident certain issues within the current legislation. Two main issues are the disagreement

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<sup>48</sup> Consumer Affairs Victoria. *Beginning a tenancy*. Retrieved from <http://www.consumer.vic.gov.au/CA256EB5000644CE/page/Renting-Caravan+Parks-Beginning+a+Tenancy?OpenDocument&1=910-Renting~&2=40-Caravan+Parks~&3=10-Beginning+a+Tenancy~>.

<sup>49</sup> Australian Building Codes Board. (2008). *Building code of Australia*. Australia: SAI Global. Retrieved from <http://bca.sai-global.com/>

between the allocation of duties regarding the regulation of certain aspects of housing and the lack of communication and collaboration between the different local governments. In addition, within the current legislation, there is confusion in implementing and enforcing certain policies because of wording which allows for various interpretations. The numerous pieces of legislation that currently attempt to regulate housing in Australia are “disjointed and ineffective.”<sup>50</sup> This is an underlying cause for misunderstandings in tenancy agreements between tenants and landlords. It may also be the indirect driving force behind reports of landlords taking advantage of vulnerable people such as international students and itinerant workers who are not well educated and are not able to interpret these regulations.

#### **2.4.1. Current Legislation**

The RT Act is the current piece of legislation in Australia responsible for outlining and regulating the responsibilities of tenants and landlords within a tenancy agreement. “The provisions of the Act are meant to regulate the drafting, content, operation, and ending of tenancy agreements, and provide a dispute resolution process for tenancy disputes.”<sup>51</sup> Within the RT Act, certain exemptions and definitions impact the current legislative coverage of student and itinerant worker accommodation. These exemptions include Section 22, which exempts boarding and lodging houses, and Section 23, which exempts residential tenancy agreements from premises that are part of an educational institution.<sup>52</sup>

These exemptions directly influence the student and itinerant worker accommodation sector for two reasons. First, both students and itinerant workers might seek accommodations in rooming houses, which is an affordable housing option. Secondly, many students also choose to live in on-campus accommodations. The RT Act exempts both types of housing, which due to a lack of explicit definition fall into the boarders and lodgers category and premises that are part of an educational institution. Thus, both students and itinerant workers who live in these accommodations are not protected by the current legislation.

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<sup>50</sup> Moreland City Council. (2007). Response to residential accommodation issues paper (City Council Report Draft. Melbourne: Retrieved from [www.consumer.vic.gov.au/](http://www.consumer.vic.gov.au/). 6

<sup>51</sup> Residential Tenancies Authority. (2003). Student accommodation research project. 18

<sup>52</sup> Residential Tenancies Authority. (2003). Student accommodation research project. 18

Additionally, other residential services provisions, legislation, and amendments exist but differ from one jurisdiction to another in terms of regulatory approaches. In the state of Queensland, the Residential Services legislation is broken down into two Acts: the Residential Services (Accommodation) Act of 2002 and the Residential Services (Accreditation) Act of 2002. These acts work in conjunction with the RT Act in attempt to address some of the underlying misinterpretations within the RT Act, but fail to address completely some of the issues relating to student and itinerant worker accommodations.

The Residential Services Accreditation Act of 2002, for example, establishes a registration and accreditation system by which premises that provide residential services must meet certain regulatory standards and furthermore be registered with a local government before providing any residential service. Moreover, the Residential Services Accommodation Act of 2002 is very similar to the RT Act and implements many of the same regulations with the key difference of stricter provisions. These include implementing a dispute resolution process, and regulations for small and large room-only premises that initially were exempt.

These types of legislation greatly alter the playing field for student and itinerant worker accommodations in the housing industry, providing more regulation and protection for students and itinerant workers through accreditation requirements and accommodation management. Unfortunately, these types of legislation are territorial, and differ from one state to another. Victoria, New South Wales, and South Australia have their own variation of these and other regulations. Moreover, the issues of varying regulations and differences in management of accommodations are present even in the local governments within each territory. In essence, such a variety of policies and regulations results in an overall disjoint and ineffective manner of regulating housing.

#### **2.4.2. Landowner and Tenant Responsibilities**

Many drastic changes in the liabilities and responsibilities of the landlord have occurred in the last century. This is especially true in situations where the safety of the tenant is concerned. Statistics from 1997 and 1998 indicated that nearly thirty percent of all homes in

Australia were rented by tenants from either private owners or the state.<sup>53</sup> This accounts for a significant portion of the Australian population being affected by the liabilities and responsibilities of landlords and tenants in lease agreements. The original common law practice exempted landlords from most forms of liability relating to the tenants safety or deterioration of the rented property. The basis for the landlord's immunity was that all properties can be inspected by the tenant before being rented; failure to do so and find areas of disrepair is the fault of the tenant.<sup>54</sup> Additionally, the landlord was only liable for injuries incurred by tenants whose name was signed on the lease contract. This law was interpreted and used in the 1863 case of *Robbins vs. Jones* and the House of Lords cited this ruling again in the 1906 case of *Cavalier vs. Pope*.<sup>55</sup> In the case of *Cavalier vs. Pope*, the wife of the tenant suffered serious injuries by falling through a faulty floorboard. The landlord was not held responsible for the injuries as the individual who was injured was not listed on the property's lease.

This interpretation of the law held for nearly eighty years until in 1984 the English Court of Appeal stated that the landlord owes a duty of care to any resident who may be injured as a result of rented property which was built, designed, or repaired by the landlord. Duty of care is defined and interpreted to mean reasonable care and safety inspections of the property are done at regular intervals. It does not hold the landowner to absolute duty of care of the property.<sup>56</sup> This ruling, which was a result of the *Rimmer vs. Liverpool City Council* case, merely added a condition to the ruling in the case of *Cavalier vs. Pope* but did not overthrow the previous ruling. The exception is in the Australian National Territory, where the ruling of the *Cavalier vs. Pope* case was eliminated.<sup>57</sup>

The decision of the High Court in 1997 in the case of *Northern Sandblasting Pty LTD vs. Harris* was the turning point in landlord liability rulings. In this case, a young girl was electrocuted and left in a vegetative state after turning off an outdoor water tap. The earth surrounding the house had been charged with electrical current because of repairs that were done

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<sup>53</sup> D. Mendelson. (2001). *Jones v. Bartlett: Landlords' liability to tenants and members of their household in negligence. Deakin Law Review*, 6, 174. 174

<sup>54</sup> T. Cockburn. (2001). Duty of care of landlords of residential premises. *Tasmanian University Law Review*, 20(2), 205. 206

<sup>55</sup> D. Mendelson. (2001). 175

<sup>56</sup> T. Cockburn. (2001). 217

<sup>57</sup> D. Mendelson. (2001). 176

poorly by an electrician hired by the landlord. In this case, the landlord was found liable for neglect. As a result of this case, landlords are bound by law to make safe repairs to the building and inspect the safety of a property that is to be rented, or have it inspected by an expert in the field.<sup>58</sup>

The Residential Tenancies Act further defines the explicit responsibilities of landlords and tenants. The tenant must not conduct illegal business, cause a disturbance, or damage the property in any way. In the case that damage occurs, the tenant must notify the landlord immediately.<sup>59</sup> It is the landlord's duty to ensure that the premise is vacated and clean on the day the new tenant is to move into the property. Additionally, the landlord must ensure that all doors and windows on the premise are outfitted with locks, and the water systems, if upgraded, meet all standards. The landlord should also take steps to ensure the tenant has quiet enjoyment of the rented space while an occupant.<sup>60</sup>

### **2.4.3. Safety Provisions and Building Codes**

In order to understand the current standards for fire safety in temporary accommodations, and whether those standards are being followed, the regulations and laws that govern building fire safety must be reviewed. The Building Code of Australia (BCA) is the main governing document defining building codes for the whole of Australia. The BCA defines standards for building materials, construction, layout, safety equipment, and building insurance. It also defines the approval process for building permits; however, it does not define how these provisions and standards should be enforced. This document is created by the central government and has to be ratified by the individual state governments and can be done so with changes or additions to the act. State governments then create agencies and codes to enforce these regulations.<sup>61</sup> To understand the ways in which the rules of the BCA apply, one must know the structure classification system of the BCA. The BCA uses a series of numbered classes to identify

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<sup>58</sup> D. Mendelson . (2001). 178

<sup>59</sup> Residential Tenancies Act, (1997). 42-43

<sup>60</sup> Residential Tenancies Act, (1997). 44-46

<sup>61</sup> *Victoria's building regulatory system*. (n.d.). Retrieved January 31, 2009, from Building Commission: <http://www.buildingcommission.com.au/www/html/1343-victorias-building-regulatory-system.asp>.



different structures based on the way the building is “designed, constructed or adapted to be used.”<sup>62</sup> The classifications are summarized in Appendix A.

This study deals with living conditions of students and itinerant workers living in class 1, 2, and 3 structures. Class 1a buildings are single-family homes, and class 1b buildings are boarding houses no larger than 300 m<sup>2</sup> that have less than 12 occupants and do not exist above or below another dwelling or another class of building. For example, class 1b buildings cannot be apartment buildings. Single-family homes that are being used as a boarding house where multiple rooms are rented out fall under class 1b. Class 2 buildings would constitute most apartment buildings that have single occupancy rooms. Class 3 buildings are buildings that are not class 1 or 2 but are used for long-term transient living. This includes school dormitories, boarding houses, and hostels.<sup>63</sup> These buildings also have specific requirements about the types of fire safety equipment that should be present within the structure.

The fire safety devices required in each building differ depending their classification and size. Smoke alarms are required to be present in all classifications of discussion. Sprinklers are required for occupancies with a total volume of more than 12000 m<sup>3</sup>. In Victoria, they are required for all class 3 buildings. Fire extinguishers are required in class 2 and 3 buildings to mitigate fire risk in the sole occupancy areas. They are also required in class 3 buildings that serve children. A “Fire Control Center” is required for all buildings that exceed 25m in height. A fire control center is an area where all the safety equipment and public announcement (PA) systems can be monitored and controlled. Class 3 buildings must have their fire alarms wired to a central monitoring system.<sup>64</sup> All buildings must go through a permitting process to ensure that they meet the standards of the BCA.

The permitting process for Australian buildings is very similar to the permitting process for buildings in the United States. Permits are issued when a building is first constructed and also when renovations have been completed on a building. For instance, occupancy permits must be re-issued for all alterations to buildings except class 1a buildings and the single occupancy areas

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<sup>62</sup> Australian Building Codes Board. (2008). *Building code of Australia (volume one & volume two)*. Australian Government and States and Territories of Australia: Canberra, ACT. Part A3 Classification Of Buildings and Structures.

<sup>63</sup> Australian Building Codes Board. (2008). Part A3 Classification Of Buildings And Structures.

<sup>64</sup> Australian Building Codes Board. (2008). Specification E2.2a Smoke Detection and Alarm Systems.

of class 2 and 3 buildings. In Victoria, building permits are issued by the Building Commission. To obtain a permit, owners must show compliance with all building codes laid out in the BCA and meet any special provisions required by the state.<sup>65</sup>

## **2.5. Fire Safety Education**

Fire has long been a source of damage and preventable death for society. In order to minimize its impact, many fire safety organizations have researched and implemented education plans for their constituent populations. The reason education plans are developed and used is due to the idea that numerous fires are caused by people's lack of knowledge on the subject. These fires are preventable. Teaching people about fire may minimize the detrimental results from it.

### **2.5.1. Education Plan Design**

There are many factors that must be considered when designing an education plan.<sup>66</sup> One of the most important is that different groups of people will generally respond better to different strategies and methods of education. The construction of the education plan has to reflect the target audience in both its content and the medium of its delivery. The goal of the educator is to engage the learner and make them interested and involved in the topic. In order to account for this in an education plan, one needs to consider what would motivate learners to want to learn the material. This can be accomplished by correlating the information the learner is to receive to another subject that they may find more interesting. University students for instance, may be more inclined to respond to fire safety if they learn of the potential financial loss rather than from concern for their family. Many students live away from home, so their family's safety would not be compromised by a fire incident. Parents, on the other hand, could see the protection of their children as motivation enough to participate in a fire safety program. The motivations for separate groups of people are highly diverse and dynamic, so proper research into their lifestyles is integral to the development of an education plan.

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<sup>65</sup> *Victoria's building regulatory system*. (n.d.). Retrieved January 31, 2009, from Building Commission: <http://www.buildingcommission.com.au/www/html/1343-victorias-building-regulatory-system.asp>

<sup>66</sup> M. Harden. (2009). Ten questions to ask when planning a course or curriculum. *Medical Education*. 20, (4) 356-365. Taken from abstract.

Another important aspect to consider when creating an education plan is the method that will be used to most effectively communicate the information to the learners. A carefully constructed lesson plan can be easily nullified if the student does not understand what is trying to be conveyed to them. Language and cultural barriers are particularly challenging, especially if multiple language groups are trying to be reached at the same time. The best strategy in this case is to incorporate non-language based learning into the education strategy. Using pictures or symbols, which deliver a clear and specific message, eliminates the need to duplicate written materials in multiple languages. Associated with the language barrier is the issue of accessibility for a group to educational material. For instance, if the education plan consists of conducting a television advertisement campaign to promote smoke alarm usage, one has to be sure that the targeted group has access to televisions and are likely to be watching it when the advertisement airs. If any of those qualifiers proved to be false, then an alternative method of communication would be required. While considerations, like those required for a proper television advertisement, may seem highly specific, they demonstrate the detail-oriented frame of mind that must be utilized during the construction of an effective education plan. Without adequate time or resources spent on determining the best ways to reach the learners, an entire educational initiative can go to waste.

### **2.5.2. Active versus Passive Education**

The many different mediums used to teach fire safety can be grouped into two forms: active and passive education. There are some key differences between the two. Active education requires direct interaction between the student and the subject material. Active fire safety education can involve such activities as classes on fire safety, demonstrations to increase fire safety awareness, and presentations given by trained fire officials. Those who participate in active fire safety educational programs have a higher material retention rate because demonstrations and interactive games are more entertaining. Additionally, they are often delivered to relatively small audiences so the program can be tailored to reflect the makeup of that group. However, active fire safety education does have some limitations. Due to the effort and resource intensive nature of directly engaging students in fire safety, it is not a practical way to reach a large audience. To spread fire safety awareness to a group of people whose size is

prohibitive in coordinating for active education, passive forms of education are a more appropriate way to pass on information about fire safety.

Passive education does not actively engage its recipients, but rather provides access to educational materials, which a person can use if they choose. Common examples of passive forms of education are brochures, commercials, websites, and even clothing accessories that have fire safety promoting-slogans. These methods are designed to inform as many people as possible about fire safety without the formality or time commitment required by the active forms of education. Passive education employs several low cost and high exposure techniques including fire safety posters displayed in prominent public areas or making brochures available at housing authorities so that inquisitive tenants may see the best methods for protecting themselves in the event of a building fire. These methods are highly efficient for the publishing authority, but may not have the attention grabbing qualities of a live burn demonstration or the educational depth of fire safety class work. As both active and passive techniques have their pros and cons, many organizations involved in fire safety education choose to use a combination of both in their educational campaigns.

### **2.5.3. NFPA Education Plans**

The National Fire Protection Association (NFPA) is known as “the world's leading advocate of fire prevention and an authoritative source on public safety.”<sup>67</sup> Countries around the world look to them for advice and direction on topics of fire safety. There are several educational programs run by the NFPA, which target ages ranging from children to the elderly. Sparky the Fire Dog is one of their most well known educational campaigns and is NFPA’s mascot, which is intended to grab and hold the attention of young children. Sparky instructs children, through the use of simple activities such as games and coloring books, about basic fire safety issues in an attempt to excite them at a young age.<sup>68</sup> However, it is not long before kids, especially males, become ‘too cool’ for Sparky and the novelty wears off.

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<sup>67</sup> About NFPA. (n.d.). In *National Fire Protection Association*. Retrieved March 27, 2009, from <http://www.nfpa.org/categoryList.asp?categoryID=495&URL=About%20NFPA/Overview>

<sup>68</sup> *Sparky the Fire Dog*. (n.d.). Retrieved March 27, 2009, from <http://www.sparky.org/>

Another program that the NFPA runs with primary school aged children is Risk Watch, which is part of the Safe Community program. Risk Watch is directed less towards fire safety and more towards other dangerous situations, such as unintentional injuries and natural disasters. This campaign is intended to alert children of the other dangers in the world besides fire to make them more aware of their surroundings.<sup>69</sup> As children age, however, fire safety and risk reduction programs become sparse as educational focuses turn more towards scholarly activities such as math, science, and English. It is not until they grow old that they will once again resume their structured fire safety education.

Remembering When is a “Fire and Fall Prevention Program for Older Adults... developed by NFPA and the Centers for Disease Control and Prevention (CDC) to help older adults live safely at home for as long as possible.”<sup>70</sup> Remembering When was developed by fire safety experts and was tested in several focus groups in states with a high-fire risk. The program focuses on sixteen key topics, eight of which are related to fire safety and the other eight focus on fall prevention. Remembering When was created to be implemented by a mixture of local fire departments and social organizations, allowing them to present the material in a way that they feel will best reach their community. This is the final structured education program that the NFPA promotes; it is evident that there is a large time gap between the Risk Watch and Remembering When programs, which is where The Center for Campus Fire Safety makes its debut.

The Center for Campus Fire Safety (CCFS) was created to solely focus on the complex problem of campus fire safety and is sponsored by the NFPA. “The mission of the Center for Campus Fire Safety is to serve as an advocate for the promotion of campus fire safety. The Center serves as the focal point for the efforts of a number of organizations and also as a clearinghouse for information relating to campus fire safety.”<sup>71</sup> The CCFS is a resource for post-secondary schools to go to when in need of help regarding fire safety. Resources made available by the CCFS include bulletins (ranging from alcohol and fire safety to the use of fire

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<sup>69</sup> *Risk Watch: Make Time for Safety*. (n.d.). Retrieved March 27, 2009, from <http://www.riskwatch.org/>

<sup>70</sup> Remembering When. (n.d.). In *National Fire Protection Association*. Retrieved March 27, 2009, from <http://www.nfpa.org/itemDetail.asp?categoryID=203&itemID=17832>

<sup>71</sup> About the Center. (n.d.). In *The Center for Campus Fire Safety*. Retrieved March 27, 2009, from <http://www.campusfiresafety.org/about.html>

extinguishers), a monthly newsletter, fire fatality statistics, legislation, and studies and reports. One of the largest and most important services offered by the Center for Campus Fire Safety is help with conducting a live burn. Live burns of a dorm-like room conducted in a heavily trafficked area can be one of the most impactful and meaningful forms of fire education for college students. It demonstrates the true danger of fire and that a simple working smoke detector can save lives. Although the CCFS provides many valuable resources, there is no actual structured form of fire education. Schools must approach the center asking for help, which causes those that do not to remain vulnerable.

## **2.6. Summary**

This chapter compiled the research done on migrant populations, temporary accommodations, housing options for students and itinerant workers, applicable legislation, and fire safety education. Australia is host to a large migrant population, which includes international students and itinerant workers. These groups seek temporary accommodation; however, low availability and high lodging prices make finding proper housing difficult. As a result, a good portion of these populations live in substandard arrangements that often have poor compliance to fire safety regulations. Substantial research has shown that both international students and itinerant workers lack a degree of fire safety knowledge. This combined with a lack of necessary resources needed to properly implement the current fire safety regulations leads to unsafe living conditions. In order to educate international students and itinerant workers, research was done to create an education plan, which will enable these target groups to identify, prevent and react to fire situations in their own place of residence. All in all, this research provides the framework for the group's IQP project.

### Chapter 3: Methodology

The primary goal of this project was to work with the Australasian Fire and Emergency Services Authorities Council to identify the state of fire safety in housing for international students and itinerant workers in Australia. A secondary goal was to educate these populations so they may prevent and react to fire situations in their housing. This project focused on several main objectives. One was to determine the current levels of fire safety in accommodations for international students and itinerant workers and assess the knowledge of these populations about key fire safety issues. A second objective was to compare the existing legislation to the current safety concerns of international students and itinerant workers to see which concerns are addressed in the legislation. Special attention was paid to the accessibility of these documents for the general public. As a result of the comparison, recommendations were drafted to modify these policies. Finally, the team developed an education plan and tools to help spread fire safety awareness among the targeted populations. The overall methodology for this project is represented by the flow chart in Figure 2.

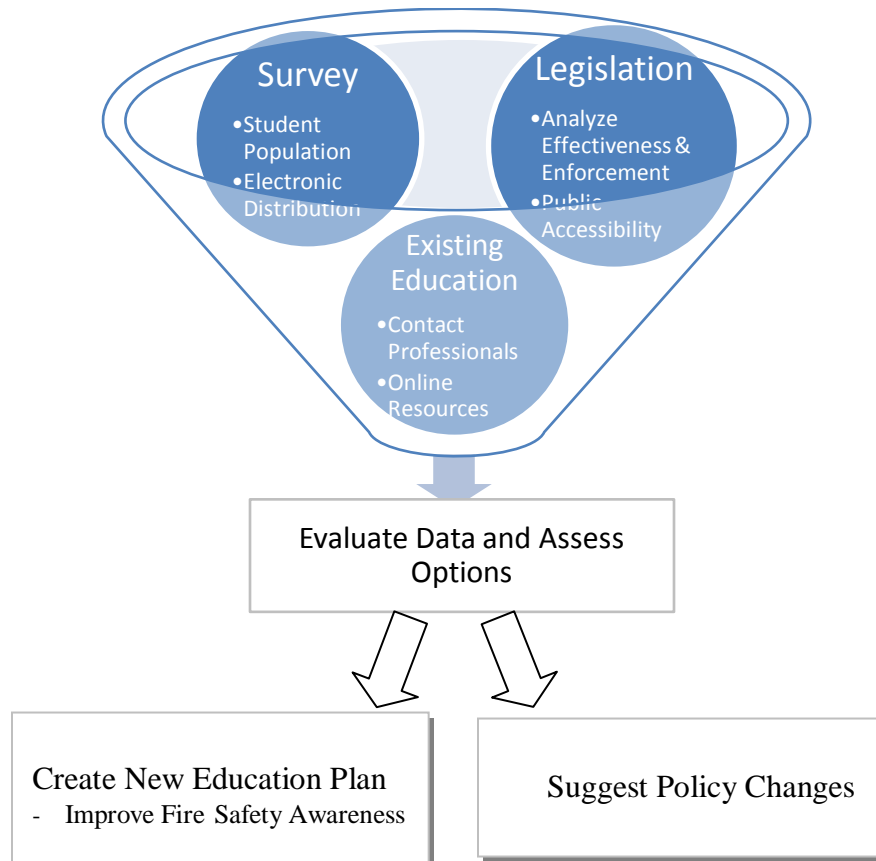


Figure 2: Methodology Flow Chart

The methodology was executed sequentially over the course of seven weeks starting with information gathering, then analysis of the data, and concluding with the creation of the deliverables. An approximate timetable for the implementation of the methodology is shown in the Gantt chart in Figure 3.

<b>Information Gathering</b>	20 Days	[Gantt bar]					
Contact Universities	15 days	[Gantt bar]					[Gantt bar]
Contact Organizations	15 days	[Gantt bar]	[Gantt bar]				
Administer Student Surveys	15 days	[Gantt bar]	[Gantt bar]				
<b>Analysis</b>	30 Days	[Gantt bar]					
Gather and Examine Legislation	20 Days	[Gantt bar]				[Gantt bar]	[Gantt bar]
Evaluate Collected Data	5 Days	[Gantt bar]	[Gantt bar]	[Gantt bar]	[Gantt bar]	[Gantt bar]	
Comparison	10 Days	[Gantt bar]	[Gantt bar]	[Gantt bar]	[Gantt bar]	[Gantt bar]	
<b>Deliverables</b>	15 Days	[Gantt bar]	[Gantt bar]	[Gantt bar]	[Gantt bar]	[Gantt bar]	
Prepare Education Program	15 days	[Gantt bar]	[Gantt bar]	[Gantt bar]	[Gantt bar]	[Gantt bar]	
Recommend Policy Changes	10 days	[Gantt bar]	[Gantt bar]	[Gantt bar]	[Gantt bar]	[Gantt bar]	

**Figure 3: Project Timeline**

### 3.1. Data Collection

The first phase of the project consisted of gathering information about international students and itinerant workers, along with the legislation that affects both themselves and their housing. Online surveys and conversations with fire safety professionals were utilized to collect data about the targeted populations. The focus of both methods was on ascertaining the housing conditions and knowledge of fire safety of international students and itinerant workers. Demographics of the students surveyed were also taken into account so that the age, gender, and nationality of students can be compared to the levels of housing and fire safety issues. The legislative research component of this investigation was twofold. First, the laws and regulations pertinent to housing and fire safety from all states and territories in Australia were compiled for analysis. Second, professionals in the implementation and effectiveness of the existing legislation were consulted.

#### 3.1.1. International Students

Information about international students was obtained primarily by using a survey (Appendix B). Questions in the survey are in three categories: the students' knowledge of fire



safety, the availability of student housing, and the demographics of the students answering the questions. Grouping the questions by topic allowed for a three-way comparison between answers in order to identify critical connections. Furthermore, the results of the survey were checked against the original assumptions: that many hardships exist in finding accommodations, there is an issue with overcrowding that is faced by many international students, and that international students receive only a minimal amount of fire safety education. The data collected from the surveys provided a method to identify issues to be examined in this IQP.

The survey was created electronically on SurveyMonkey, an online survey provider, because it offers a wide selection of question styles and datum export formats.<sup>72</sup> To ensure the anonymity of the students, the online survey does not require a specific login, and so no information could be traced back to an individual or institution. Thus, the information collected from the survey was not personally identifiable.

The most challenging part of conducting any survey is its distribution, which is escalated when the target group is spread out over an entire country. Due to the countrywide scope of the project, the use of the Internet was the most efficient way to contact students. Most colleges offer their students email accounts and Internet access on campus. Additionally, many schools will utilize these email addresses to contact their student populations with information on a regular basis. Access to these student-email lists would allow the survey to reach a large portion of students in every state of Australia.

Inquiries were made about the use of email lists of universities and TAFE schools throughout Australia (Appendix C). To increase the geographic range of the information collected, the cooperation of at least one university in each state was sought. Many avenues for communication were used to find contacts within the organizations. General inquiry email addresses, faculty directories, and individual references from the Community Education Department of the MFB were all utilized. However, many schools were unwilling or unable to cooperate with the study. To alleviate this difficulty, the project team refocused their efforts to contact on many campuses (Appendix D). Student organizations generally maintain communication with their members; thus, they provided good insight into the best way to

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<sup>72</sup> SurveyMonkey.com - Powerful tool for creating web surveys. Online survey software made easy. Retrieved February 16th, 2009, from <http://www.surveymonkey.com/>

distribute the survey. Additionally, in-person visits to campuses were conducted in which printouts of the online version of the survey were handed out to students. This secondary method of distributing the survey was used to increase the number of responses from international students.

### **3.1.2. Itinerant Workers**

Unlike international students, itinerant workers could not be easily contacted, given their nature as a decentralized workforce that frequently changes both jobs and locations. While it would have been ideal to survey or interview the workers themselves to gather information, it was not practical to do so. The first challenge would have been to locate the workers. Further complications would arise from the communication barriers created by the plethora of different languages among these workers. These setbacks made the logistics of collecting data directly out of the range of possibility for this project. Therefore, the only way information was obtained on itinerant workers was through secondary sources.

Fire safety professionals experienced with the housing and the fire safety concerns that typically exist within this population were the main source of information on itinerant workers (Appendix E). These fire professionals, primarily from the Country Fire Authority (CFA) in Victoria, were informally interviewed on a series of subjects. The questions asked during the interviews fell into two general areas: their field experience and suggestions they could make for improving the housing situation for itinerant workers. Reports and records were provided by the CFA to analyze for further information.

### **3.2. Analysis**

Once the datum collection from the surveys, interviews, and other forms of research was complete, the task of the group was to examine the findings. The data was compiled into graphs, tables, and other representative figures for further analysis. At this stage, it was important to employ variety of analytical techniques to help explain and organize the results. In order to evaluate the data, the group used control surveys, found correlations between survey question responses, and compared the findings from one Australian state to that of the others. Finally, a comparison was made between the legislation and the survey/interview results.

### **3.2.1. Evaluation of Collected Data**

The information collected from the international student survey was examined draw to conclusions about the fire safety education and housing situation for this group. In order to ensure that the results only reflected international students, the responses received from the non-international students were used as a control. If trends occurred in both sets of responses, then it would not have been accurate to classify them as an overseas student specific problem but as one systemic to students as a whole.

The group looked at many different relationships in survey responses, including relating various criteria to the level of fire safety or to overcrowding in accommodations. For example, one important correlation is between the type of student housing and the presence of fire safety devices such as smoke alarms and sprinkler systems. The SurveyMonkey analysis tools easily facilitated screening the responses to find this relationship. The data from SurveyMonkey were exported into Microsoft Excel in order to create representative and easily interpretable graphs and charts. The correlations between the survey responses allowed the group to identify key areas of concern for international students. This resulted in the group tailor the content of the education plan to the international student population.

### **3.2.2. Analysis of Legislation**

Legislation regarding residential tenancies and fire safety is not uniform throughout Australia. Variations exist from state to state, and implementation methods differ between localities. To identify ways to improve fire safety in housing for ISIW in Australia, the current legislation was reviewed. Special attention was given to the effectiveness of the states' policies in addressing the safety concerns of ISIW accommodations. To perform this task, the group gathered pertinent legislation from the national, state, and local levels through desktop research and from fire protection agencies in Australia.

Legislation pertaining to building codes and fire safety regulations was obtained from government offices such as the Metropolitan Fire and Emergency Services Board (MFB) in Victoria, Australia and online government websites. This legislation along with previous legislation obtained through Internet research was compiled for review. Special attention was

given to the method of regulating fire safety compliance in accommodations classified as 1b and 3, which are buildings used as shared accommodations.<sup>73</sup> Furthermore, legislation and relevant sources pertaining to residential tenancies, such as the RT Act, were further analyzed in regards to current issues faced by international students and itinerant workers in their temporary housing. Finally, interviews with fire safety engineers and experts were conducted to obtain a better understanding of fire safety and building regulations.

Along with content variations between states, fire safety regulations are implemented differently across Australia. Some states have specific pieces of legislation and standards directed towards fire safety. Others include them within building regulations or simply follow fire safety standards set forth in the Building Code of Australia. In Victoria, fire safety experts in the local fire brigade were contacted and provided the group with essential fire safety legislation. Legislation from the other states had to be obtained through online government websites such as those of the Planning and Land Authority in the Australian Capital Territory and the Department of Infrastructure in Queensland.

All of the compiled legislation was reviewed for specific regulations that provided fire safety standards. Special attention was given to laws that were strictest and where gaps existed either through a lack of fire safety regulations or explicit definition of standards. An assessment of each state's initiative in implementing fire safety regulations was done by noting the level of attention given to fire safety. The level of attention was determined first by looking at the amount of regulation currently in place. Secondly, the standards were assessed by evaluating the effectiveness of the legislation in providing fire safety for shared accommodations. Overall, the laws were analyzed to obtain an understanding of which states' current legislation provides better outcomes and protection for international students and itinerant workers. Given that some states have better fire safety legislation in place, an attempt to compile positive fire safety standards was done in order to give recommendations on policies that could benefit all of Australia.

Recommendations on policy changes were also drafted based on the information obtained from the surveys conducted. Having analyzed the data collected from the surveys and the

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<sup>73</sup> Australian Building Codes Board. (2008). *Building code of Australia (volume one & volume two)*. Australian Government and States and Territories of Australia: Canberra, ACT. (See Appendix A)

legislation separately, a comparison was made between fire safety concerns reported by international students on surveys and the existing legislation. The group focused on many key areas to properly assess the information. Some areas include the directness of the legislation in addressing the existing problems, the enforcement of policies or reasoning for a lack thereof, the current concerns of students and itinerant workers on policy issues, and methods for addressing these concerns. These topics allowed this study to form conclusions about what recommendations will have the greatest effect on fire safety for international students.

In order to understand the practical application of fire safety laws and regulations, the group sought out contacts with people in different Australian states who are responsible for implementing and enforcing fire safety regulations. Building surveyors and fire department officials involved with community safety were among those contacted for consultation. Interviews were then conducted with these fire regulation experts over the phone and in person. Through these interviews, the major players in enforcing these regulations and their powers of enforcement were identified. These interviews also highlighted incidents where there was a loss of life due to poor fire safety, and the factors that contributed to those incidents.

### **3.3. Education Plan**

An important aspect of increasing fire safety is educating groups vulnerable to gaps in fire safety knowledge. To address these lapses of education, the project team has constructed a plan to provide materials for teaching international students key information about fire safety. In order to create this education plan, a variety of resources were used, including existing fire safety education materials, research into safety and multicultural teaching methods, and information from fire safety professionals.

Current fire safety material was retrieved from multiple sources to reference while creating the education plan. The National Fire Protection Association (NFPA) based in Quincy, Massachusetts was the first organization that was able to provide assistance. Sharon Gamache, the Director of High-Risk Outreach Programs at the NFPA, and Kristen Collette, a fire protection engineer also working at the NFPA, gave counsel on accessing the NFPA's education resources. The NFPA's limited information on student education led the group to be redirected to The Center for Campus Fire Safety. From their website, the group was able to access a range of

educational brochures and factsheets related to student fire safety. These were analyzed for content. Additionally, the major themes about student fire safety used in the educational material were identified.

The second major source of fire safety education materials was obtained from the Metropolitan Fire and Emergency Services Board (MFB) in Victoria, Australia. The MFB provided the group with a rich variety of publications, presentations, and information on their international student outreach programs. Various professionals in the community education department took a keen interest in aiding the group in understanding their current fire safety initiatives in Victoria, making sure that the group had a firm grasp on the fire safety initiatives.

For the research into safety and multicultural education, the project team performed searches of scholarly article databases. While articles focusing on teaching fire safety to a multicultural audience were not available, research into safety education for people with limited English skills as well as general studies on multicultural education platforms was found.

In order to gather a wide spectrum of information on fire safety education, the team contacted fire education professionals from different states in Australia. They were queried on what their state has for fire safety programs that relate to international students and on general advice concerning the creation of an education plan. Their advice, coupled with the results of analyzing the current international student fire safety program and research literature, provided key guidance in creating the fire safety education plan for international students.

## Chapter 4: Results and Discussion

After collecting an extensive amount of information, the assumptions for this project, concerning fire safety in international student accommodations, can now be validated or refuted. This chapter presents the results of the student survey, legislative findings, and ways to educate diverse populations.

### 4.1 Completed Survey Outcomes (Appendices G, H, and I)

The use of an electronic survey was the most convenient way to reach the international student population in Australia; however, it was not the only method used by the group. Over 130 of the total responses collected were obtained in two days of surveying students in-person at Victoria University. The remaining responses were from electronic submissions over a four-week period. In total, 1619 students completed the survey, and 480 of these respondents, 29%, said they were from overseas. This sample is a realistic representation of the actual student population in Australia. In 2006, 26% of all students studying in Australia were international, and that number has been steadily increasing since 1997.<sup>74</sup> Ideally, these responses would have been distributed proportionally amongst the states, but the majority is from New South Wales.

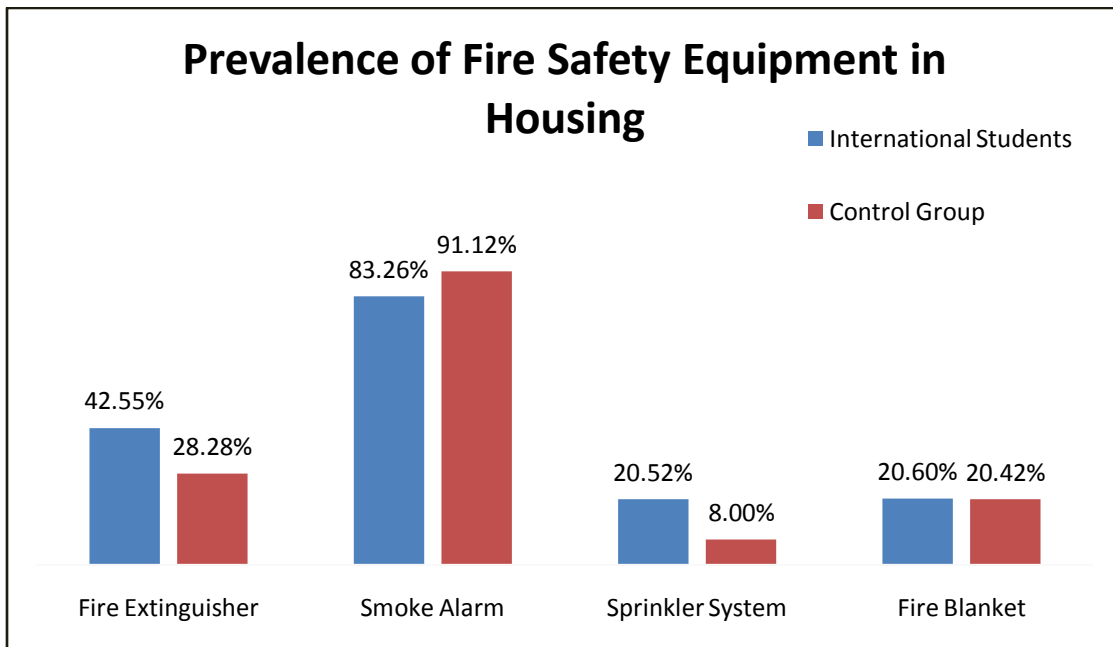
The surveys were filtered into two groups, responders who were international students and those that were not. Since the project group was interested in the fire safety issues specifically related to international students, the non-international student responses served as a control. Any trends in answers from the international students that were not reflected in the control group were identified as specific problems for students studying abroad in Australia.

One area of the survey asked questions regarding fire safety, which provided insight into the students' knowledge on the topic. A large majority, 91%, of the control population had smoke detectors in their place of residence. The same question received an 83% positive response amongst international students. Of those international students who do have smoke alarms, only 32% have tested the alarm within the last month and 44% responded that they did know how to perform the test. A greater percentage of international students reported having fire extinguishers, fire blankets, and sprinkler systems in their place of residence than the control

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<sup>74</sup> B. Pink. (2008). *Australian Social Trends 2008* (4102.0). Australian Bureau of Statistics.

group. Although more overseas students have these fire safety devices in their residences than control group students, fewer know how to operate them properly. Over half responded that they did not know how to use either a fire blanket or a fire extinguisher. Not knowing how to use the fire safety equipment in their residences means that international students may not react appropriately in a fire situation. In that case, it is imperative that they know the fire emergency services telephone number so help can be dispatched. Nearly 18% of the international students surveyed incorrectly answered the open response question asking them to write the emergency services phone number. Wrong answers included 911, 999, or that they did not know the number.



**Figure 4: Prevalence of Fire Safety Equipment in Housing**

Another area of the survey posed questions regarding student-housing accommodations. While the control group indicated that housing was only a little challenging to find, international students noted that it is moderately difficult to find student housing, but that the options are reasonably affordable. These results are somewhat surprising as they negate one of the original assumptions of the project. It was thought that accommodations for international students were sparse and unreasonably priced, but the responses disproved this supposition. One question asked if their universities were helpful when looking for housing and the responses indicated that they



were of very little help to both the control and international student groups. According to the answers given, international students live primarily off-campus in apartments that are privately leased. A combined 25% also live in off-campus student-specific apartments and on-campus. Conversely, the majority of the control group said that they lived off-campus with family and only 6% live on-campus. The number of individuals living with the responder in an accommodation was slightly higher for international students, 3.07 people, then for the control group, 2.58 people. Additionally, in both groups, the average student did not share a room with anyone.

Of the sixty-six home countries noted by international students, most students identify themselves as being from China, closely followed by Malaysia and Singapore. It is interesting to note that neither China nor Malaysia has any legislation that requires smoke alarms in residential properties. Malaysia only mandates smoke alarms to be installed in public buildings.<sup>75</sup> For international students from these countries, a lapse in good fire safety practices may be explained by a lack of knowledge about differences in the laws of their native country and those of Australia. Several survey responses, 84%, noted that the primary form of fire safety education had been in their home country and have had no form of education in Australia. Informal sources such as television shows or friends were listed as means of obtaining fire safety education. It is clear that although all students are in some way affected by the state of the available accommodations many fire safety problems are specific to international students. Overall, there is less fire safety equipment in their residences, and often in areas where the proper fire prevention tools are available, students failed to know the operating procedures. It is also clear that international students are not well educated on the policies governing fire safety issues in the country, including the laws regarding smoke alarm installation and the correct emergency phone number. An education plan targeted towards this population would aid in their ability to identify, prevent, and react to fire safety issues in their accommodations.

## **4.2 Education Plan**

In order to create an education plan that can teach international students and itinerant workers fire safety, a number of resources had to be used. The project team examined both

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<sup>75</sup> T. Manchester, survey response, April 17, 2009.

strategies used to deliver fire safety information and to teach multicultural audiences. This section describes the research used to establish the key concepts applied in creating the fire safety education program.

#### **4.2.1 Metropolitan Fire and Emergency Services Board of Victoria**

In the state of Victoria, there are several education initiatives already in place as a result of a recent tragedy. Following the deaths of the three Indian students, a forum was held at the Metropolitan Fire and Emergency Services Board (MFB) on April 23, 2008. The forum covered topics including: “fire safety and student housing accommodation, Victorian smoke alarm and building code regulations, international student issues and strategies for managing and reducing fire and false alarm risks for students, landlords, property managers and host families.”<sup>76</sup> Key fire officials, university representatives, accommodation providers, and other concerned groups attended this meeting. It was the first time these groups had come together to discuss the housing issue, and it resulted in better communication and cooperation amongst them. Using ideas, information collected, and contacts made at the forum, the MFB was able to begin studying fire safety issues with international students and create an effective education plan directed towards all tertiary students.

As a result of the forum, “Metropolis Research Pty Ltd was engaged by the Equity and Diversity Unit of Metropolitan Fire and Emergency Services Board to conduct a survey of international students on campuses in the MFB zones of metropolitan Melbourne.”<sup>77</sup> The survey was an interview-style questionnaire that addressed issues in accommodations and various fire safety subjects. Only 204 students were surveyed, which is a relatively small number when compared to the tens of thousands of international students that live in Victoria. However, there were several key things discovered by this study:

- 50% of respondents knew of the Metropolitan Fire Brigade and most of them recognized them as a fire suppression service.

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<sup>76</sup> *Student Accommodation and Fire Safety Forum* [Pamphlet]. (2008). Richmond, VIC: Metropolitan Fire Brigade.

<sup>77</sup> *Metropolitan Fire and Emergency Services Board* (pp. 1-53, Rep.). (2008). Carlton, VIC: Metropolis Research Pty Ltd. 4

- Even though 50% of respondents have received some type of fire education, a majority of them have not applied this knowledge to their everyday life.
- A significantly higher percentage of students reported that they have non-working smoke alarms than the percentage of students that saw a lack of smoke alarms as a problem.
- “There does appear to be relatively high demand amongst respondents for fire safety information, especially amongst those who have not already received it in Australia.”<sup>78</sup>

While the survey did provide some valuable information, the sample size is too small to be an accurate representation of the entirety of Australia, and so further research must be done in this area. In the meantime, however, the MFB does have data that was used to create an educational plan to target the areas found to be worrisome in the survey.

The MFB’s current tertiary student fire safety education plan targets several key points: heaters, cooking, candles, oil burners, cigarettes, smoke alarms, routes of egress, and emergency preparation. The biggest point that the MFB is pushing is the proper maintenance of smoke alarms. This topic is being addressed through the use of various television ads, tram and train stop posters, and informative pamphlets. The informative pamphlets also cover the other key points listed above. Another program that the MFB is currently running involves school visits. During new and foreign student orientations at the universities, colleges, and registered training organizations, the MFB conducts a seminar on fire safety, which includes a PowerPoint presentation and fire safety equipment demonstrations. Types of demonstrations include showing the proper usage of fire extinguishers and testing of smoke alarms. They also make several trips to tertiary schools throughout the school year, setting up information tables and passing out brochures to further leave an imprint on the minds of the students. However, the schools that the MFB visits are limited mainly to those that attended the forum. There are still many schools throughout Victoria, as well as Australia, which do not have the benefit of this fire safety education.

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<sup>78</sup> *Metropolitan Fire and Emergency Services Board* (pp. 1-53, Rep.). (2008). 5

#### 4.2.2 Queensland

The Queensland Department of Emergency Services (DES) has several fire and hazard safety initiatives underway. One of their biggest and most well known programs is Fire Ed, which is run by Queensland Fire and Rescue Service, a department of the Queensland DES. “The strategy [of Fire Ed] is to educate children in the key aspects of fire safety and evacuation – valuable life saving messages that the children will carry through their lives.”<sup>79</sup> Some of the messages presented by Fire Ed include dialing 000 in an emergency; stop, drop, and roll; the importance of an emergency plan; and enforcing the message that fire fighters are your friends. Teachers are also given resources so that they can continue to incorporate fire safety into their own lesson plans to reinforce the message and help the children retain the material. A Seniors Fire Ed program is also available. “The Seniors Fire Ed program, delivered by retired firefighters on a voluntary basis, covers four main components of fire safety: smoke alarms; home evacuation plans; home security devices; and fire hazards around the home.”<sup>80</sup> The Queensland DES also has several downloadable fire safety pamphlets and brochures available in eight languages on their website.<sup>81</sup> However, there is very limited information on any type of organized fire safety curriculum directed at tertiary schools. The only item provided is a PowerPoint presentation for international student orientations. Contained in the presentation is information on basic fire safety, including candle safety and dialing 000 as the emergency phone number, as well as a few videos clips. These were the only programs found specific to fire safety; however, English as a Second Language (ESL) course material also incorporate safety subjects.

Some ESL schools in Queensland have implemented a method that helps the students learn English while introducing safety topics. One example is a simple comprehension reading activity. One model provided by the Queensland DES covers the subject of beach safety. The first section of the assignment lists several key safety facts that the students would benefit from

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<sup>79</sup> Fire Ed. (n.d.). In *Queensland Fire and Rescue Service*. Retrieved April 17, 2009, from <http://www.fire.qld.gov.au/communitysafety/freeprograms/fired.asp>

<sup>80</sup> Seniors Fire Ed. (n.d.). In *Queensland Fire and Rescue Service*. Retrieved April 17, 2009, from <http://www.fire.qld.gov.au/communitysafety/freeprograms/seniors.asp>

<sup>81</sup> <http://www.fire.qld.gov.au>

knowing. After the facts are read, a comprehension test is given on the material.<sup>82</sup> The students are expected to understand the material presented and apply it to the questions, creating an opportunity for growth in two areas of knowledge. The exercise is simple in design, yet it has potential to be an effective tool for teaching fire safety.

#### 4.2.3 Design Considerations

The most important consideration when constructing a fire safety education plan (FSEP) for international students and itinerant workers (ISIW) is addressing the diversity in culture and language of the people. A review of multicultural and multilingual education theory articles revealed a range of techniques that were applied to education plans tailored to ISIW groups. Many of these methods work on assumptions based upon the disadvantage approach for multicultural education. According to Elderling, “The assumption underlying multicultural education with a disadvantage approach is that pupils from ethnic/cultural groups have educational arrears that pupils from the majority group do not have. Multicultural education under this approach is aimed at removing these disadvantages.”<sup>83</sup> International students and itinerant workers generally have three different obstacles to overcome: language comprehension, reading ability, and misinterpretation of materials.

Materials designed to deal with language comprehension difficulty should minimize the usage of complex words and phrases or be translated into the ISIW’s native language. Merely translating the material or simplifying the language however does not ensure that it can be read as international students and itinerant workers can have varying levels of literacy. International students are likely to be literate in their native language, but not necessarily in the language of instruction. Itinerant workers, on the other hand, may not have any reading ability. By focusing efforts on creating materials that consist of symbols, pictures, and videos instead of text, the group can improve the accessibility of the safety information. Accessibility, however, is just part of the problem. If the symbols or phrases used in the FSEP are ambiguous or have different meanings in different cultures, they will be ineffective. A valuable tool to avoid this lack of

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<sup>82</sup> J. Newton. (n.d).

<sup>83</sup> L. Elderling. (1996). Multiculturalism and Multicultural Education in an International Perspective. *Anthropology & Education Quarterly*. 27(3):319.

clarity is known as back-translation. Outlined in a study discussing safety instruction to low English and low literacy workers, the method is generally used for linguistic translation but can also be applied to symbolic interpretation.<sup>84</sup> Back-translation involves taking previously translated materials and having them retranslated back into the majority language by someone in the targeted ethnic group. By comparing the original message with the back-translated one, any discrepancies in meaning can be identified and fixed.

In addition to its application to written material, the disadvantage approach can be used in creating activity based components of the FSEP. While the ISIW's learning challenges remain the same, the methods to address them needs to be adapted. Making the curriculum more straightforward does not solve the language problem. The solution is the use of bilingual or multilingual instructors. Having these instructors allows students who lack a comprehensive grasp of the instruction language to understand the FSEP content. In the United States, some factories provide workers that have low English skills a translated audio recording of presentations and make translators available during their safety education programs.<sup>85</sup> Since finding a multilingual teacher or providing translations for presentations can be difficult, the use of bilingual teacher assistants can also be effective.<sup>86</sup> These assistants, ideally recruited from the same ethnic background as the individuals being taught, offer ISIW's the opportunity to pose questions to someone who understands their language and culture. In the event that no bilingual instructors or aids can be found, utilizing small groups can allow ISIW's who are more familiar with the instruction to function as translators for their peers who are less fluent. To avoid complications in finding qualified teachers, it is common for safety instruction to be paired with ESL courses.<sup>87</sup> The concept is to incorporate the safety information into the materials and exercises used in the course through role-playing, writing exercises, and other activities. As a result, the students who participate in these classes simultaneously learn key safety information and language skills. By using the aforementioned techniques in its design, the FSEP can be

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<sup>84</sup> N. Wallerstein. (1992). Health and Safety Education for Workers with Low-Literacy or Limited-English Skills. *American Journal of Industrial Medicine* 22:757.

<sup>85</sup> N. Wallerstein. (1992). 757.

<sup>86</sup> J. Friedenber. (2002). The Linguistic Inaccessibility of U.S. Higher Education and the Inherent Inequity of U.S. IEPs: An Argument for Multilingual Higher Education. *Bilingual Research Journal*, 26(2):223.

<sup>87</sup> N. Wallerstein. (1992). 756.

particularly effective at increasing the fire safety knowledge of international students and itinerant workers.

### 4.3 Fire Safety Legislation

As indicated earlier, there are differences in fire safety regulations across the states of Australia. While each state formulates its own sets of fire safety standards and provisions, some states' are more extensive. Substantial changes in fire safety law in Australia only occur in response to major fire incidents.<sup>88</sup> This is especially true for states such as Victoria and Queensland where recent tragedies have resulted in stricter fire safety regulations.

In Victoria, the legislation that governs building regulations, fire safety, and building upkeep are the Building Regulations 2006 and the Building Act 1993. The former “prescribe[s] standards and matters relating to the maintenance of fire safety and safety measures.”<sup>89</sup> The latter “provide[s] an efficient and effective system for issuing building and occupancy permits and administering and enforcing related building and safety matters and resolving building disputes.”<sup>90</sup> In conjunction with the Building Code of Australia (BCA), these pieces of legislation provide guidelines used by building surveyors and fire safety officials to inspect buildings.

The current legislation stipulates strong regulations for fire safety such as requiring hard-wired smoke alarms in shared accommodations, which are those classified as class 1b and 3 buildings.<sup>91</sup> Furthermore, for class 3 buildings, which normally accommodate a larger number of residents, a fire sprinkler system must be installed throughout the building.<sup>92</sup> The Deemed-to-Satisfy provisions of the BCA prescribe additional fire safety requirements for these buildings. Among these is clause E1.4, which necessitates that a fire hose reel system be provided throughout a building.<sup>93</sup> Clause E4.2 mandates that emergency lighting systems be installed in “every passageway, corridor, hallway, or the like, having a length of more than 6m.”<sup>94</sup> A similar

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<sup>88</sup> Building and other Legislation Amendment Act 2001 (Qld)

<sup>89</sup> Building Regulations 2006 (Vic), s. 101

<sup>90</sup> Building Act 1993 (Vic), s. 1

<sup>91</sup> Building Regulations 2006 (Vic), s. 709

<sup>92</sup> Building Regulations 2006 (Vic), s. 710

<sup>93</sup> Building code of Australia. (2008). Vol. 1. 236

<sup>94</sup> Building code of Australia. (2008). Vol. 1. 283

provision exists for class 1b buildings, which states that “a system of lighting must be installed to assist evacuation of occupants in the event of a fire.”<sup>95</sup>

These specific provisions are some of many mentioned in a post incident report of the fatal ‘Sydney Road Fire’ that occurred on October 1, 2006 in Brunswick, Victoria.<sup>96</sup> This tragic event happened in an apartment that was converted into a boarding house by using temporary walls to create new bedrooms. Changes to the building classification and corresponding fire safety upgrades, as required by the building codes, were not performed. The report notes that the “increasing demand for low cost inner-city accommodation has encouraged building owners to change the use of buildings to cater for the demand, without notifying the relevant authorities. As a consequence, a change of building use may inadvertently elevate the fire safety risk to occupants using the building.”<sup>97</sup> A contributing factor to these deaths was a lack of proper fire safety measures. Had the owners of the property followed the appropriate method in changing the use of the building and updating its safety conditions, loss of life could have been avoided. The findings of the Sydney Road Fire report provide a good illustration of the lapses in fire safety that can be present in shared accommodations. It also reveals that the problems with fire safety originate in how they are understood and implemented.

In Queensland, fire safety regulations are executed differently than in Victoria. The Queensland Fire and Rescue Service (QFRS) has broader powers of enforcement than fire authorities in other states. Under Section 69 of the Fire and Rescue Service Act 1990, the QFRS has the power to require alterations to a building to reduce the risk to persons and property from fire damage and to prevent a fire from initially occurring.<sup>98</sup> This regulation allows the commissioner of the QFRS to act at his own discretion and require the installation of fire safety equipment in buildings. Through an action in the Queensland Supreme Court, he or she also has the power to issue an injunction against a building being used if there is a high risk of fire.<sup>99</sup> These are some of the stringent fire safety regulations that are currently in place in Queensland.

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<sup>95</sup> Building code of Australia. (2008). Vol. 2. 336

<sup>96</sup> James, C., & Georgas, T. (2006)

<sup>97</sup> James, C., & Georgas, T. (2006). 26

<sup>98</sup> Fire Service and Rescue Act 1990, (Qld), s. 7

<sup>99</sup> Fire Service and Rescue Act 1990, (Qld), s. 9 Division 5



Attention to fire safety in Queensland has increased over the last decade due to tragedies that have brought the issue into the public eye. One example is the Childers fire in 2000, where 15 people died in a backpacker accommodation. Because of this incident, the need to address fire safety issues in budget accommodations became apparent.<sup>100</sup> After a thorough investigation of the factors that contributed to the fire, Queensland passed the Building and Other Legislation Act of 2001. This act requires budget accommodation providers to create fire safety management plans that allow for the safe evacuation of all occupants during a fire. These plans have to be kept up to date, and all occupants must be informed of them upon arrival.<sup>101</sup> Additionally, the legislation separates the permitting process from fire alarm and emergency installation. It also strengthens enforcement by requiring the fire brigade to keep an active list of budget accommodations and randomly inspect them to ensure compliance with these regulations. The Building and Other Legislation Act is widely applicable through its definition of a ‘budget accommodation’ as any building where more than six people reside and share bathroom facilities. This broad definition ensures that all varieties of low cost accommodation are required to comply with the new safety regulations.

Interviews with Fire Safety and Risk Engineers from Victoria and Queensland provided this study with first-hand knowledge on a range of topics (Appendix J). Among these were the fire safety issues in shared accommodations and the administrative structures that are in place to enforce fire safety regulations. In Victoria, problems include a lack of communication, enforcement power, and resources. Conversely, a more authoritative system is present in Queensland. The fire brigades are given more power and have a system of identifying high-risk accommodations. These interviews also underscored the fact that with greater responsibilities to enforce fire safety regulations, additional resources are required.

Through a thorough examination of the current legislation, analysis of post fire incident reports and interviews with fire safety officials, the group concluded that fire safety provisions in the current legislation are adequate across Australia. The major problem that contributes to poor fire safety conditions in student and itinerant worker accommodations is the failure to effectively enforce the existing fire safety provisions. This study addresses the deficiencies in enforcement

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<sup>100</sup> Building and other Legislation Amendment Act 2001 (Qld). 1

<sup>101</sup> Building and other Legislation Amendment Act 2001 (Qld)

of current regulations, ambiguities in interpretation of legislation, and identifying high risk shared accommodations.

Currently in Victoria, there are many agencies responsible for building inspections. Each has varying inspecting duties, different levels of authority, and each looks for specific safety deficiencies during a building inspection. Health Inspectors inspect buildings for cleanliness, a potable water supply, and sanitation and hygiene facilities.<sup>102</sup> Municipal Building Surveyors have the authority to inspect buildings for compliance with the building codes. Additionally, there are private building surveyors who perform the same duties as the Municipal Building Surveyors, but do not report to Council or report their findings to the Building Services Branch. Local fire brigades have certain statutory authorities that give them the power to inspect buildings for fire safety requirements. However, their power is limited and only allows them to inspect for the maintenance of fire safety equipment and the presence of smoke alarms (fines can be allocated by the fire brigade for lack of properly fitted smoke alarms). Fire brigades can recommend fire safety improvements; however, they lack the power to enforce them.

The previously mentioned Sydney Road Fire provides an example of the systemic lack of communication between inspecting agencies. In late 2004, a resident of the building had complained about fire and health hazards, triggering an inspection by the Health Department. The Health Inspectors noted that the building should be registered as a prescribed accommodation due to its occupancy numbers and therefore be subjected to more regulations. However, this inspection failed to note the lack of smoke alarms in the residence, a contributing factor to the deaths that occurred. Unfortunately, the company in charge of the building at the time appealed the registration of the building as a prescribed accommodation, claiming that five tenants occupied the building instead of the reported eight. They used an exemption under regulation 5(h) of the Health (Prescribed Accommodation) Regulations 2001, which “exempts those premises from being registered with Council in which, other than the family of the proprietor, not more than five persons are accommodated.”<sup>103</sup> Through this exemption, the building was allowed to continue operating without having to be registered. If the building had been registered as a prescribed accommodation, a yearly renewal of the registration would have

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<sup>102</sup> C. James & T. Georgas. (2006). 27

<sup>103</sup> C. James & T. Georgas. (2006). 27

eventually required an inspection by the Municipal Building Surveyor. Had the building initially been inspected through a joint effort from the Health Inspector and the Municipal Building Surveyor, deficiencies in both health and building codes would have been noted. Further communication with Fire Brigade Inspectors could have uncovered the lack of necessary fire safety equipment, including smoke alarms.

Further review of Victorian legislation has revealed that in addition to problems with implementing the current legislation, certain regulations are ambiguous. The current legislation includes exemptions that are not explicit in definition and are prone to misinterpretation allowing building owners and housing authorities to circumvent the law. By not registering buildings under the correct building classifications, they avoid stricter fire safety requirements. These exemptions include regulation 5(h) of the Health (Prescribed Accommodation) Regulations 2001, as previously mentioned. Unfortunately, tying registration requirements to the number of people accommodated can create a precedence of falsifying tenancy reports to evade certain laws.<sup>104</sup>

Vague definitions for terms such as ‘boarding house’ and ‘shared accommodation’ within tenancy legislation have led to content misinterpretations and overlooked regulations. “There are many different definitions of boarding houses, depending on the purpose for which the definition is required and these definitions also vary amongst the States and Territories of Australia. A boarding house could include (or exclude!) hotels, motels, hostels and care facilities.”<sup>105</sup> In Western Australia, boarding houses are exempt from the RT Act because of the ambiguity of this definition, leaving boarders such as international students and itinerant workers vulnerable to lapses in residential safety.

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<sup>104</sup> Moreland City Council (Officers). (2007). *Response to Residential Accommodation Issues Paper*. Moreland: unpublished. 3

<sup>105</sup>D. Silva. (2005). 3

## **Chapter 5: Recommendations and Conclusions**

One of the group's greatest challenges in the scope of the project was to generate outcomes that would be relevant to all the key stakeholders. To create deliverables that would benefit international students and itinerant workers throughout Australia, an education program and policy recommendations were developed. The information presented in the previous chapter serves as the reasoning behind the conclusions and recommendations that are made in this section. The final compilation of this project gives general recommendations for the Australasian Fire Authorities Council and could be implemented by a number of other organizations.

### **5.1 FireAway Program**

The first of the two main deliverables developed by the group was its international student directed fire safety education plan. FireAway, as it is called, is a compilation of recommendations and developed materials that fire authorities, educating bodies, and other organizations can all benefit from. The main target group for FireAway is international students, as the limited information collected about itinerant workers prohibits the group from tailoring the program to them as well. However, organizations that deal with itinerant workers can still benefit from the contents of FireAway due to the multicultural focus of the program.

#### **5.1.1 Modifications to Existing Plans**

Fire safety education plans (FSEP) and initiatives already exist in several Australian states. In order to create a new education plan that is universal, the existing materials were critiqued based on their content and effectiveness. Three organizations provided sets of resources to the group: the National Fire Protection Association (NFPA), the Metropolitan Fire and Emergency Services Board (MFB), and the Queensland Department of Emergency Services (Queensland DES).

The three education programs have many similarities, including the range of topics covered and the manner of presentation. In general, the subjects that are covered in the educational material encompass the safe use of heaters and candles, emergency numbers, emergency plans, kitchens, and smoke alarms. This material is commonly presented in brochures, pamphlets, and PowerPoints. However, the number of people impacted by these

methods remains relatively small, as they are a passive approach. Passive activities are less likely to hold the attention of students, and therefore information retention rates are lower. In order to avoid this drawback, a more active approach may be needed. Currently, active forms of fire education in Australia are minimal and there is room for improvement.<sup>106</sup> Additionally, to reach out to more people, organizations throughout Australia must take a more proactive approach and engage schools and universities in fire safety education plans, as they are less likely to ask fire authorities for assistance.

Another weakness is the “distinct lack of fire safety education being provided to the public between the ages of 10 and 65.”<sup>107</sup> Tertiary school students are especially vulnerable; they are in the transition from childhood to adulthood and are suddenly responsible for taking care of themselves. The lessons that they learn at this point, if taught effectively, will remain with them for the rest of their lives.

### **5.1.2 FireAway: Active Education Programs**

In order to offer a variety of resources within FireAway, the group’s fire safety education plan, both active and passive educational methods are used. The active fire safety education plan is aimed at supplying ideas and suggestions for institutions to increase their international students’ knowledge of fire safety through engaging and interesting programs. By participating in these programs, these students will be better able to identifying, prevent, and react to fire situations. Data gathered by the group led to several considerations for educating overseas students. As mentioned in Chapter 4 Section 2, the main barriers that must be overcome in teaching them are language comprehension, reading ability, and the misinterpretation of information. This plan addresses a fourth problem that is inherent to students as a whole: maintaining their attention. Educational materials are useless if the people they are directed towards pay no attention to them. In order to overcome this challenge, the materials in this plan can be used to teach fire safety in a way that keeps the students interested and involved while recognizing their multicultural demographic. We identify two major initiatives for the active portion of FireAway: fire safety orientations and demonstrations.

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<sup>106</sup> *Student attitudes and views of burn and fire safety* (Rep.). (n.d.). People's Burn Foundation. p. 3

<sup>107</sup> *Student attitudes and views of burn and fire safety* (Rep.). (n.d.)

## **Fire Safety Orientations (Appendix K)**

One of the most challenging aspects of conducting any active fire education program is organizing people to participate in it. With that in mind, utilizing preprogrammed meetings or seminars is an effective strategy to relay fire safety information. Such an opportunity presents itself in numerous schools and organizations. Many host some form of new student orientation program, which is an ideal time to provide fire safety information. Some institutions currently do just that. However, while one university may dedicate a substantial portion of their program to fire safety, another may neglect it entirely. Assuming that students have had fire safety training before is incorrect, according to the survey results presented in Chapter 4. It is therefore recommended by the group that each organization dedicate a portion of their new student orientation program to teaching fire safety. The orientation program can be delivered in many forms, such as a PowerPoint presentation provided by a local firefighter or a classroom style question and answer session with a school safety officer. By relaying important information directly to the student, the uncertainties of passive education are bypassed for those able to attend the sessions.

The recommendations aim to encourage organizations that do not currently run these orientations to do so, as well as to aid existing programs in increasing their compatibility for a multicultural audience. Any presentations given should not contain complex text and should be rich in easily interpreted pictures. Brevity is key in these programs. Additionally, FireAway advocates the use of current international students as teacher aids and the involvement of the local fire brigade in running the programs. Peer education is especially effective with international students since bilingual individuals of a similar background can help clarify problems that arise from language or cultural barriers. The assistance of the local fire brigade can be especially useful, as many have previously prepared a safety presentation that can be given. Furthermore, firefighter involvement gives the information provided in the presentation an increased sense of authority and importance. A number of the suggested demonstrations also require cooperation with the local fire brigade, such as the live burn and oil fire demonstrations.

## **Demonstrations (Appendix K)**

The use of hands-on activities and demonstrations was among the most common recommendation from fire safety education professionals. These programs often provide a memorable experience that helps students remember key fire safety concepts. Additionally, they can be coupled with safety orientations to reinforce the lessons. As part of the FireAway program, we recommend for universities to consider one or more of the following activities: a live-burn of a student room mock-up, fire extinguisher and fire blanket training, a cooking oil fire demonstration, and a smoke alarm testing exercise. It is important that any activity that involves using fire should not be conducted without the direct assistance of the local fire brigade. Instructions to construct a live-burn room model are included as an example of the demonstration can be set up. Since not all organizations will be able to conduct activities such as live burns on their campus, a DVD of a live burn conducted at Worcester Polytechnic Institute is included in FireAway. The video can be shown to students directly or posted on a website to demonstrate the effect of a fire in accommodations similar to their own.

The use of demonstrations can be particularly effective in reaching international students. As mentioned in Chapter 4 Section 1, these students have shown a lack of knowledge in using fire safety equipment. Through a live demonstration on using a fire extinguisher or putting out an oil fire, language and cultural barriers are easily circumvented. Furthermore, the ‘fun’ or ‘cool’ factor in educating international students should not be underestimated. The more enjoyment an activity provides to the student, the more likely they are to absorb its message. For fire safety education, internalization of the information can help prevent the student from being the victim of a fatal fire situation.

### **5.1.3 Passive**

An active approach is great for grabbing students’ attention, but a passive approach is better for relaying larger amounts of important information. “A multi-faceted approach is needed that involves using multiple platforms, media and opportunities. Today’s students are expecting to be entertained and engaged and for a burn and fire safety education program to be effective it

must meet both of these criteria.”<sup>108</sup> In order to make the material more comprehensible for ISIW’s who have difficulty with English, the language in FireAway’s passive materials was simplified and many pictures and symbols were used. Our team created several examples of these materials that can be used as a foundation and customized by organizations to fit their needs.

### **PowerPoint Presentation (Appendix L)**

The PowerPoint is concise, with the most important information in the first several slides. The beginning of the presentation has the best chance of being retained as the audience may begin to lose focus later. Topics covered include smoke alarm maintenance, candles and oil burners, electricity, heaters, cooking, emergency procedures, and emergency planning. Smoke alarm maintenance is the first topic because properly maintained smoke alarms can save lives even if the other measures are not taken to prevent fire. Additionally, the survey results show that the majority of students do not regularly test their alarm and nearly half do not know the proper way to do so. This component of FireAway is designed to keep the audience engaged for its entirety by keeping it short and entertaining, as well as informative.

### **Flyer & Brochure (Appendix L)**

The flyer conveys all of the information presented in the PowerPoint. It may be distributed during the PowerPoint presentation or whenever it is deemed appropriate. The handout serves as a good resource for those that may have missed the presentation or those that wish to have a hard copy of the information. The brochure is a simpler version of the flyer, which displays only the most important fire safety information.

### **English as a Second Language Worksheets (Appendix L)**

The group has created an example of a classroom activity that helps students learn fire safety as well as English. This piece of material is based on an example given to the group by Judy Newton of the Queensland DES. Teachers can customize the worksheet as they see fit or create their own; the range of topics that could be covered by such a worksheet is extensive.

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<sup>108</sup> *Student attitudes and views of burn and fire safety* (Rep.). (n.d.) 5



## **Computer Backgrounds and Screen Savers (Appendix L)**

Computer backgrounds and screen savers are a simple and indirect approach to relay a message effectively. By uploading fire safety bulletins onto public computers, such as the emergency phone number, information can be conveyed in a cost free and efficient manner. Any student that has access to public computers at their university, even if they do not directly pay attention to it, may register the message subconsciously.

## **5.2 Legislative Recommendations**

Our findings highlight the issues associated with the enforcement of current fire safety regulations. In an attempt to address these issues, this study suggests the following recommendations:

- Establishing an enhanced formal reporting and information sharing process amongst enforcement officials,
- Broadening the enforcement authority of the fire brigades within their governing legislation,
- Seeking an amendment to building and tenancy legislation that provides a clear definition of the meaning of ‘shared-housing,’
- Requiring additional responsibilities for owners and operators of ‘shared-housing’ accommodations, and
- Developing and expanding a high-risk accommodation building identification process by the relevant enforcement authorities.

These recommendations are designed to preemptively increase the level of fire safety afforded to international students who occupy ‘shared-housing’ accommodation whilst taking into account the resourcing issues that most government agencies are experiencing. As mentioned in Chapter 2, international students bring A\$12.3 billion to the Australian

economy.<sup>109</sup> Protecting this valuable sector of the economy is of vital importance to Australia's prosperity.

The establishment of enhanced formal reporting and information sharing processes amongst the different enforcement officials in Victoria are likely to result in better inspecting practices and a more effective implementation of the existing regulations. Currently, Health Department officials, local Fire Brigade Inspectors, and Municipal Building Surveyors have diverse roles in inspection processes. Of these three, Municipal Building Surveyors are given the most authority. The existence of the several inspecting authorities, different duties, and the lack of communication among them creates a disjointed system of inspecting buildings. This separation of responsibilities may lead to one department only focusing on their specialization, while neglecting areas that could be important to public safety. The establishment of a cross-training program would allow Health Inspectors, Building Surveyors, and the local Fire Authorities to understand the inspection criteria of the other agencies, so that efforts may be coordinated. Furthermore, since code violations in one area may be indicative of other deficiencies, a common system of flagging a building for inspection by all agencies is needed. Although these recommendations are based on information from Victoria, they can be applied to other Australian states with similar legislation and administrative structures.

In addition to developing a joint working relationship between the different inspecting agencies, due consideration should be given to broadening the enforcement power of fire brigades throughout Australia. This would increase the effective implementation of the legislated objectives of fire safety regulations. The role of the fire brigade is to act as a referral and enforcement authority within the built environment for the purpose of responding to emergencies and enhancing the safety of the community through education. Members of the community that do not follow preventative measures complicate this charge. Therefore, the fire brigade should have a greater enforcement role where they are preemptive rather than reactive.

Increasing the inspection and enforcement power of the fire brigade would lead to a proactive process of implementing fire safety. However, this additional responsibility would place a greater demand on the current resources that are available to fire brigades throughout

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<sup>109</sup> Access Economics. (April 2009). The Australian education sector and the economic contribution of international students. Access Economics Pty Ltd. 6

Australia. Any changes, as a result of this recommendation, would necessitate an increase in resources from the government. Increased funds can be justified by the importance of safeguarding both the community and the positive economic impact of international students. Past research indicates that these populations often live in temporary accommodations that lack sufficient fire safety. It is crucial to protect the wellbeing of international students because of their significance to the Australian economy by providing the necessary resources. To counter the community risk, more enforcement is required; to counter the implications imposed on the enforcing authority, additional resources are needed.

Certain regulations under building and tenancy law are not well defined and can be easily misinterpreted. Lack of explicit definition for these regulations sometimes allow building owners to avoid registering their buildings under the correct classification and therefore are subject to less strict fire safety requirements. Queensland has already adopted new regulations that provide a more concise definition for budget accommodations in order to close this loophole. A similar stance can be integrated in the other states' legislation, where shared-housing is not defined under the current legislation. Amending tenancy legislation in each state to include clear definitions of shared-housing could prevent owners from exploiting vulnerable residents.

Furthermore, this IQP group recommends that higher penalties and additional requirements be imposed on budget accommodation owners who do not comply with building codes. These owners should be more accountable for the fire safety of their property. The MFB has already proposed that Victoria adopt new fire safety regulations that carry higher penalties for building owners who fail to abide by them. In addition, the MFB has recommended introducing the requirement for "all building owners or proprietors of prescribed accommodation to prepare an emergency management plan."<sup>110</sup> Currently, the Victorian building code does not mandate that operators of these accommodations supply their residents with these plans. Queensland, on the other hand, has already taken this step. In response to the 2000 Childers Fire, it passed legislation requiring that all budget accommodations have up to date emergency management plans. This legislation has proven effective at preventing fire related deaths by mandating that building owners educate tenants on emergency procedures and practice it yearly. A similar approach in all states should decrease the fire risk exposure to international students.

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<sup>110</sup> C. James & T. Georgas (2006). 32

A major problem identified in our interviews with Fire Safety and Risk Engineers is the difficulty in identifying high-risk accommodations. Overcrowding can be closely linked to poor fire safety. While some existing systems are in place to identify premises that are at a high risk of fire, more resources are needed to expand the current systems and to target inspections on problematic buildings.

Currently, high-risk buildings are identified through classified sections of newspapers, the internet, or through information from the health department. A possible method for identifying high-risk residences is to keep track of all existing and newly issued class 1b and 3 building permits. Using the addresses on these permits would allow for a list of high-risk accommodations to be established. This list could also be created through obligatory registration with fire authorities. Queensland, for instance, has statutory requirements for budget accommodations to do just that and imposes strict penalties for non-compliance. A more targeted approach would use the addresses that international students provide to their schools as a condition of their visa. Using these addresses, without linking them to the name of the students to maintain privacy, could identify buildings with large numbers of students that could be overcrowded. Incorporating some or all of these recommendations into existing procedures could lead to practices that focus more attention on protecting international students from fire.

### **5.3 Obstacles/Future Work**

Throughout the project, the group encountered a variety of complications that altered its course. The survey questions and the inclusion of itinerant workers were two areas that could have seen improvement. Challenges arose in many forms, such as time constraints and trouble contacting key individuals. Another underlying cause was the recent bushfires, since much of the information the group was requesting was from fire professionals who were dealing with this large-scale disaster and its repercussions. While most adversities were overcome, others will have to be addressed in future work.

The distribution of surveys proved to be more difficult than we originally imagined. The group was not granted access to student email aliases by administrators at many universities because most have rules against external usage. To bypass this issue, additional assistance was necessary and welcomed from fire safety professionals who have personal contacts at

universities. An example of this was the help of the Assistant Director of Built Environment and Research in the Community Safety Division of the New South Wales Fire Brigades talking to three universities on the team's behalf. As a result, 1177 surveys were received from New South Wales within the last two weeks of the project. Although the influx of surveys was integral to the data analysis, it simultaneously caused gaps in the legislation research. The majority of survey responders were from Victoria and Queensland prior to the large increase. Therefore, legislation was initially collected from these states for comparison and was reviewed with professionals. With a sudden arrival of data from New South Wales, legislation from this state was not obtained in time for proper analysis.

Although the team is satisfied with the final survey numbers, more data could have been collected if the surveys had been sent out prior to arriving in Australia. Furthermore, the group realized that going into universities and handing out surveys yielded a greater benefit per cost, as a large number of responses were collected in only a few hours. The time spent talking with international students also made it evident that the ESL students, in particular, had difficulty understanding the wording of the survey. In the first draft of the survey, the group used the term 'surge protector', but it became apparent that in Australia this device is more commonly known as a 'power board'. Other linguistic misunderstandings arose in the question regarding the student's living situation. One survey response option said 'living with family,' while it should have said 'living with parents.' The group found that older students, married, and with children chose that option, which was not the intended grouping. If these hurdles had been identified earlier in the project, the survey results would have been more precise and representative.

In some cases, the survey responses contradicted the project's original assumptions and prior research. Two of the major concerns the group heard from fire professionals concerning international student housing were overcrowding and unconventional cooking arrangements. Survey results from this population indicated that the average international student unexpectedly does not share a room with anyone. Due to fire reports and research on this topic there is still reason to believe overcrowding is a valid concern, but that it was not reflected in the sample population of this survey. Moreover, in regard to students cooking in their rooms, international students responded to this survey question noting that they were able to cook in their

accommodation and had access to a kitchen. In this case, the deviation of survey data from the assumption could be explained by the definition of the term ‘kitchen.’

Another assumption based on background research was that the problems with international student housing stem from the high prices in and low availability of student accommodations. According to the survey results, these assumptions do not hold. However, our surveys did not get responses from students from a wide variety of schools; there is a heavy skewing towards university students. These students are generally chosen for their full-fee paying ability and could thus be assumed to be able to pay for whatever accommodation they choose. This is not to say that our original assumptions were in correct: background research suggests that the students who would be affected by prohibitive prices may primarily attend training organizations or English language schools. Without a larger and more representative population of TAFE and ESL students taking the survey, the original assumptions cannot be discarded. This is especially based on anecdotal information received from fire safety professionals, who noted overcrowding in low cost housing as one of the main fire risks for international students. Future work could include an in-depth investigation of the discrepancies between the group’s research and the survey results.

The group encountered an even greater challenge in the second portion of the project, focusing on itinerant workers. It became evident upon arrival in Australia that itinerant workers are extremely difficult to contact directly. Consequently, the methodology of the IQP was altered so that professionals who have observed the conditions of itinerant workers’ housing would be interviewed instead. Although these experts offered significant insights, fewer observations and reports were collected than anticipated. Vital information was obtained (Appendix E); however, a further assessment into the itinerant workers’ situation would increase the adaptability of the deliverables to meet their needs. In particular, work should be done to find specific evidence of fire safety issues in itinerant worker housing, including collecting reports or photos of incidences. Additionally, the process of distributing the education plan to itinerant workers would need to be investigated further. Education could be provided through the local fire brigades and other organizations in contact with itinerant workers, but specific groups should be identified. To properly assess and educate this population, it is necessary to do additional project work as described.

#### **5.4 Concluding Remarks**

This project experience has been very valuable for the entire group. It was a unique opportunity to learn about the challenges that international students face from the perspective of an American student studying abroad. Fire safety in temporary housing is a difficult multifaceted problem. As such, it is hard to predict when improvements will be made due to the economic and political elements involved. The utility of the recommendations and education plan made by the group will be applicable at any time. The most prominent accomplishment of this team was the amount of data that was collected through the survey, which will be made available for further examination by other organizations or individuals. This outcome was a result of the inner workings of the project team and those who invested time in these efforts. Vital throughout the project experience has been the group's patience and adaptability. Although being prepared and having a set methodology were useful, when unforeseen challenges arose it was the team's dynamic nature that allowed progress to continue. Finally, being persistent in the pursuit of new information continually expanded the scope and impact this IQP would have.

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### **Legislation**

- Building Act 1975 (Qld)
- Building Act 1993 (Vic)
- Building and other Legislation Amendment Act 2008 (Qld)
- Building Fire Safety Regulation 2008 (Qld)
- Building Regulations 2006 (Vic)
- Fire Service and Rescue Act 1990 (Qld)
- Residential Tenancies Act 1997

## Nomenclature

The following is a list of terms and definitions that are used throughout the report of which the meanings may not be obvious to all readers.

**AFAC:** Australasian Fire and Emergency Services Authorities Council

**Backpackers:** a long-term low-budget international traveler

**BCA:** Building Code of Australia

**Caravan Park:** an expanse of land with several movable dwelling type houses

**CFA:** Country Fire Authority

**FSEP:** fire safety education plan

**Homestay:** a student housing option involving the student taking residence with a person or family in their home and paying a boarding fee which covers the student's utilities, rent, and sometimes meals

**ISIW:** international students and itinerant workers

**Itinerant Workers:** workers that move from job to job based on the demand of certain industries, including backpackers

**MFB:** Metropolitan Fire and Emergency Services Board

**Migrant Populations:** individuals who move frequently for a variety of reasons including health, business, and education for any duration greater than one day without requiring a change in permanent residence<sup>111</sup>

**NFPA:** National Fire Protection Association

**On-campus College:** colleges and universities which provide on-campus housing for a specific portion of their student body

**Overstayers:** individuals overstaying their temporary visas

**Pedagogy:** The principles and methods of teaching

**Shared Accommodation (Prescribed Accommodation, Budget Accommodation, Shared Housing):** A building where residents share bedroom and hygienic facilities.

**Student-Specific Housing:** professionally run and privately owned versions of dormitories

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<sup>111</sup> C. Elin, B. Martin, & B. Dominic. (2008, April 1). Where people move and when: Temporary population mobility in Australia. *People and Place*, 21(10), 2

**Tertiary Students:** all students enrolled in university, college, or registered training organization programs

**Queensland DES:** Queensland Department of Emergency Services



## Appendix A: Building Classifications from the Building Code of Australia

**Class 1:** one or more buildings which in association constitute:

- a. **Class 1a** — a single dwelling being
  - i. a detached house; or
  - ii. one of a group of two or more attached dwellings, each being a building, separated by a fire-resisting wall, including a row house, terrace house, town house or villa unit; or
- b. **Class 1b** — a boarding house, guest house, hostel or the like
  - i. with a total area of all floors not exceeding 300 m<sup>2</sup> measured over the enclosing walls of the Class 1b; and
  - ii. in which not more than 12 persons would ordinarily be resident, which is not located above or below another dwelling or another Class of building other than a private garage.

**Class 2:** a building containing 2 or more sole-occupancy units each being a separate dwelling.

**Class 3:** a residential building, other than a building of Class 1 or 2, which is a common place of long term or transient living for a number of unrelated persons, including:

- a. a boarding-house, guest house, hostel, lodging-house or backpackers accommodation; or
- b. a residential part of a hotel or motel; or
- c. a residential part of a school; or
- d. accommodation for the aged, children or people with disabilities; or
- e. a residential part of a health-care building which accommodates members of
- f. staff; or
- g. a residential part of a detention centre.

**Class 4:** a dwelling in a building that is Class 5, 6, 7, 8 or 9 if it is the only dwelling in the building

**Class 5:** an office building used for professional or commercial purposes, excluding buildings of Class 6, 7, 8 or 9

**Class 6:** a shop or other building for the sale of goods by retail or the supply of services direct to the public, including:

- a. an eating room, cafe, restaurant, milk or soft-drink bar; or
- b. a dining room, bar, shop or kiosk part of a hotel or motel; or
- c. a hairdresser's or barber's shop, public laundry, or undertaker's establishment; or
- d. market or sale room, showroom, or service station.

**Class 7:** a building which is:

- a. **Class 7a** — a carpark; or
- b. **Class 7b** — for storage, or display of goods or produce for sale by wholesale.

**Class 8:** a laboratory, or a building in which a handicraft or process for the production, assembling, altering, repairing, packing, finishing, or cleaning of goods or produce is carried on for trade, sale, or gain.

**Class 9:** a building of a public nature:

- (a) **Class 9a** — a health-care building, including those parts of the building set aside as a laboratory; or
- (b) **Class 9b** — an assembly building, including a trade workshop, laboratory or the like in a primary or secondary school, but excluding any other parts of the building that are of another Class; or
- (c) **Class 9c** — an aged care building.

**Class 10:** a non-habitable building or structure:

- a. **Class 10a** — a non-habitable building being a private garage, carport, shed, or the like; or
- b. **Class 10b** — a structure being a fence, mast, antenna, retaining or free-standing wall, swimming pool, or the like.<sup>112</sup>

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<sup>112</sup> (2008). Part A3 Classification Of Buildings And Structures. In *Building Code of Australia*. BCA.

## Appendix B: Student Survey

### Student Housing and Fire Safety

#### 1. Fire Safety Evaluation

We recognize that fire safety has been a big concern in Australia, especially of recent. We would like you to know that we are involved in an effort to minimize injury and loss of both human and personal materials in student housing. Please feel free to contact our group at [melbourne-iqp@wpi.edu](mailto:melbourne-iqp@wpi.edu) with any questions you may have.

1. How concerned are you about fire safety, with 1 being the least concerned and 5 being the most concerned?

	1	2	3	4	5
Fire Safety Concern	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2. Have you had any education in fire safety since you moved in to your current residence? If yes, where did you receive it from?

No

Yes:

3. Do you know the location of your building's fire exits? A fire exit is defined as a designated exit out of the building to be used in the event of a fire.

Yes

No

4. Do you have the following fire safety devices in your apartment or residence?

	Yes	No	I Don't Know
Fire Extinguisher	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Smoke Alarm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sprinkler System	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fire Blanket	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5. Do you cook in your residence?

Yes

No

6. Do you have access to a kitchen?

Yes

No

## Student Housing and Fire Safety

### 7. Do the following statements apply to you?

	Yes	No	I Don't Know
I plugged a power board into another power board.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I have tested my smoke alarm in the last month.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I have two ways to get out of every room in my accommodation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I use candles on a regular basis.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I know how to operate a fire extinguisher.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I know how to test a fire alarm.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I know how to use a fire blanket.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I have removed the battery or covered my smoke alarm so that it no longer works.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 8. Do you have a planned escape route from your residence in the event of a fire?

- Yes
- No

### 9. What is the fire emergency number?

# Student Housing and Fire Safety

## 2. Accommodation Availability

1. How would you classify your housing?

- On Campus
- Off Campus - Student Apartment
- Off Campus - Homestay Accommodation
- Off Campus - Private Leasing
- Off Campus - Hostel/Boarding House
- Off Campus - Living At Home With Family

2. How difficult was it for you to find housing, with 1 being the least difficult and 5 being the most difficult.

Difficulty 1 2 3 4 5

3. How would you rate the affordability of your housing, with 1 being the least affordable and 5 being the most affordable.

Affordability 1 2 3 4 5

4. How many people live in your accommodation with you, including yourself?

Number of people

5. How many people do you share a room with, including yourself?

Number of people

6. Rate how helpful your school was in helping you find housing, with 1 being the least helpful and 5 being the most helpful.

Helpfulness 1 2 3 4 5

7. How many bedrooms are there in your residence?

Bedroom #

## Student Housing and Fire Safety

### 3. Demographic Information

**1. How old are you?**

Age in years

**2. What is your gender?**

- Male  
 Female

**3. What state or territory in Australia do you live in?**

- Victoria  
 New South Wales  
 Queensland  
 Western Australia  
 Northern Territory  
 Tasmania  
 South Australia  
 Australian Capital Territory

**4. What type of classes do you take?**

- University  
 Technical and Further Education(TAFE)  
 English Learning Classes  
 Other (please specify)

**5. Are you an international student? If yes, what country are you from?**

- Yes  
 No

If yes, please specify country of citizenship

## Appendix C: TAFE and University Contacts

### Universities

#### **Australian Catholic University**

Faculty in the Education Department

**Email:** edfac@patrick.acu.edu.au

#### **Australian National University**

Media Department

**Email:** media@anu.edu.au

Suzanne Knight - School and Development

Manager for ANU Humanities Department

**Email:** suzanne.knight@anu.edu.au

#### **Avalon College**

Administration

**Email:** admin@avaloncollege.vic.edu.au

#### **Bond University**

Bond University Student Association President

**Email:** alsmith@student.bond.edu.au

International Student Support

**Email:** strew@bond.edu.au

Robert Stable - President and Vice Chancellor

Professor

**Email:** rstable@bond.edu.au

Research and Consultancy

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#### **Central Queensland University**

Executive Officer (Policy, Compliance and  
Special Research Projects)

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#### **Charles Darwin University**

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Melbourne University Overseas Students  
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National Liaison Committee for International  
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Federation of Indian Students of Australia

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**Queensland University of Technology**

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**University of New South Wales**

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### Chisholm Institute of TAFE

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### Gordon Institute of TAFE

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International Student Support

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**C Y O'Connor TAFE**

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General Enquiries

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General Enquiries

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International Education Unit

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## Appendix D: University Student Group Contacts

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## **Additional Resources**

*The following material is provided on the disk that is included with this report.*

### **FESA PowerPoint on Shared Accommodations:**

The Fire & Emergency Services Authority of Western Australia (FESA) compiled a summary of their findings after inspecting multiple types of housing that itinerant workers may inhabit. This presentation highlights issues within the inspected housing and provides pictures that display such fire safety problems as poor housekeeping and inadequate fire evacuation paths.

### **Teleconference on April 21, 2009:**

An audio of a teleconference with four Country Fire Authority (CFA) members on their experiences with itinerant worker housing is provided with this report. Topics that were covered include: types of itinerant worker housing, fire safety issues in the housing, common industries for these workers, and the authority of the CFA.

CFA Attendees: Bruce Pennicuik, John Stark, Darren Vincy, and Matthew Wright

Project Members in Attendance: Jairo Argueta, Dan Mittelman, and Rachel Salvatori

*The last set of references is documents on the regulations that govern caravan parks, which affects some itinerant workers.*

### **Caravan Parks and Camping Grounds Regulations 1997**

#### **Caravan Park Fire Safety Guideline:**

CFA. (2006). *Caravan park fire safety guideline*. Burwood East, Victoria, Australia: The Victorian Government.

## Appendix F: Contacts from Built Environment Sub Group

The following contacts were obtained from a meeting of the Built Environment Sub Group of AFAC and were used to help facilitate information collection in this project.

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Community Safety  
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### **Allan Oates**

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**Graeme Thom AFSM**

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**Sharon Smith**

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**Australian Federation of International Students Contact****Douglas Tsoi**

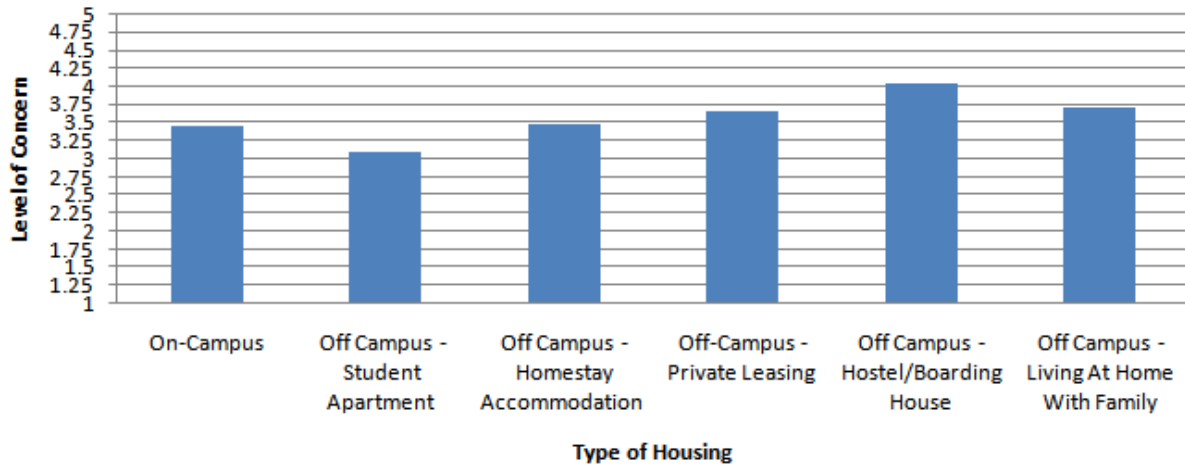
Phone: 0433 893 228

**AFAC's Community Education Sub Group Contact****Sandra Barber**

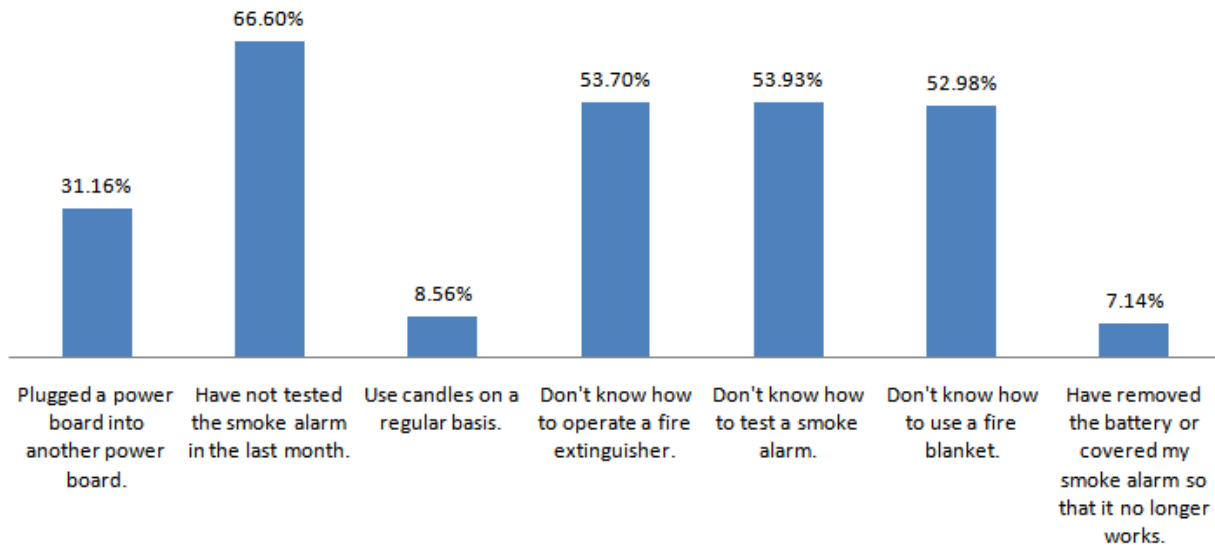
Manager  
Community Education Unit which  
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Mobile: 0437 071796  
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## Appendix G: Additional Graphs of Survey Results

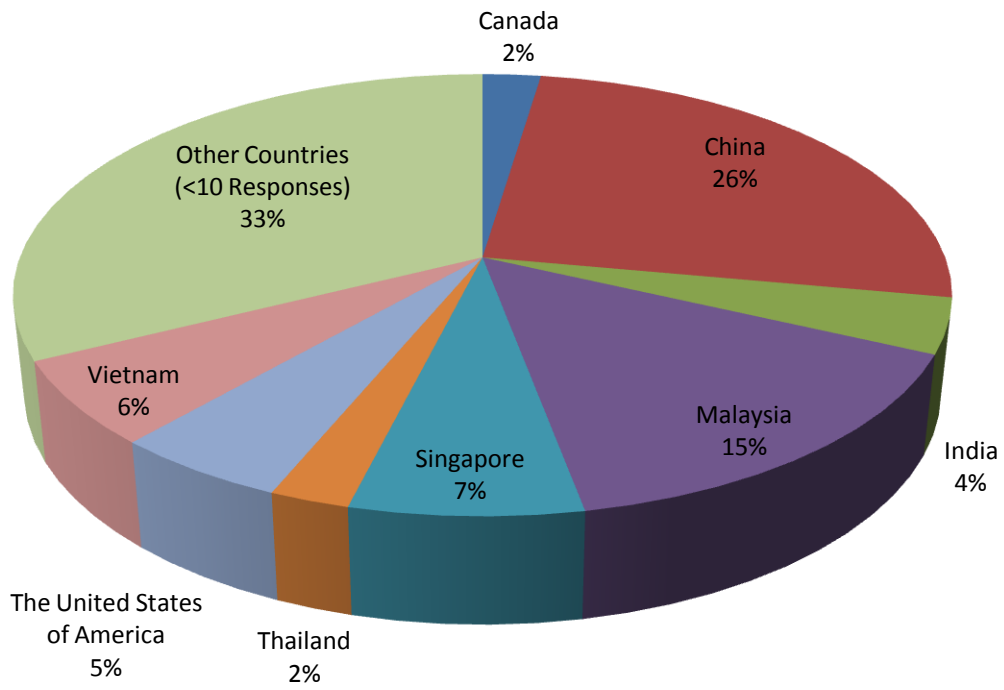
### International Student Housing Type v. Concern Level with Fire Safety



### Prevalence of Common Fire Safety Problems for International Students



## International Student Nationality Responses



## Appendix H: International Student Group Survey Results

<b><u>Student Housing and Fire Safety</u></b>							
<b>1. How concerned are you about fire safety, with 1 being the least concerned and 5 being the most concerned?</b>							
Answer Options	1	2	3	4	5	Rating Average	Response Count
Fire Safety Concern	38	52	126	100	142	3.56	458
<i>answered question</i>							458
<i>skipped question</i>							22

<b>2. Have you had any education in fire safety since you moved in to your current residence? If yes, where?</b>		
Answer Options	Response Frequency	Response Count
No	81.0%	388
Yes:	19.0%	91
<i>answered question</i>		479
<i>skipped question</i>		1

<b>3. Do you know the location of your building's fire exits? A fire exit is defined as a designated exit out of the building to be used in the event of a fire.</b>		
Answer Options	Response Frequency	Response Count
Yes	78.0%	372
No	22.6%	108
<i>answered question</i>		477
<i>skipped question</i>		3



**4. Do you have the following fire safety devices in your apartment or residence?**

Answer Options	Yes	No	I Don't Know	Response Count
Fire Extinguisher	200	196	74	470
Smoke Alarm	398	44	36	478
Sprinkler System	95	237	132	463
Fire Blanket	96	245	125	466
<i>answered question</i>				<b>480</b>
<i>skipped question</i>				<b>0</b>

**5. Do you cook in your residence?**

Answer Options	Response Frequency	Response Count
Yes	91.4%	436
No	8.6%	41
<i>answered question</i>		<b>477</b>
<i>skipped question</i>		<b>3</b>

**6. Do you have access to a kitchen?**

Answer Options	Response Frequency	Response Count
Yes	96.0%	458
No	4.0%	19
<i>answered question</i>		<b>477</b>
<i>skipped question</i>		<b>3</b>

<b>7. Do the following statements apply to you?</b>				
<b>Answer Options</b>	<b>Yes</b>	<b>No</b>	<b>I Don't Know</b>	<b>Response Count</b>
I plugged a power board into another power board.	148	246	81	475
I have tested my smoke alarm in the last month.	129	319	33	479
I have two ways to get out of every room in my accommodation.	150	304	21	474
I use candles on a regular basis	41	429	9	479
I know how to operate a fire extinguisher.	221	208	46	473
I know how to test a smoke alarm.	195	254	26	471
I know how to use a fire blanket.	185	249	38	470
I have removed the battery or covered my smoke alarm so that it no longer works.	34	409	35	476
<i>answered question</i>				<b>480</b>
<i>skipped question</i>				<b>0</b>

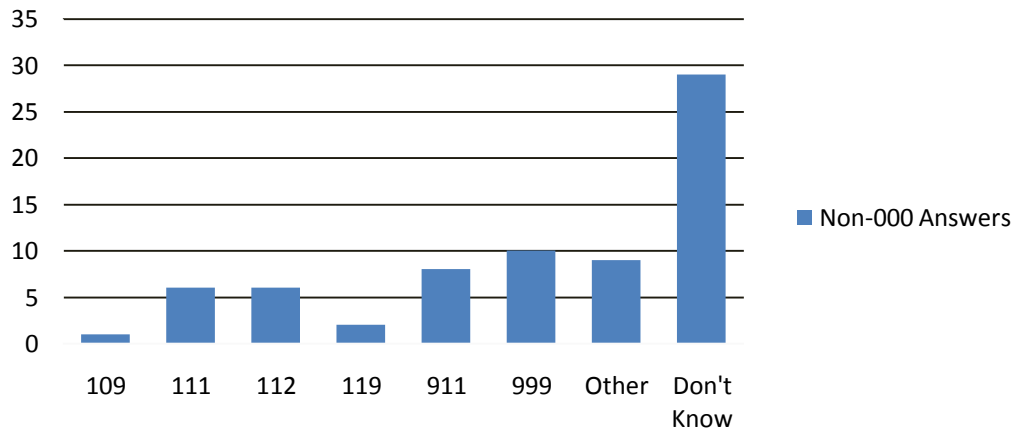
**8. Do you have a planned escape route from your residence in the event of a fire?**

Answer Options	Response Frequency	Response Count
Yes	56.3%	269
No	43.7%	209
<i>answered question</i>		478
<i>skipped question</i>		2

**9. What is the fire emergency number?**

Answer Options	Response Count
	407
<i>answered question</i>	407
<i>skipped question</i>	73

**Answers Supplied That Were Not 000**



<b>10. How would you classify your housing?</b>		
<b>Answer Options</b>	<b>Response Frequency</b>	<b>Response Count</b>
On Campus	11.7%	54
Off Campus - Student Apartment	14.9%	69
Off Campus - Homestay Accommodation	6.1%	28
Off Campus - Private Leasing	51.5%	238
Off Campus - Hostel/Boarding House	4.3%	20
Off Campus - Living At Home With Family	12.1%	56
<i>answered question</i>		<b>462</b>
<i>skipped question</i>		<b>18</b>

<b>11. How difficult was it for you to find housing, with 1 being the least difficult and 5 being the most difficult.</b>							
<b>Answer Options</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>Rating Average</b>	<b>Response Count</b>
Difficulty	77	59	138	103	85	3.13	462
<i>answered question</i>							<b>462</b>
<i>skipped question</i>							<b>18</b>

<b>12. How would you rate the affordability of your housing, with 1 being the least affordable and 5 being the most affordable.</b>							
<b>Answer Options</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>Rating Average</b>	<b>Response Count</b>
Affordability	42	119	200	73	24	2.82	458
<i>answered question</i>							<b>458</b>

**13. How many people live in your accommodation with you, including yourself?**

Answer Options	Response Average	Response Total	Response Count
Number of people	4.08	1679	412
<i>answered question</i>			445
<i>skipped question</i>			35

**14. How many people do you share a room with, including yourself?**

Answer Options	Response Average	Response Total	Response Count
Number of people	1.25	554	444
<i>answered question</i>			444
<i>skipped question</i>			36

**15. Rate how helpful your school was in helping you find housing, with 1 being the least helpful and 5 being the most helpful.**

Answer Options	1	2	3	4	5	Rating Average	Response Count
Helpfulness	185	93	114	39	26	2.19	457
<i>answered question</i>							457
<i>skipped question</i>							23

**16. How many bedrooms are there in your residence?**

Answer Options	Response Average	Response Total	Response Count
Bedroom #	17.11	7870	460
<i>answered question</i>			460
<i>skipped question</i>			20

<b>17. How old are you?</b>			
<b>Answer Options</b>	<b>Response Average</b>	<b>Response Total</b>	<b>Response Count</b>
Age in years	28.84	13296	461
<i>answered question</i>			<b>461</b>
<i>skipped question</i>			<b>19</b>

<b>18. What is your gender?</b>		
<b>Answer Options</b>	<b>Response Frequency</b>	<b>Response Count</b>
Male	45.9%	213
Female	54.1%	251
<i>answered question</i>		<b>464</b>
<i>skipped question</i>		<b>16</b>

<b>19. What state or territory in Australia do you live in?</b>		
<b>Answer Options</b>	<b>Response Frequency</b>	<b>Response Count</b>
Victoria	18.4%	88
New South Wales	63.1%	301
Queensland	0.4%	2
Western Australia	0.2%	1
Northern Territory	0.2%	1
Tasmania	9.6%	46
South Australia	0.0%	0
Australian Capital Territory	8.0%	38
<i>answered question</i>		<b>477</b>
<i>skipped question</i>		<b>3</b>

<b>20. What type of classes do you take?</b>		
<b>Answer Options</b>	<b>Response Frequency</b>	<b>Response Count</b>
University	88.0%	404
Technical and Further Education(TAFE)	6.5%	30
English Learning Classes	3.5%	16
Other (please specify)	2.2%	10
<i>answered question</i>		<b>459</b>
<i>skipped question</i>		<b>21</b>

<b>21. Are you an international student? If yes, what country are you from?</b>		
<b>Answer Options</b>	<b>Response Frequency</b>	<b>Response Count</b>
Yes	100.0%	480
No	0.4%	2
If yes, please specify country of citizenship		442
<i>answered question</i>		<b>480</b>
<i>skipped question</i>		<b>0</b>

## Appendix I: Control Group Survey Results

<b><u>Student Housing and Fire Safety</u></b>							
<b>1. How concerned are you about fire safety, with 1 being the least concerned and 5 being the most concerned?</b>							
Answer Options	1	2	3	4	5	Rating Average	Response Count
Fire Safety Concern	118	207	327	216	135	3.04	1003
<i>answered question</i>							<b>1003</b>
<i>skipped question</i>							<b>13</b>

<b>2. Have you had any education in fire safety since you moved in to your current residence? If yes, where did you receive it from?</b>		
Answer Options	Response Frequency	Response Count
No	74.0%	751
Yes:	26.0%	264
<i>answered question</i>		<b>1015</b>
<i>skipped question</i>		<b>1</b>

<b>3. Do you know the location of your building's fire exits? A fire exit is defined as a designated exit out of the building to be used in the event of a fire.</b>		
Answer Options	Response Frequency	Response Count
Yes	77.7%	786
No	22.6%	229
<i>answered question</i>		<b>1012</b>
<i>skipped question</i>		<b>4</b>



<b>4. Do you have the following fire safety devices in your apartment or residence?</b>				
Answer Options	Yes	No	I Don't Know	Response Count
Fire Extinguisher	280	650	64	990
Smoke Alarm	923	72	22	1013
Sprinkler System	78	798	102	975
Fire Blanket	202	678	113	989
<i>answered question</i>				<b>1014</b>
<i>skipped question</i>				<b>2</b>

<b>5. Do you cook in your residence?</b>		
Answer Options	Response Frequency	Response Count
Yes	94.4%	952
No	5.6%	57
<i>answered question</i>		<b>1009</b>
<i>skipped question</i>		<b>7</b>

<b>6. Do you have access to a kitchen?</b>		
Answer Options	Response Frequency	Response Count
Yes	98.8%	1001
No	1.2%	12
<i>answered question</i>		<b>1013</b>
<i>skipped question</i>		<b>3</b>

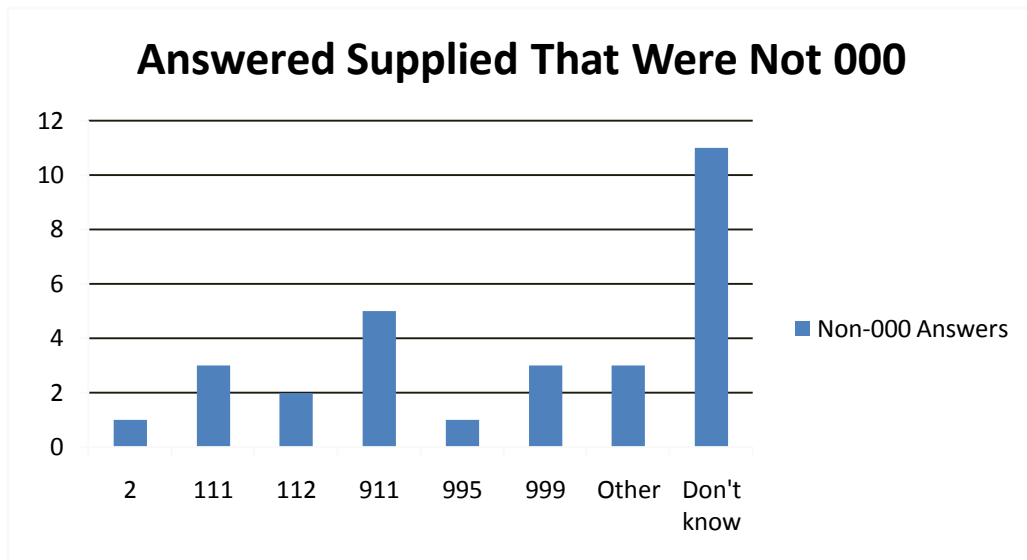
<b>7. Do the following statements apply to you?</b>				
<b>Answer Options</b>	<b>Yes</b>	<b>No</b>	<b>I Don't Know</b>	<b>Response Count</b>
I plugged a power board into another power board.	336	620	53	1006
I have tested my smoke alarm in the last month.	310	664	41	1011
I have two ways to get out of every room in my accommodation.	326	668	22	1011
I use candles on a regular basis	146	860	5	1011
I know how to operate a fire extinguisher.	498	454	61	1009
I know how to test a smoke alarm.	560	424	30	1012
I know how to use a fire blanket.	593	384	41	1007
I have removed the battery or covered my smoke alarm so that it no longer works.	80	894	37	1005
<i>answered question</i>				<b>1015</b>
<i>skipped question</i>				<b>1</b>

**8. Do you have a planned escape route from your residence in the event of a fire?**

Answer Options	Response Frequency	Response Count
Yes	50.8%	515
No	49.2%	498
<i>answered question</i>		1013
<i>skipped question</i>		3

**9. What is the fire emergency number?**

Answer Options	Response Count
	962
<i>answered question</i>	962
<i>skipped question</i>	54



**10. How would you classify your housing?**

Answer Options	Response Frequency	Response Count
On Campus	6.2%	62
Off Campus - Student Apartment	3.0%	30
Off Campus - Homestay Accommodation	1.7%	17
Off Campus - Private Leasing	29.6%	298
Off Campus - Hostel/Boarding House	1.3%	13
Off Campus - Living At Home With Family	59.3%	597
<i>answered question</i>		<b>1007</b>
<i>skipped question</i>		<b>9</b>

**11. How difficult was it for you to find housing, with 1 being the least difficult and 5 being the most difficult.**

Answer Options	1	2	3	4	5	Rating Average	Response Count
Difficulty	517	122	150	117	90	2.14	996
<i>answered question</i>							<b>996</b>
<i>skipped question</i>							<b>20</b>

**12. How would you rate the affordability of your housing, with 1 being the least affordable and 5 being the most affordable.**

Answer Options	1	2	3	4	5	Rating Average	Response Count
Affordability	183	203	251	125	235	3.03	997
<i>answered question</i>							997
<i>skipped question</i>							19

**13. How many people live in your accommodation with you, including yourself?**

Answer Options	Response Average	Response Total	Response Count
Number of people	3.59	3238	903
<i>answered question</i>			957
<i>skipped question</i>			59

**14. How many people do you share a room with, including yourself?**

Answer Options	Response Average	Response Total	Response Count
Number of people	1.08	1034	954
<i>answered question</i>			954
<i>skipped question</i>			62

**15. Rate how helpful your school was in helping you find housing, with 1 being the least helpful and 5 being the most helpful.**

Answer Options	1	2	3	4	5	Rating Average	Response Count
Helpfulness	667	75	138	21	33	1.58	934
<i>answered question</i>							934
<i>skipped question</i>							82

**16. How many bedrooms are there in your residence?**

Answer Options	Response Average	Response Total	Response Count
Bedroom #	12.17	12247	1006
<i>answered question</i>			1006
<i>skipped question</i>			10

**17. How old are you?**

Answer Options	Response Average	Response Total	Response Count
Age in years	23.71	23928	1009
<i>answered question</i>			1009
<i>skipped question</i>			7

**18. What is your gender?**

Answer Options	Response Frequency	Response Count
Male	40.2%	406
Female	59.8%	604
<i>answered question</i>		1010
<i>skipped question</i>		6

**19. What state or territory in Australia do you live in?**

Answer Options	Response Frequency	Response Count
Victoria	11.7%	118
New South Wales	87.2%	876
Queensland	0.6%	6
Western Australia	0.1%	1
Northern Territory	0.0%	0

Tasmania	0.2%	2
South Australia	0.4%	4
Australian Capital Territory	0.2%	2
<i>answered question</i>		1005
<i>skipped question</i>		11

<b>20. What type of classes do you take?</b>		
Answer Options	Response Frequency	Response Count
University	98.6%	946
Technical and Further Education(TAFE)	0.5%	5
English Learning Classes	0.1%	1
Other (please specify)	0.9%	9
<i>answered question</i>		959
<i>skipped question</i>		57

<b>21. Are you an international student? If yes, what country are you from?</b>		
Answer Options	Response Frequency	Response Count
Yes	0.2%	2
No	100.0%	1016
If yes, please specify country of citizenship		7
<i>answered question</i>		1016
<i>skipped question</i>		0

## **Appendix J: Summaries of Interviews with Legislative Experts**

Interview with Tass Georgas and Matthew Wright on March 20, 2009:

During this interview, questions were raised about the legislation that governs fire safety and the way it is implemented. One important fact the group learned from this interview was that the Building Regulations Act 2006 is the main code of Victoria. It outlines the administrative controls for building permits and references the Building Code of Australia as the main controlling document. Buildings are classified by building surveyors and are inspected after they are first built and whilst they are being reclassified or renovated. It is also an offence to change the use of a building without complying with the applicable regulations. There are building and occupancy permits. Building permits are issued to allow construction. Occupancy permits are issued to allow use. There are private and public surveyors. Municipal building surveyors have authority over all buildings in their municipality while private building surveyors can only issue building permits for buildings they are hired to survey. The procedure for inspecting buildings was also discussed. Class 2-9 buildings are inspected on a regular basis and essential safety measures must be inspected at regular intervals. Fire departments can only regulate smoke alarms while municipalities have more power to require changes. Inspections are re-active, and must be triggered by a complaint. Class 1b buildings only need a system of lighting and smoke alarms. Class 1 building cannot exist above or below another building class. A residential part of a building above a shop would be a class 2 or 3. Major deaths or injury result in coronial inquests, and recommendations to changes laws or policy are produced by an inquest.



Interview with Graeme Thom on April 3, 2009:

In this interview, Queensland's system of regulating budget accommodations and the powers of the fire brigade were discussed. One fact the group learned from this interview is that The Building and Other Legislation Act 2001 resulted from the Childers fire and required the first level of fire safety upgrades to budget accommodations. It also put 'on-the-spot fines' into place and outlined enforceable offences. The fire service has section 69 powers, which allow them to require changes to buildings that go beyond the legislation, but are needed for proper fire safety. The Fire Brigade can also get a building shut down through an action of the Supreme Court. The legal justification for the Fire Brigade getting involved with inspecting buildings is that they have an interest in public safety and they have an interest in the safety of fire fighters that may enter the building. Building surveyors cover every other aspect of the building code. Their powers are outlined in the integrated planning act of 1997 and the Building Act. Budget accommodations and other buildings are kept track of in active lists and are randomly inspected.

## **Appendix K: Active FireAway Program**

### **New Student Fire Safety Orientation Recommendations**

- Before conducting any fire safety education program, consult with the local fire brigade. They are a great resource for materials and demonstrations. Students are more likely to respond positively to a uniformed figure delivering the information. Try to have any lecture or presentation within the orientation given by a uniformed official.
- Key topics to include:
  - Smoke Alarms: How to test and maintain them.
  - Emergency Escape Plans.
  - Fire Blanket & Fire Extinguisher Use.
  - Cooking Safety.
  - State/National Laws about smoke alarm presence.
- Utilize bilingual peer educators during the orientation to help answer questions and clarify fire safety concepts. It is important to make sure that the range of ethnic groups represented by these peer educators is representative of the student population.
  - These peer educators can be recruited as volunteers from international student groups or the general student population.
  - They should be given training on the fire safety material before so they can answer questions effectively.
  - Compensation, if possible, may be warranted depending on the extent of the peer educator's involvement.
  - If peer educators cannot be found, offering professional translation services at the program may be appropriate.
- Keep orientation groups as small as possible.
- Any lecture portion of the orientation should be short, concise, and paired with visuals (i.e. PowerPoint slides, videos, etc) or an appropriate demonstration.
- At the end of the program, give the students brochures or handouts that summarize the key topics that were covered.

## Demonstrations

Live-Burn – This involves building a mock-up student room and showing the affects a fire within it. For procedure, see the attached material from Campus FireWatch (<http://www.campus-firewatch.com/>). A live burn should ONLY be conducted under the supervision of the local fire brigade. A DVD of a Live-Burn conducted at Worcester Polytechnic Institute in Worcester, Massachusetts, USA is also provided where a live burn isn't possible.

Fire Extinguisher Training – This training is designed to familiarize students with fire extinguishers and their operation. Any use of live flames should ONLY be done under the supervision of the local fire brigade. The attached lesson provided by the Metropolitan Fire and Emergency Services Board is meant for fire professionals only.

Fire Blanket Training – This training is designed to teach students about fire blankets and their use. Any use of live flames should ONLY be done under the supervision of the local fire brigade. The attached lesson plan provided by the Metropolitan Fire and Emergency Services board is meant for fire professionals only.

Cooking/Oil Fire Demonstration – This should not be done by anyone except a fire professional. The demonstration usually involves a fire professional showing the students the proper ways to put out an oil fire, as making this a hands on activity would be too risky. Depending on the situation, the fire professional may be able to demonstrate the effects on throwing water into the grease fire.

Smoke Alarm Testing – This can be done through either a demonstration or hands on activity. Show the students in a step-by-step manner how to test their smoke alarm and replace its battery. If possible, use smoke alarms similar in design to the ones likely to be countered by the students. Small groups are the best method to carry out this activity, where each student can easily observe the demonstration and ask questions if necessary.

## Student Room Mockup Demonstration Burns

One of the most effective teaching tools for student fire safety is burning a mockup of a student room in front of crowds of students. Within five minutes, the contents of the room are destroyed, sending a powerful message to the audience.

To make the demonstration even more effective, consider building two mockups side-by-side, one sprinklered and one unsprinklered. Within less than a minute, the sprinkler will activate, controlling or extinguishing the fire, which provides a dramatic contrast with the unsprinklered mockup.



The mockup outlined in this paper has been used at a number of demonstrations at campuses across the country. These mockups are a “slice” of a student’s room and provide dramatic, impactful demonstrations.

### Important Safety Considerations

**DO NOT UNDERESTIMATE THE POTENTIAL FOR INJURY FROM THESE MOCK ROOM BURNS!** You **MUST** have all safety precautions in place.

### Materials List

The following are the minimum items needed to build the mockup.

Item	Dimension	Quantity
Studs	2" x 4" x 8 feet	22
Sheetrock	4' x 8' x 1/2"	5
Plywood	4' x 8' x 1/2"	1
Sheetrock screws	1 inch	1 Box
Nails	8d or 10d or 16d	1 box
Smoke alarm(s) and batteries		1 (or two if using wireless interconnected smoke alarms)
Sprinkler head		1
Sprinkler piping and fittings		Consult local plumber or sprinkler fitter for quantities and parts needed

### Room Contents

In a number of burns, schools have underestimated the quantity of items needed to stock the mock room. For a successful burn it is important to have sufficient quantities of fuel available. In addition, it is equally important that the room appear to look like a student room. It is very helpful to have students assist in preparing the room with items that students would recognize.

One source for items are local shops that sell posters, CDs, tapestries, candles, etc. Often, the owner will provide items that are going to be disposed of anyways for free or at significantly reduced prices.

# CAMPUS Firewatch

The following is a list of suggested items and minimum suggested quantities. If two mockups are being burned, then double the number of items needed.

Item	Quantity	Comments
Backpack	1	This adds realism to the mockup and also provides an opportunity to place crumpled newspapers inside of it.
Books	20	These can be obtained from the local recycling facility.
Bulletin board	1	This will provide an opportunity to place a number of loose papers on the wall, adding to the vertical fuel path.  Source: School housing department or local merchant
Computer	1	It is safest to use a laptop computer to avoid the possibility of a CRT monitor shattering. Also, many students use laptops vs. desktop computers.  Source: A source for obtaining a laptop computer could be the school's recycling facility or information technology department.
Curtains or shade		These add to the vertical fuel path.
Desk	1	This desk should not be too large or massive. It is important that there be enough airflow throughout the mockup and using a large, office-style desk may be problematic. If the desk has a shelf system with it, that is highly desirable as this helps with the vertical fire spread.  Source: Often, a school's housing department will have old furniture that is being discarded that can be used. It may need temporary repairs that will then make it usable for a burn.
Desk chair	1	The school's housing department may be able to provide a desk chair. Wood is preferable over metal.
Magazines	12	Try to use magazines that the students would recognize. The two most popular magazines sold on campuses are Maxim and Cosmopolitan. These magazines also provide a source of pictures and articles that can be cut out and put on the bulletin board, providing more fuel and realism.
Misc. clothing such as sneakers, sweatshirts, towels, etc.		More is better when it comes to fuel. This is a chance to get rid of all of the old clothes and t-shirts that have been cluttering closets and drawers!
Misc. items such as candles, incense, CD jewel cases, etc.		All of these items add a sense of realism and also provide an opportunity to talk about fire hazards.
Newspapers	20	
Pizza boxes	6	Using "fresh" pizza boxes that have grease still on them will provide significant fuel load.
Posters	6	Use posters that students will identify with. Local merchants are a good source for these items.  Source: University book store, local merchants
Tapestry	1	This is critical to have on the ceiling to help dramatically spread the fire.  Source: Local merchants

Thumbtacks		Invaluable in setting up the mockup.
Trash can	1	A plastic trash can is highly desirable as it will melt, providing more fuel and is visually dramatic.
T-shirts	6	These are invaluable in draping over chairs to add to the vertical fuel path.
Upholstered chair	1	To help in the fire spread, cut open the back and underside of the chair to expose the upholstery.  Source: University housing or recycling.

**Building the mockup**

- Having a carpenter available to help in building the prop is helpful, but not mandatory. Familiarity with basic construction techniques and tools can be sufficient.
- Ordinary tools will be needed such as hammer, saw, square, screw gun, knife, tape, etc. are needed.
- At least two people are needed to build and assemble the mockup, especially in placing the “roof” assembly.
- It is recommended that the mockup components be built at least one day before the scheduled burn. This will allow enough time in case there should be any problems with the assembly.
- It is not necessary to paint the sheetrock unless desired. If so, the individual wall panels should be painted at least one day before the burn to ensure that they are sufficiently dry.
- Two step ladders will be needed while assembling the mockup to place the roof assembly.

**Day of the Burn**

- Allow for a minimum of three hours to assemble and outfit the mockup.
- A minimum of two people will be needed to assemble the mockup.
- The furnishings should be on site three hours before the burn. If possible, look over the furniture being provided to ensure that it is adequate and sufficient.
- Assemble the mockup then proceed to outfit it with the posters, tapestry, furniture, etc.
- Place a smoke alarm on the ceiling.

A three-dimensional model of a mockup can be found at the Campus Firewatch website at [www.campus-firewatch.com](http://www.campus-firewatch.com).

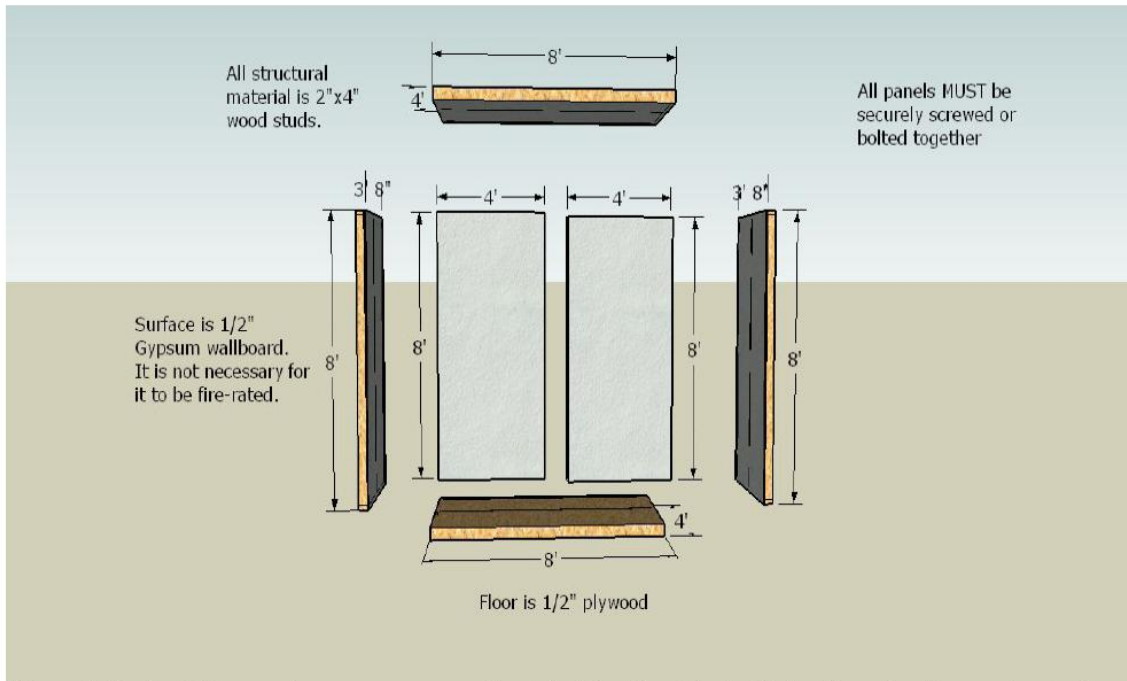


Figure 1 Each of the panels measure approximately 4 feet by 8 feet which allows for the mockup to be easily stored when it is disassembled.

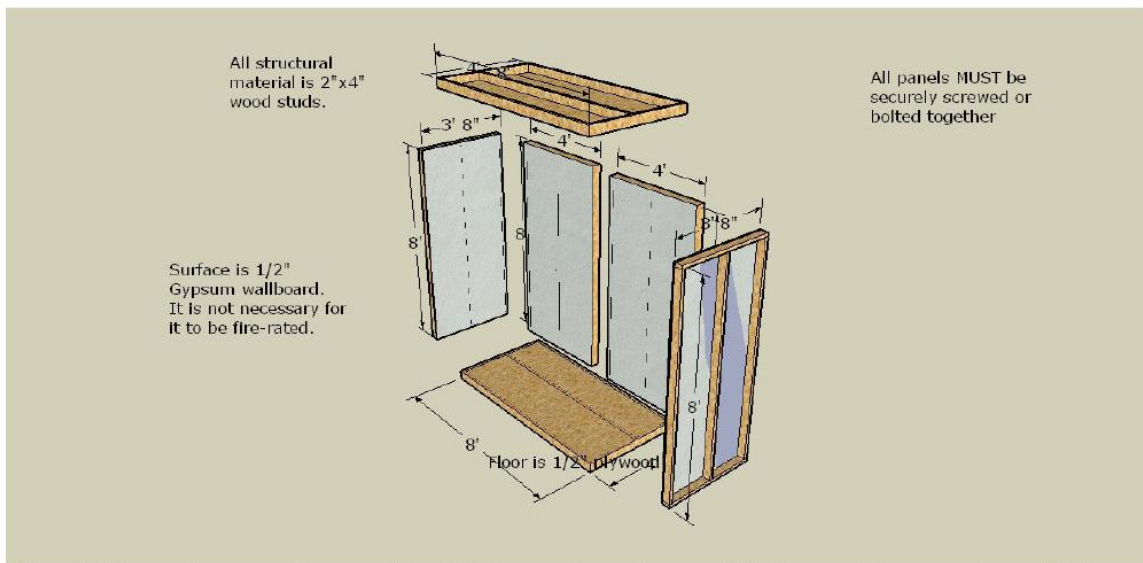


Figure 2 Depending upon the severity of the burns, it may be possible to conduct several burns before replacing the sheetrock.

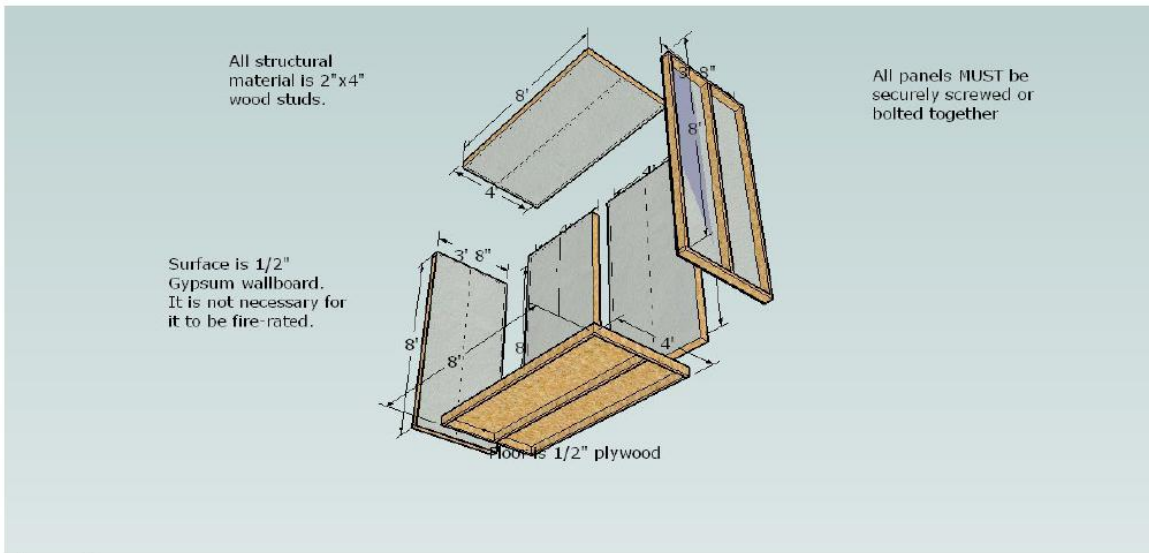


Figure 3

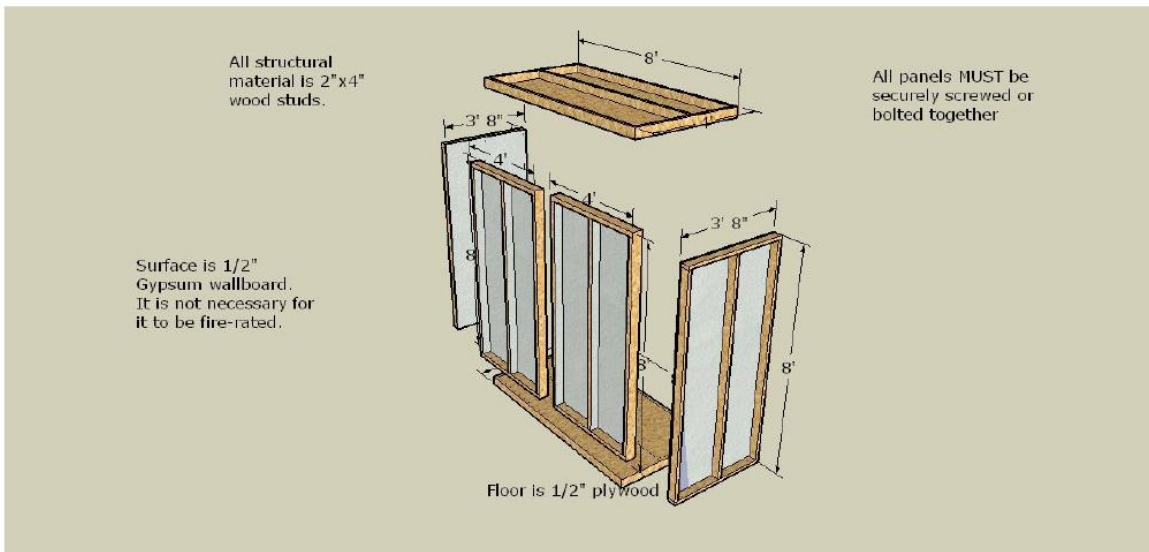


Figure 4



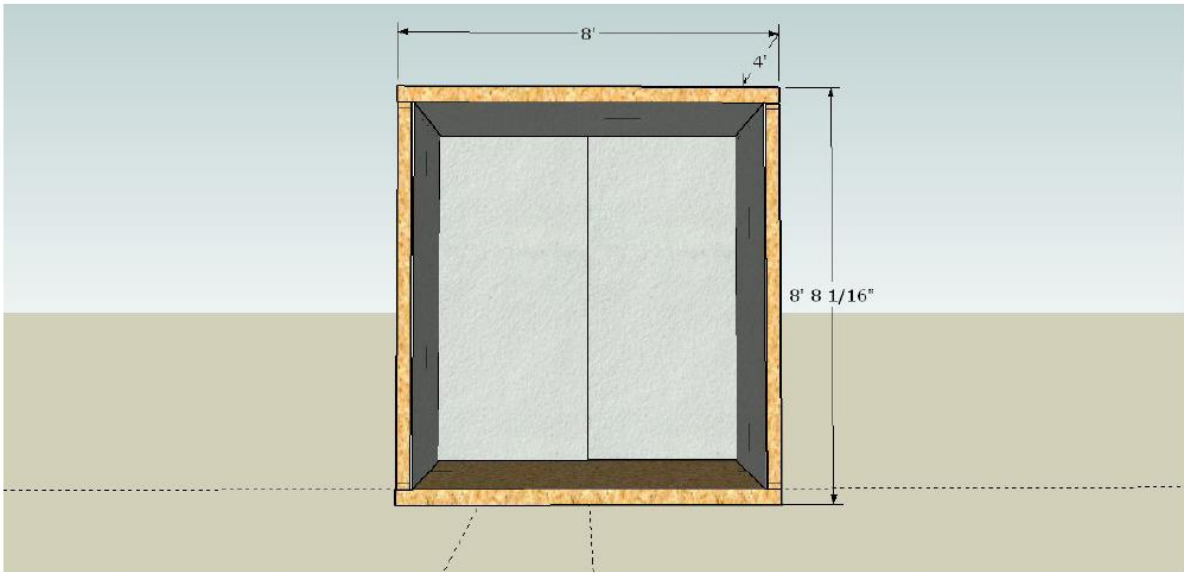


Figure 5 Front view of an assembled mockup.

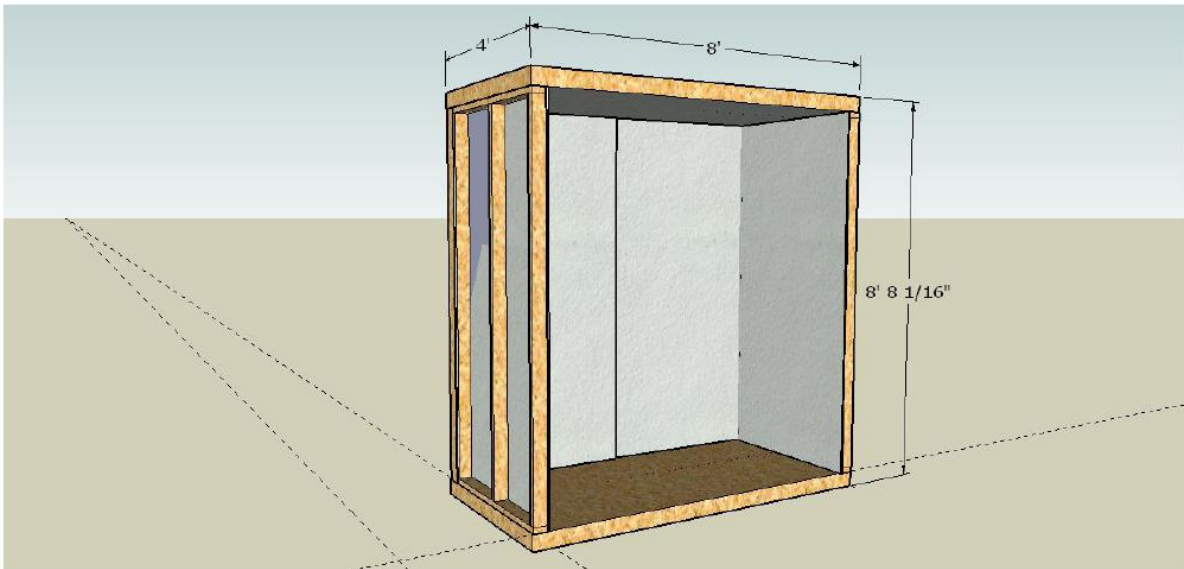


Figure 6

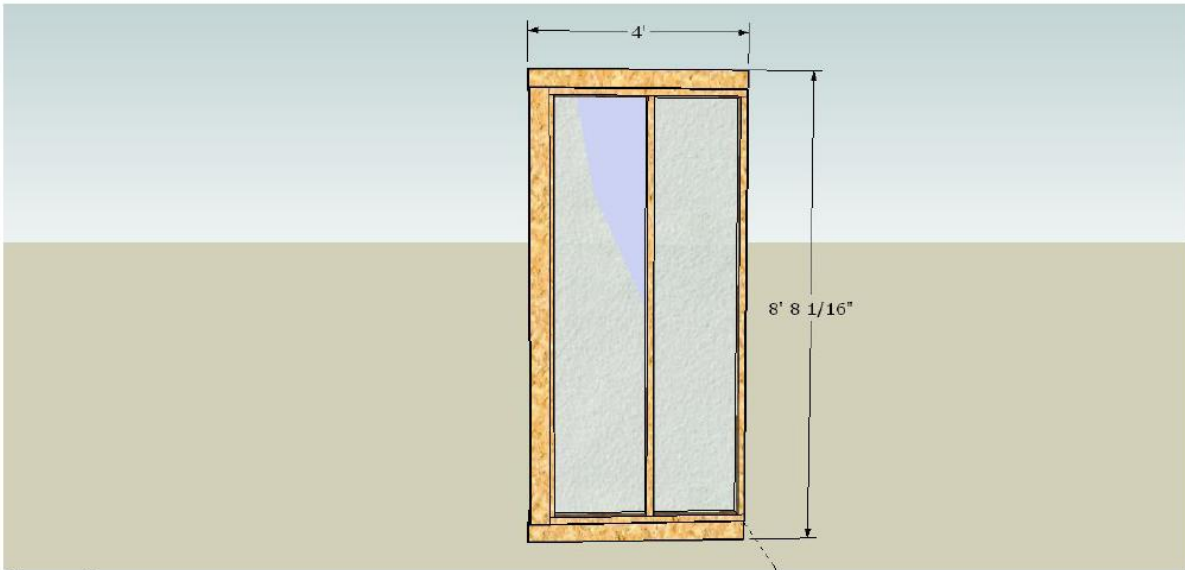


Figure 7

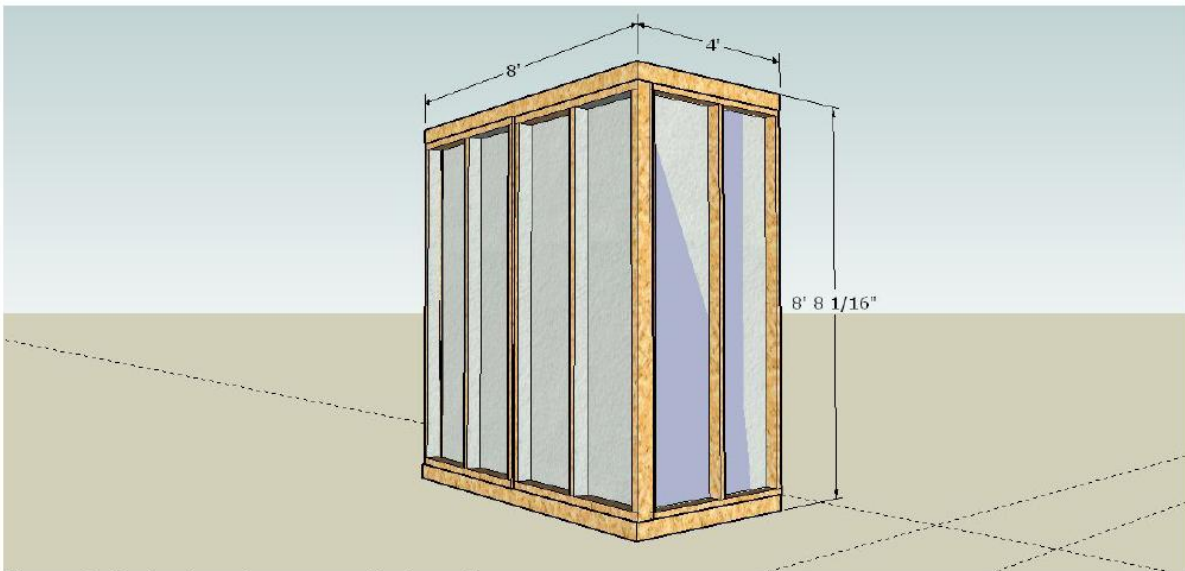


Figure 8 Back view of an assembled mockup.

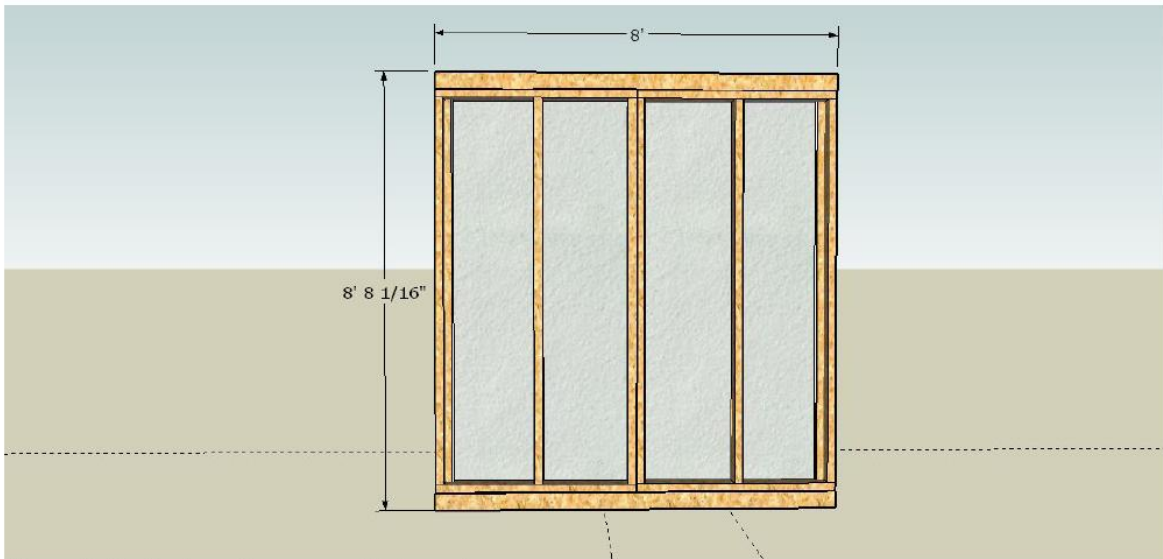


Figure 9 Back view of an assembled mockup.

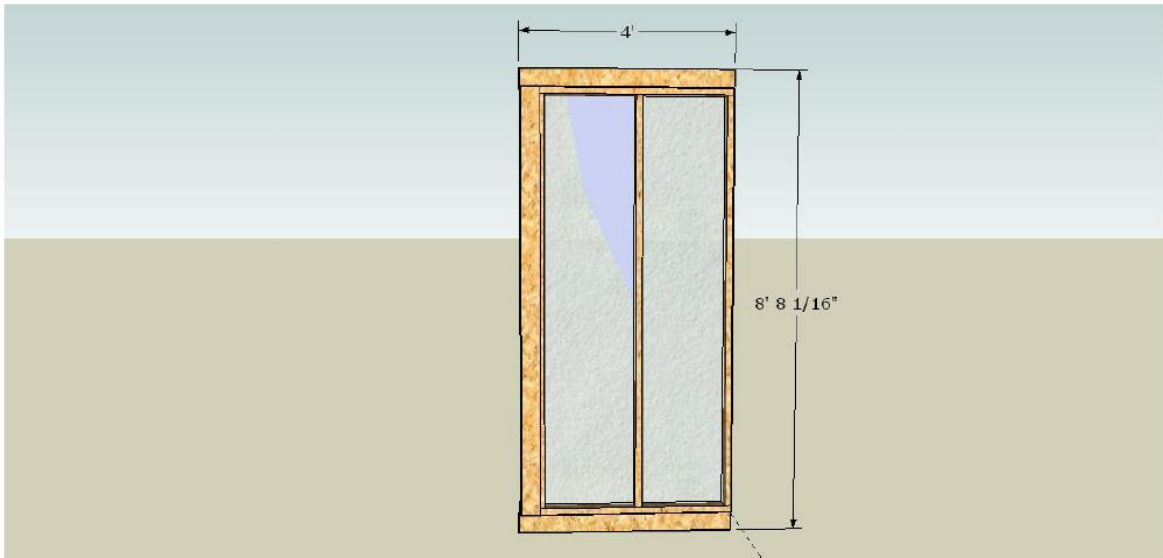


Figure 10 Side view of an assembled mockup.



Figure 11 One of the important considerations when doing a burn is to have plenty of fuel and a continuous fuel path up to the ceiling tapestry. It is also important to make sure that the room is not packed too full with furniture and that there isn't enough airflow. In this mockup, the fire is going to start in a trash can in the lower left corner and travel up the posters and wall hanging to the tapestry.

Actually, the fuel load in this particular mockup is light and the fire did not proceed as well as it has in other mockups. MORE IS BETTER!



Figure 12 This burn started in a trash can located between the desk and the chair. There is plenty of fuel and a continuous vertical fuel path for the fire to travel.



Figure 13 The fire spread rapidly until it reached the ceiling tapestry. At that point, it then spread quickly horizontally until the burning tapestry fell down onto the other combustibles in the room.



**Figure 14**The fire spread is rapid and dramatic. Within approximately five minutes the room's contents are fully involved.

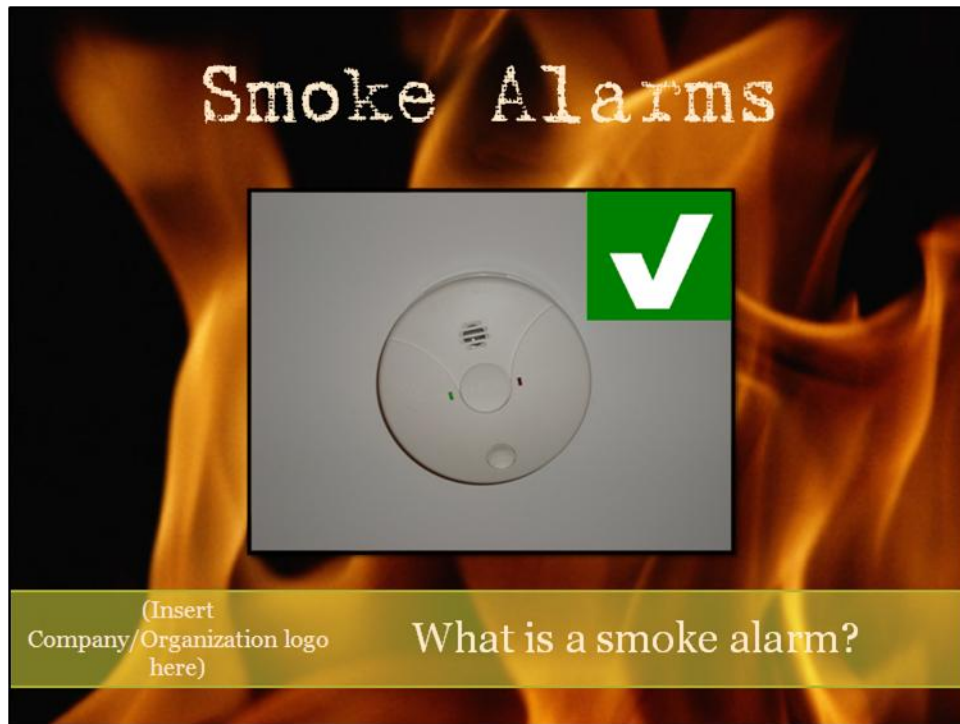
## Appendix L: Passive FireAway Material

### FireAway PowerPoint



Introduce self and organization, as well as topic.





There are several different types of smoke alarms, but all of them will do the job. If there are no smoke alarms where you live, contact your landlord immediately! The landlord is responsible for installing them, YOU are responsible for making sure they work.

# Smoke Alarms

- Test your smoke alarm by pressing the button
- Never take out the battery or disable it in any way



(Insert  
Company/Organization logo  
here)

Maintenance

Test your smoke alarm at least once a month by pressing the “test” button.

NEVER disable a smoke alarm, even if it goes off while you are cooking. It’s just doing its job.

Don’t take out the battery.

Don’t take it down.

And don’t cover it.

# Smoke Alarms

- They save lives!



(McLaughlin, 2007)



(Dejimonster, 2008)

(Insert  
Company/Organization logo  
here)

Why do you need them?

Fires can get out of control in a matter of minutes. Much faster than the fire department can respond.

The sooner you know, the sooner you can get out.

# Electricity

- DO NOT overload power boards



(MFB, 2008)



(Insert  
Company/Organization logo  
here)

Don't Overload Circuits!

Overloaded circuits can spark and ignite nearby flammable materials.

# Candles

- Use candle holders
- Put them out when leaving the room or going to sleep
- Keep away from flammable objects



(MFB, 2008)

(Insert  
Company/Organization logo  
here)

Don't play with fire

Candles should be placed in specifically designed candle holders.

They should also be placed in an area away from all flammable materials.

Never place them in a window, especially one with curtains.

Put them out when leaving the room or going to sleep.

# Heaters



(MFB, 2008)

(Insert  
Company/Organization logo  
here)

Give them space

- 1 meter away from all other objects, especially clothes
- Shut off when leaving the room or going to sleep

Heaters should be 1m away from all surrounding objects.

Never put clothes or other linens on or near the heater.

Always shut off the heater when leaving the room or going to sleep.

# Cooking

- Only cook in the Kitchen
- Don't leave cooking unattended
- DO NOT use water to put out an oil fire



(MFB, 2008)

(Insert  
Company/Organization logo  
here)

Use your head!

Most house fires start in the kitchen.

Only cook in a designated kitchen area, never in a bedroom.

Never leave the room while cooking, pay attention to what you are doing.

If a fire breaks out while cooking, never use water to put it out. Keep a saucepan lid, fire extinguisher or fire blanket nearby at all times.

# Plan Ahead



- Have a fire extinguisher available
- Does every room have 2 exits?
- Know your escape routes.

(Insert Company/Organization logo here)

Always be prepared!

Have a fire extinguisher ready at all times.

Does every room have at least 2 exits?

Know your escape routes, you may have to find your way out in the dark.



# Emergency Procedure

- Get out and close your door
- Alert Others
- Once out, stay out
- Dial 000  
(zero zero zero)



(Insert  
Company/Organization logo  
here)

Don't panic!

Get out immediately.

Closing the door will help prevent the fire from spreading faster.

Let others know they are in danger.

Never re-enter the building, fire moves extremely quick.

Once in a safe location, dial 000 and alert the proper authorities.

## References

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## FireAway Flyer

# FIRE SAFETY

### Smoke Alarms

- Test your smoke alarm **monthly**.
- Never disable a smoke alarm.
- If you don't have smoke alarms, contact your landlord immediately.



### Cooking

- Most house fires start in the kitchen.
- Never leave the room while cooking.
- **Never put out a cooking fire with water.** Use a fire extinguisher, saucepan lid or fire blanket.

### Candles

- Use a properly designed candle holder.
- Put candles out before leaving the room or sleeping.
- Keep away from curtains and other linens.



### Heaters

- Keep heater at least 1 meter away from all clothes and linens.
- Turn heater off before leaving the room or going to sleep.



### Plan Ahead

- Have a fire extinguisher available.
- Does every room have 2 exits?
- Know your escape routes.

### Emergency Procedure

- Get out and shut your door.
- Alert others.
- Once out, stay out.
- **Dial 000 (zero zero zero)**



# FireAway Brochure

**FIRE SAFETY**



[Insert Organization Name Here]

Your life is in your hands.  
Tel: [Insert number here if you want to]

**About Us**

*This is a good place to briefly summarize the purpose of your organization.*



Caption describing picture or graphic.

  
Organization

Organization Name

Primary Business Address  
Your Address Line 2  
Your Address Line 3  
Phone: 555-555-5555  
Fax: 555-555-5555

## Important Information

### Smoke Alarms



Working Smoke Alarm



Disabled Smoke Alarm

Test your smoke alarm **AT LEAST** once a month!



## Candles



Use properly designed candle holders.

## Cooking



Never put out an oil fire with water. Use a saucepan lid, fire extinguisher or fire blanket.

## Heaters



Give Heaters at least 1 meter of space

## Plan Ahead

Know your escape routes. You may have to find your way out in the dark.

## Emergency Procedure

Get out

Shut your door

Alert others

Once out, stay out

Dial 000 (zero zero zero)



### Organization Name

Primary Business Address

Your Address Line 2

Your Address Line 3

Phone: 555-555-5555

Fax: 555-555-5555

E-mail: someone@example.com

## FireAway English as a Second Language Worksheet

### FIRE SAFETY – READING ACTIVITY



Read the following then answer the multiple choice questions attached.

- ❖ Test your smoke alarm regularly by pressing the “test” button.
- ❖ Do not disable smoke alarms in any way.
- ❖ Put candles in properly designed candle holders and place them away from flammable objects.
- ❖ Do not sleep with a candle or oil burner still lit.
- ❖ Prepare food **ONLY** in the kitchen.
- ❖ Oils and fats catch fire easily. **DO NOT** put an oil fire out with water.
- ❖ Keep clothes and curtains at least 1 meter away from portable heaters.
- ❖ Turn heaters off before you leave the room or go to bed.
- ❖ The emergency telephone number is **000**.
- ❖ Know where your nearest fire exits are as well as the fire evacuation plan for your building.

**Circle the answer that you think is correct.**

**1. Good maintenance of a smoke alarm includes...**

- a. Removing the battery
- b. Taking the smoke alarm down
- c. Covering the smoke alarm
- d. **Testing it regularly using the test button**

**2. A good place to keep a lit candle is...**

- a. Next to the window
- b. Next to my bed while sleeping
- c. Directly on any surface
- d. **In a properly designed candle holder**

**3. If it is safe to do so, you should put out an oil fire using... (Circle all that apply)**

- a. **A fire extinguisher**
- b. Water
- c. **A fire blanket**
- d. **A saucepan or lid to smother it**

**4. What should you do if you do not have working smoke alarms?**

- a. **Contact your landlord immediately**
- b. Don't worry about it, fire only affects other people
- c. Call your local fire department

**5. If a fire breaks out, the first thing you should do is...**

- a. Call 000
- b. **Get out of the room and alert others**
- c. Stop, Drop and Roll

**6. Heaters should be...**

- a. Kept ½ a meter away from clothes and curtains
- b. **Shut off when leaving the room or sleeping**
- c. Kept close to your bed so you can be extra warm





FireAway Computer Backgrounds or Screen Savers

In an  
Emergency,  
Dial

000

Only Working Smoke  
Alarms Save Lives

Test Your Smoke Alarm  
Today



Only Working Smoke  
Alarms Save Lives



Test Your Smoke Alarm  
Today