



The Journal of  
**THE FIRE ENGINEER**

Issue 1



**THAT FATEFUL DAY**

# **WE ARE WARRIORS IN AN ETERNAL WAR**

**The Fire Engineer and associated  
characters - Copyright © 2004**

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# THE FIRE ENGINEER

This book is dedicated to the men and women who, in the fire services across the globe, risk their lives on a daily basis to save the lives of others.

All persons in this book are fictitious; any resemblance (that may seem to exist) to actual persons, living or dead, is purely coincidental. This is a work of fiction placed within the framework of a real event.

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Lyrics from Rich by Marillion, used with permission

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# THAT FATEFUL DAY

(THE ORIGIN OF FIREFLY)

WRITTEN AND ILLUSTRATED BY PAUL HANSON



## New York - early morning

Mandy could scarcely believe she had finally made it - at last the prospect of a good job. Since her mum died nothing seemed to be going right. Her dad was there for her, but he was not her mum. The best they could do was share their grief together, although she quickly realised the grief for a mother is wholly different from the grief her dad was suffering as a husband.

Her last year in high school now seemed the best time of her life when they were all still together. University was something she had looked forward to but now something had been taken away from her it had less of an appeal.

She also realised that she had to be strong for dad; she was all he had now. Today was the first day of her first full time job. She would try to remember every detail so she could tell him all about it when she came home. This was the day everything would be alright.

She walked into the World Trade Centre and called the lift.

## New York - one hour later

The *Dancing Angel* descended slowly, three tonnes of titanium alloy enclosed in a protective fire resisting shell, floating with the agility of a Harrier jump jet but with a whisper of the sound. The craft was about eight metres wide. The humming thrusters changed pitch as the velocity

decreased to hover six metres from the ground.

A fire fighter on the ground looked up at the strange craft. He had only seen it before in photographs, and had wondered what all the fuss was about. But seeing the craft circle and descend effortlessly between the buildings made an impression. And he was about to see the one they called the Fire Engineer.

A disk attached to a red pole descended from a circular hatch at the base of the craft.

Holding onto the pole, with his feet grounded on the circular disk, was a figure clad in a grey and black jump suit edged with red stripes along the arms.

A group of Fire Chiefs had set up base at the foot of the towers; they were discussing tactics. One of the nearby Fire Chief's turned. He had already recognised the distinctive hum of the *Dancing Angel* and he needed no introduction to its occupant.

The Fire Chief walked over to the Fire Engineer and they greeted each other with a firm handshake. When they had first met only a year ago their greeting was less than friendly. The Fire Engineer was, after all, a sort of "mercenary" figure; no one knew of his origins and some might say he interfered with the role of the professional fire fighter. This Fire Chief had also held that view, until last year. They had met face to face on a particularly difficult incident and since then his views had changed.

'I hope you don't mind my sudden appearance, but I wondered whether I could be of some help?' said the Fire Engineer.





‘We can do with all the help we can get with this one!’ said the Fire Chief.

A few more officers of the fire department joined them, some looking quizzically at this strange looking figure.

‘I would like to introduce you to the Fire Engineer,’ said the Fire Chief, ‘He don’t belong to any of our battalions but I would gladly call him a brother. Without his help on the Malaxo warehouse fire many of our brothers would not be with us today.’

The Malaxo warehouse fire was well known to the other Fire Chiefs present. It was that incident which had earned the Fire Engineer the respect of the Fire Chief. The term “brother” is a term the New York fire department use to describe their own; the collective family of the fire department. The fact that this Fire Chief addressed the Fire Engineer as such confirmed he had been accepted as one of their own. They all looked upwards.

From their location at the base of the World Trade Centre the smoke seemed to extend the height of the twin towers, one column rising from each to merge into a thick cloud, which loomed ominously over the scene.

The Chief and his colleagues explained their current strategy to the Fire Engineer.

‘If you’ve got any thoughts, I’d be glad to consider them,’ said the Fire Chief.

The Fire Engineer thought for a moment then replied, ‘Well, whilst I was on my way here a colleague back at base was running a 3-D simulation; she took the volume of smoke we can see and worked backwards to determine the heat

output from the mass flow of the smoke. Now obviously this is only going to be an estimate, but what she found was this:

‘We’re talking about a fire with a heat output of about one giga watt. Sorry, excuse the terminology - we’re metric in the UK! Now let’s see - that’s 3-5 trillion btu an hour in your btu language. The mass flow of smoke would be about 1400 m<sup>3</sup> a second by now, and the average smoke temperature about 1100°C. And, gentlemen, in anyone’s language we’re talking superheat with the energy output of a commercial power station from each of these two buildings.

‘I fear that my backdraft oxygen depletion missiles may weaken the structure, so I dare not attempt an aerial assault to extinguish the fire. Gentlemen, I don’t think the plans you have in place can be improved upon. Just tell me where I would be of most assistance.’

‘Our problem is getting past the fire floors; if you could help the people above that level with your craft?’ the Fire Chief suggested.

‘My craft’s not designed for rescuing large numbers of people, but even if I can bring down just a few... I’ll give it a try.’ The Fire Engineer stepped upon the circular platform and ascended into the *Dancing Angel*.

Some distance away stood the Fire Engineer’s main craft known as the *Carrier*. This aircraft had the power to fly quickly over long distances with a maximum speed of Mach 6, (this being six times the speed of sound). However, the main craft (being mostly engine) was a transporter for the smaller and more manoeuvrable *Dancing Angel*. He had left the *Carrier* a safe distance away from the incident to protect its sole occupant. Although Sally had not known the Fire Engineer for long, she could read him enough to realise how



bad this situation was. The confident composure he projected when they first met had not exactly disappeared; it kind of hung like a curtain ready to be ripped down. He feared he would not be able to do enough.

Sally wanted to take a look outside. Lisa had loaned her a protective suit; it was about one size too small and therefore a bit tight, but who was she to complain? She had to admire Lisa. This craft, the *Dancing Angel* and the equipment the Fire Engineer used were her ideas, designed to help people. She had really done something with her life.

This was so different from what she was used to. The people in the office where Sally had worked seemed interested in only one thing; themselves. This was a world apart.

**T**he *Dancing Angel* swept up through the billowing smoke. Now that the Fire Engineer could see the scale of the fire at close quarters, it appeared that about three floors had flashed over. The entire contents of these floors were burning. Lisa, his engineer back at base, had not developed anything capable of extinguishing a flashover of this magnitude.

He conceded to himself that on this day the best he could do was help some of the people trapped above the fire floors. He circled the *Dancing Angel* around the twin towers.

**S**ally decided it was time to go out there and do something. She had barely descended the ramp of the craft when a teenage girl not much older than her came over, looking up at the *Carrier*.

‘Wow! So you’re with the Fire Engineer! Do you get to use all this cool gear to fight fires?’

‘Well, that’s not quite...’

Just then a group of weary medics, fire fighters and civilians appeared on the scene. The girl started to move in their direction.

‘Sorry to cut you short, but duty calls!’ she went off in the direction of the group and led them into a building. Sally rushed after her.

The building was a coffee shop, but rather than housing the usual customers, it was full of weary people, mostly civilians, but also a few of the emergency services. As she stopped in the doorway she saw a fire fighter sitting on the floor, his head in his hands. His pose said everything the people of New York were feeling.

‘How could they do this?’ he muttered.

She bent and crouched in front of him pausing for a moment, *Because somebody is annoyed about something*, she thought, *I know, I’ve been there*. But what she eventually said told the truth equally

about the perpetrators of this act, and about herself.

She said softly, ‘Because someone has a voice, but doesn’t know how to speak.’

He nodded. She could see now that he had been injured. ‘You ain’t from round here, are you?’ he asked.

‘Does my accent give me away that easily?’ asked Sally.

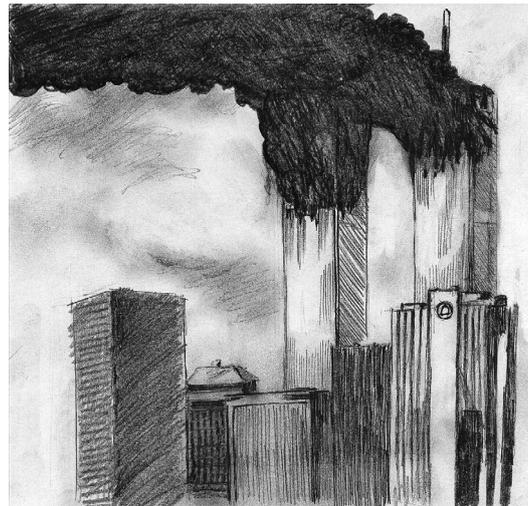
‘That symbol on your top. You’re from England. The Fire Engineer. I’ve read about him. You’re part of his team?’

She nodded. It was too complicated to explain and she was sure he wouldn’t want to hear how she came to be wearing this suit anyway. What he needed was encouragement. Suddenly an overwhelming feeling of guilt came over her, because of her own act of aggression earlier that day. Speaking to a victim of this present attack made her realise, not for the first time, how little she had thought of her potential victims. Anger had fuelled her.

She felt shame in having an affinity with the perpetrators of this attack, a shame she could not shake off. She looked into the eyes of this man who had pledged his life to save the lives of others, and time stood still.

Time is but a marker between the then and the now. The mind is but a vessel that sees the now and recalls glimmers of the past. And what we see is what we feel and what we feel is what we are.

For a moment - a moment that seemed like forever - she was back there, back where it all started, where she used to work.



‘How could they do this?’

‘Because someone has a voice, but doesn’t know how to speak.’

**Two days previous - London, UK**

**I**t all flowed back. Not just the place, not just the time, but also the overwhelming emotion she had felt when she had entered Jake Rankin’s office, when they had started to

exchange a few words; words she had wanted to say for a long time.

‘You know your staff are your biggest asset, so why treat us like this?’ Sally folded her arms, in a gesture of defiance.

‘Ms. Beckdale, you’re the only one who has complained.’

‘You mean I’m the only one who is prepared to stand up to you!’

‘Conjecture will not help you. I am a businessman of 30 years standing. Now if you don’t like the way this business is run then you would best go and find some alternative employment. In fact, with your attitude I don’t think I’ll give you a choice.’

‘I know my rights. If you sack me I’ll go to an industrial tribunal.’

He walked over to the window, picked up a small

watering can and began to water one of the plants.

‘Did you know that this is called a money plant, Ms. Beckdale?’ He turned to her smugly. ‘What do you think they will do to me if a tribunal finds in your favour? In a society where drug dealers are given a slap on the wrist. Come now, Sally - may I call you Sally? We live in a society where honesty and being nice to people is not a reward; I know, it’s why I am so successful!’

‘Let’s just assume that even without any witnesses to back you up, a tribunal does find in your favour. They will fine me, and I will keep watering the plants. A few dead leaves are expected in any garden.

‘Now you on the other hand, will have to suffer months, perhaps even years of stress as my lawyers defend my position, to ensure you really have a valid case against me. You’re not a member of a union are you? No, of course not, I banned any employees belonging to them back in the early nineties. Well, there is always legal aid.

‘Now as you know, I hate wasting time so I’ll give you a tip. I wouldn’t bother applying for another job in this field; you know my influence. But I did notice on my way in this morning how dirty the streets are. Perhaps your particular talents could be usefully employed elsewhere.’

Sally’s rage was mounting ‘How can you be so..?’

‘And before you say it, any name you may wish to call me really does not describe the half of it.’

She knew it was hopeless; he was even able to prevent her from insulting him.

She left his office, the anger at volcanic proportions. She passed through the rest of the staff, who all had knowing looks on their faces.

### **The next day, London - early morning**

**T**he rain fell relentlessly, with the dark morning sky reflecting Sally’s current mood. The volcano of anger had erupted last night. Now it was lying dormant, pulsing every so often.

It had not been difficult for her to get in, knowing the building as she did. The basement was cool, but now the petrol vapour was making the air oppressive. Still, this was the last of it. She left the petrol can and climbed up to the narrow basement window and out onto the wet pavement.

Her rage came in waves, shifting the mounting sands of anger, oppressive and overwhelming. How could he do this to me? How can he be allowed to do this to me? Why should he be allowed to do this *to me*?

The spark lit the scene for a moment as the match ignited. This was it; this was the moment when she would show him.

Just as she was about to throw the match through the basement window something hit her shoulder. The sudden impact caused her to topple over, dropping the match harmlessly on the pavement. She fell down, her shoulder stabbing with pain. She tried to move but couldn’t, at least for a moment.

‘You do know that playing with fire is dangerous?’

the voice was authoritative.

Now she could move, although her shoulder was painful. She was wet. Not just wet, but drenched. A pool of water surrounded her. She had been hit by a very powerful water jet. Looking up, she saw a man. Water was dripping from two small cylindrical objects attached to the top of the wrist of his right hand. He wore a uniform of some kind that Sally did not recognise. From the way the costume hung on his body (or to be more precise, did not hang on his body), she guessed he worked out a lot.

‘What the hell d’ya think you’re doing?’ she raged, and stood up.

‘I’m stopping you from making a big mistake,’ he responded.

‘The only mistake was when you came along, mister!’

‘You do realise that setting fire to a building is an offence?’

‘An *offence!* Oh, is it really? So I suppose you’ve dressed up in that costume to help protect the innocent; defend truth, justice and the American way? Is that what you do?’

‘As we are in Britain, that would not be entirely accurate.’

But now she was riding one of her waves. ‘Well mister goody two shoes, do you want me to tell you about justice in this country?’

Clearly she had some deep anger inside her. Psychology was not his field. After all he was a fire engineer; ‘The Fire Engineer’ they called him. But he did know that, in some cases, crimes were not committed by bad people, but rather people who have been exposed to a bad environment. When we feel we have been mistreated, we react.

The least he could do was listen. ‘Be my guest.’

‘That guy in there can treat his staff... treat me, like dirt. He can make my working day hell. We’re not talking physical abuse here, no physical injuries. They heal. They’re easy to recover from. No, we’re talking mental abuse. We’re talking about things that go through your mind at the weekend when you should be enjoying yourself. And when you try to deal with it, tell him it’s not on, he won’t even admit he’s done it, ‘cos that’s easier. He don’t need to defend that, he just attacks you for making the accusations.

‘So then you’re the troublemaker, and you end up with no job and no prospect of getting one in that field again, ‘cos he’s so well respected; he has so much influence that your chances of getting another job are zero.

‘That’s justice in this country mister goody two shoes. And you! You’re protecting him!’

The Fire Engineer would like to have given her a nice slice of wisdom that explained everything, but he couldn’t. There are times when the Law is as much a menace as a guardian to the innocent. Nothing he could say would diffuse her anger.

‘I can understand how you feel, but how you have attempted to deal with the situation is wrong. In any case he would have only claimed on the insurance.’

‘No. The renewal came up last week and I... how can I put this? I cancelled the direct debit. Anyway I was counting on him being in the building; he’s one of these really early starters.’

‘You certainly have a problem with your employer. But this is not the answer. You cannot seek justice by an act of injustice.’

‘So what is the answer then?’

‘Look, my field is fire engineering. What you did is against the law, however limited you may think its powers are.’

He should take her to the police. But what good would that do her? A stretch in prison for attempted arson; would that help? Teach her not to do that again and sort out her life? No, something else was needed. He felt a conflict of emotions; anger and sympathy. Sympathy for her predicament and anger for the extreme way she had attempted to address it. Perhaps she would best be served by understanding the effects of fire, and the effect upon its victims.

‘I’m going to give you two choices. Number One: I turn you over to the police. Attempted arson will land you a stretch in prison. Number Two: accompany me for a few days in my work. I’ll make sure you won’t be in any danger.’

Sally thought he must be naive. All she had to do was go along with him for a few days and at the end of it proclaim she had seen the light.

‘Well your Number Two sounds better than putting myself at the mercy of the courts.’

## **New York - World Trade Centre**

‘Coffee?’

Mandy looked up, she had been sitting there patiently, taking in everything she had been told about her new job; her tutor had just been called away to answer the phone. Her mind came back into focus. A young man stood there with two cups. He had short black hair, cut flat on the top. His hair, the red tie, and the big smile made an immediate impression. She nodded.

‘I’m John. I’ve only been here three weeks myself, took me a week to find the coffee machine. Thought I’d save you the trouble.’

Was this a chat-up line or was he just being friendly? ‘You’re right, this place is just like, really big. I feel like I’ll never get used to it.’ He seemed nice; she hoped it was a chat-up line.

The spell was suddenly broken as an older man marched over.

‘Now, now, there’s work to do around here young man!’

The older man was Harold Marcham. He was in his early fifties and had a full head of grey hair swept back from his forehead. He wore glasses, although they were not needed for all occasions and frequently formed an extension of his gestural sweeps. When Harold had to speak, he generally took off his glasses to do so, and such was the case at the moment. Mandy had already been introduced to him; it was Harold who had been showing her

where she would be working when he was called away to answer a phone call. He seemed nice, very efficient. Mandy guessed he had worked there a long time.

‘Sorry Mr. Marcham.’ John adopted a business like pose. ‘See you later ... er...’

‘Mandy,’ said Mandy.

‘See you later, Mandy.’

I hope you do, she thought as he walked away.

Her mind was somewhere else when she felt it. Harold was already on the floor, his glasses narrowly escaping full impact with the floor. The window next to her desk shattered. But overwhelmingly an impossibly long heavy screeching sound rumbled below her as if the whole floor were about to take off. Then the whole floor rumbled as the screeching sound was overcome by an even louder exploding sound.

She looked up, and the sky was black. There were people staring out of the windows at an impenetrable black cloud, so intensely black it seemed to envelop everything. And with some of the windows shattered, the cloud was breaking up and drifting into the room. The air was suddenly contaminated; people were coughing.

Somebody helped her up before she even knew she was down. The red streak glimpsed in the corner of her eye was not blood after all - it was John’s red tie.

‘I don’t know what’s happened! I don’t think anyone does. But we should get away from the smoke,’ John suggested.

They moved towards the centre of the office. Harold Marcham was with them, glasses aloft, waving them at the way out. ‘We’d better move,’ he commanded. Other people just stood bewildered.

‘What happened?’ asked a woman standing at a nearby desk. She frantically tried to tidy her long flowing red hair with one hand.

‘I don’t know, Ann, an explosion below us or something,’ replied John. ‘We’re getting out, there’s smoke coming in through the windows over there.’

Ann came over to them. ‘Ann, this is Mandy; she’s just joined us today,’ said John. Their anxiety allowed them only a brief hello. Ann must have been in her late twenties. She was not strikingly beautiful but she had a presence comprised mainly of manufactured form. Her red hair flamed as she shook her head, which she did frequently.

‘Should I just leave everything?’ Ann asked.

‘I think it would be wise,’ said Harold. He took the lead as they headed for the corridor. Some people were already ahead of them, and others followed. The corridor was clear of any haze of smoke. It seemed a long trek to the nearest staircase. There were about ten people in front of them who suddenly stopped as a figure of a woman came barging through from the other direction. She seemed bewildered, but with a vague sense of purpose at the same time. As she came closer her eyes met those of Harold Marcham. She seemed relieved and came running.

'Harold!' she grabbed hold of his shoulders, 'Please, they can't make him go. You know him, can you talk to him ... tell him ...'

'Judy, slow down!' Harold tried his best to understand. Judy was tall and as a consequence avoided the use of high heels, but even without these she was at least two inches taller than Harold. Her black hair was tied in a ponytail and seemed to join as one with the thin black arms of her metal glasses.

'I'm sorry, It's that guy from England, you know him... came over last night to see Gerald. Can you come? Tell him he must leave! Gerald is still in there with him as well.'

Gerald? Mandy knew Gerald Korfman was the director of the company. She had never met him but his name was on the letterheads. And Judy; Mandy had spoken to her in what seemed like another world: a world where Judy was the calm logical woman who had spoken to her about her job application. In fact if it were not for Judy's help with that little but essential piece of advice, Mandy may not have been able to present her application as well as she had done.

This was a different Judy. The same person, but a world apart from what normally passed as reality.

Whilst this was taking place, those up ahead had disappeared along the corridor. Now the cross corridor doors burst open from that direction and two men came running back to where the group were standing.

'It's no good!' shouted the first man, a young Jamaican with short black hair and silver framed glasses. His name was Mike. 'The staircase, it's gone!'

'What do you mean, the staircase is gone?' Harold broke away from Judy's distress for a moment.

'It's gone man, there's no way down there, the stair's fallen away. It's just black, thick black smoke. We only just managed to get away.'

'Just the two of you?' asked Ann.

'Mike and me, we were a bit behind the others,' said the other man, dragging his fingers through his long blonde hair. His name was Simon.

'Look, don't panic. There's at least another two staircases,' Harold spoke reassuringly.

Simon stopped dragging his fingers through his hair and looked up sharply. 'Hey, we're not panicking! Are we Mike?'

'No man, course we're not panicking,' said Mike.

'Sorry, I didn't mean to imply you were. What I really meant is don't worry; we have plenty of ways out of this building,' said Harold.

'What about Gerald?' reminded Judy.

'I'll come with you Judy. We'll get Gerald and our English friend. From what Mike and Simon have told us it may not be wise to go back the way you came. We can reach Gerald's office this way and check out the other staircase at the same time.'

The group made their way along the corridor.

'These buildings are designed so that one staircase can be out of action.' Ann was trying to raise her own spirits as well as the others. 'I saw

this programme on Discovery last year,' she said, sweeping back her red hair as if by that mere gesture she might put out the fire.

'Yeah, and I saw the Towering Inferno,' said John. Mandy stared at him, and he wished he had not said it.

'The staircase is at the next intersection,' Harold pointed with his glasses, continuing his managerial lead. 'I suggest you two take a look at the staircase and let us know if it's ok. We will be in here, the director's office.'

Mike and Simon, the two survivors from the staircase collapse, acknowledged and headed for the intersection.

The remainder of the group followed Harold from the corridor into an open plan office area to an inner room. Harold put on his glasses and opened the door to the director's office, to be confronted with raised voices.

'So you're telling me I've got to walk how many floors down this building?' The air was charged; the man was in attack mode leaning over the smaller man in front of him. His English accent gave him away as the man Judy had been referring to.

'Listen buddy. I'm telling you the only way you're gonna save that English butt of yours is to get down the stairs!' The smaller man made up for his comparative lack of height. His name was Joshua Wilkinson. Everyone called him Josh and he used to be in the New York Fire Department. Much of his civilian dress retained a military feel. His cellphone was a permanent fixture in a pouch on his belt, along with a large bunch of keys. On occasions like this he wore his company *Fire Marshal* badge proudly clipped to his chest pocket.

Josh stood facing the Englishman with Gerald now squeezed out (of his former position) in this three-way discussion. He moved backward. Seeing Harold, he rolled his eyes and swept his hand across his thinning brown hair in a gesture of despair. Gerald struggled not to show his displeasure. He brushed his smart grey suit and straightened his tie, an unnecessary action made only as an outlet for his frustration with the argument. His sharply pointed features then forced a smile for the remainder of the group who were now all in the office.

Harold was the only one of the group who recognised the Englishman. Jake Rankin. The same Jake Rankin who 24 hours ago was the subject of another person's despair, half a world away.

If Sally had managed to torch that building, she would have missed by 3600 miles.

## London

The car journey was silent. Sally looked out of the window through the rain trickling down the windscreen. You can't soothe pain with sympathy, she thought. But the weather cried anyway.

Sally had spent most of the day in a local fire station. The Fire Engineer knew the fire fighters

there; he had not told them what she had done, just that she was interested in learning about how fire affected people. They seemed to know the Fire Engineer well and were happy to oblige. Sally wondered how they would have felt if they had known the truth about her. Despite her hidden reluctance, she actually enjoyed the experience in the end. They were a nice bunch of guys, and they told her of a number of harrowing experiences they'd had over the years. But nothing they said had changed her mind about the fate she'd had planned for her former boss. Nothing could shake the anger still inside her.

But now, sitting in the car, she started to reflect. How did it all come to this? It always seemed safe in school. They said she had good prospects, potentially with a good career ahead of her. That's what her school report said. Why don't they prepare you for the real world? Why don't they tell you about people like HIM? Just so you're prepared, why don't they tell you what you can do? Why don't they tell you what you can do so you don't screw up your life?

Where did she go wrong?

The car hi fi speakers blared out with a screeching guitar as the singer proclaimed '*..talk about failure, to fall is not to fail, failure's not about falling down, failure is staying down.*'

She hadn't heard that one before. A bit too deep for the top 40, perhaps. But it fitted. What had the writer of that song been through to make him write that? How had he survived? How had he been able to pick himself up?

The rain cried on relentlessly.

'Hope you don't mind the music. I rarely get enough guests with me to carry a general selection of CDs, so I'm afraid you'll have to put up with my favourites.'

'Who are they?' Sally asked.

'Marillion. I like them because they make you think.'

Playing that CD had been no accident. It was a long car journey and he wanted to give her some time to reflect. He thought a few background thoughts from an outside source might help. In a subtle way he was trying to tell her it's ok to make mistakes, it's all part of life's lessons. No one can tell you, it's something you have to experience for yourself to really take in.

'Do you get the gist?' He was curious whether she understood the point.

'Yeah, I get it. But it still don't make it any easier to get up again when you're down.'

'No one said life is easy, Sally. But the reality is, we can move on, no matter how bad it seems.'

She then began wondering, how did this man next to her come to be who he was today.

'Why didn't you join the Fire Brigade?'

A smirk appeared on his face. 'Why didn't Spider-man join the police force?' He turned to her, smiling. 'No, I don't do this out of any childhood desire to be a fireman. My role is different; I deal with the

unusual incidents, that conventional fire fighting units would have difficulty with. I won't tell you what event caused me to take this path. Sometimes things happen in your life which are so personal that you can only share them with those close to you. Let's just say it was not a happy situation.'

Just then a buzzer sounded from the dashboard. 'Hello Lisa, how are things?' he asked responding to the signal.

'Steven...' There was a noticeable tremor in the young woman's voice at the other end of the line. 'Steven, something's happened; something big.'

### **New York - north tower world trade centre**

'So why can't I use the lift?' questioned Jake.

'Mr. Rankin, there are a number of reasons why you should not use the elevator.' Josh had been appointed ten years ago by Gerald, as the company Fire Marshal. For the most part it had been a rewarding job rarely was he challenged as he was today. He did not have a problem with people who did not understand the danger of fire, but it was this man's entire attitude. However, as he was a guest, Josh was being extremely patient.

'The power may fail; the lift may open into the fire floor..'

'You should think about how people are supposed to escape in a fire before you build these buildings so high over here!'

'As I have explained, Mr. Rankin, we use the stairs, and we should start moving as soon as we can.'

'You know what I think, Gerald?' Jake Rankin looked at Gerald with an authoritative stare.

'No.' Gerald was calm, but annoyed at this man's continued prattle. 'Tell me.'

'Sack the lot of them, that's what I'd do.'

During this exchange, Judy had been trying to make a call on her cellphone. Finally she had made contact, and now she knew the horrible truth about what had actually happened. She dropped her arm limply with the cellphone dangling from her fingertips.

'We ... we've been hit by a plane, and my sister says there are another two on the way. This is no accident.'

'Look!' shouted John, rushing to the window. They were intact on this side of the building. Everyone followed.

A passenger jet, flying low, huge in the sky, was heading straight towards them.

'It's heading for the other tower!' Josh noted the angle of the plane not far below them. 'Everyone get away from the windows...NOW!'

For the second time the building moved, not as bad as the first time, but bad enough. They all managed to stay on their feet.

'Right, I don't care if any of you want to stay behind, but I'm saying we all go down the stairs now!'

'Josh is right, we must go. I think we should listen to our Fire Marshal.' Gerald put a hand on Jake Rankin's shoulder in encouragement.

The office door burst open and Mike staggered unsteadily into the room, his dark Jamaican skin smeared with white dust. 'The corridor's just collapsed back there.' He was coughing. 'It's just so... oh God... Simon!'

'Where.. is... Simon?' asked Harold, nervously.

'It was just so hot man, the smoke's burning!' He fell to his knees and Judy and Harold rushed to support him. He coughed violently. 'I couldn't go after him, man!' He coughed again.

This time he coughed up blood.

## London

Sally almost had to run to keep up with the Fire Engineer as they traversed the corridors. Shortly they arrived at a red door. The room was lined with equipment on the walls and a large screen dominated the centre of the room.

Sitting a little distance from the screen at a console was a Japanese girl. The console was shiny black with red and yellow buttons etched into the surface. Sally guessed she was in her mid twenties. In front of her on the edge of the console was a model of a red dragon. Sally thought of the stuffed toy spider which had sat on her computer monitor at work, but this was not a stuffed toy, it was made of paper.

She'd heard of this. There was a young man in the post room where she used to work. He made these amazing things out of paper, just folded paper. It was origami. This red dragon captivated Sally for a moment. This was no simple model, and it said something about the girl at the console. And then she wondered what the toy spider had said about her.

The Japanese girl turned and smiled at Sally for a brief moment. There was an intensity about her, and then Sally saw why.

Two skyscrapers stood in the centre of the screen; one of the towers had a trail of thick black smoke flowing from about a third of the way down. Then what appeared to be a jet airliner came into view at the right of the screen and plunged into the other tower with a massive explosion.

'Wow! Cool explosion!' exclaimed Sally.

The Fire Engineer said nothing; he just stared at the screen. Lisa, the Japanese girl, stared at her now with a scornful look on her face. And to the Fire Engineer she said, 'They keep repeating this shot; it happened about ten minutes ago. And Steven, this is no accident, a plane already hit the first tower and they have reports of two other incidents. It appears to be a terrorist attack.'

The TV broadcast was now showing a woman on the streets of New York. 'They just jumped out of the windows,' she was crying, emotionally distraught. 'They were 100 stories up. They must have known they wouldn't make it!'

The camera now focused upon people hanging out of windows, with smoke pouring out.

'They must know they're too high up to jump. What, are they, stupid or something?' Sally said

smugly.

'They're not stupid, young lady,' said the Fire Engineer. 'The escape staircases were not designed to withstand the impact of an aircraft and a hydrocarbon fire from aviation fuel. They have nowhere else to go.'

They jumped.

'Oh my God!' The realisation of her own stupidity and the horror of it all suddenly came home to her.

They fell.

The TV was showing these images at normal speed, but to Sally it seemed like slow motion. It was not just a lack of thought about how much damage an airliner impacting a building would have; it was more than that.

From 95 stories, they fell.

It was the realisation that this was not an accident; this was not an uncontrollable force of nature. Somebody had done this.

And they fell.

Somebody had done this deliberately. Somebody just like her.

And by jumping, they felt they had a chance - a chance that the heat and the smoke would not give them.

And they died.

The word 'terrorist' echoed from the TV screen.

'I'm just like them!' she screamed. Did they know what the consequences would be of their actions? How they would make people suffer?

Did they?

Did she?

She did now.

The tears came. Not for her intended victim. Not for the boss she so hated; but for herself.

They probably thought they had a good reason for doing this. So did she. She had been so wrong.

'I'm no better than a terrorist!' she collapsed to the floor on her knees, tears flowing. 'I'm so stupid, useless!'

Sally felt an arm on her shoulder. She looked up. It was the Japanese girl. She bent down beside her. Words were not necessary; a consoling arm was more appropriate.

'My name's Lisa,' she said after a minute or so. They both stood up.

The Fire Engineer continued to stare at the monitor screen displaying the TV pictures. 'Lisa, do you know whether they have requirements on progressive collapse in New York?'

'I would need to search our regulation database, but remember progressive collapse is a UK requirement introduced following a gas explosion in the Roland Point building. It only takes into account the ability of one floor to hold the weight and explosive force from three floors collapsing above. We have something considerably larger than a gas explosion here. If you were thinking of using a backdraft missile to extinguish the fire, I would not recommend it. I designed it with UK standards in mind.'

‘I’m hoping our contacts in New York can provide some information on these buildings. I’m expecting something in the next few minutes.’

‘Lisa, can I leave Sally with you? I need to get moving.’

‘Steven, my equipment was never designed for situations like this. I can’t even predict what kind of exposure level you can go to, and we’re not equipped to do large evacuations!’

‘So what am I supposed to do? Sit here and do nothing?’

‘No, I’m not saying that. You just need to be careful, I... I don’t want to lose you.’

‘Ok I’m sorry for snapping at you like that. It’s just that I’ve spent most of my life trying to fight nature’s forces of conflagration; that’s bad enough! And then some ... someone goes and does this deliberately.’

‘Lisa, I’ll be careful.’

‘It’s all right Steven, it’s got to me too. I’ll relay information on the way there.’

‘Thanks Lisa’. He turned to Sally. ‘Well, this wasn’t quite what I had in mind for you, but if you stay here with Lisa ...’

‘Can I come with you?’ Sally was as surprised as he was that she said it. ‘I know I won’t be much help to you, but maybe I can do something, even if it’s just making the tea for someone. I just feel the need to go there.’

Steven walked over to her, his expression as grim as the events of this day. He held out a hand to her.

‘Welcome back to humanity,’ he said.

## New York

**M**ike was badly affected by the smoke he had inhaled, but he was able to get up and walk. ‘We can get to the staircase by another route, assuming of course that way is still accessible.’ Josh knew this was their last chance.

‘Shall we all go together this time?’ asked Gerald.

They all agreed, not merely to be compliant with the company director. They felt time was running out and needed to see if the last staircase was still accessible.

Josh led the way, followed by Mandy, John, Harold, Judy, Mike and Ann. Gerald then followed with Jake who had now ceased his objections. The corridor was becoming hazy and Josh realised that smoke must be entering the corridor from somewhere, but it was merely an irritant at this time. He knew this corridor was linked to the one where Mike’s colleague had met his death. He also knew that this route was their last way out.

Judy saw it first; a small tear in the decor on the wall. Then a ceiling tile moved and she just managed to shout before the side of the corridor collapsed. The debris narrowly missed Harold; John was not so lucky and was knocked off his feet. Jake, Gerald, Mike, Judy and Ann managed to run back. Mandy and Josh ran forward and John dived backwards. The corridor was now blocked; a mechanical

ventilation duct rising from the floor below had distorted, and smoke flowed through one of the joints which connected sections of steel together to form the duct.

The group were now split in two; Josh and Mandy on one side; the remainder effectively sealed from the staircase. The smoke forced both parts of the group to run in opposite directions; Josh and Mandy found the staircase.

Josh pushed the door to the staircase. The heat was intense; it forced him back into the corridor.

‘It’s no good Mandy!’ Despair swept over his face. ‘Get down as low as you can.’

The smoke was becoming denser up at the ceiling. Josh came back down the corridor to the debris, crouching as he walked. Mandy could feel the smoke. It was not hot but it made her cough. She bent down low, as Josh had suggested.

The debris consisted of pieces of boarding which had formed the partitioning and its twisted metal framework, plus collapsed ceiling and ventilation ductwork. Most of the smoke was entering the corridor from the broken seams of a distorted air ducts. Josh could feel the smoke was hotter than a few minutes ago. He tried to move the material to give them a path through. It was held fast but he managed to move part of a twisted frame which dislodged a piece of the mechanical ventilation equipment in the ceiling. It came away easily; too easily. The whole mechanism came crashing down. Josh just couldn’t move fast enough.

Mandy looked feverishly at the pool of blood and realised she was now alone.

## New York - present

**T**he flight from London had been incredibly fast - no airport, no check-in and a craft which would have left the old supersonic passenger aircraft *Concorde* cruising. But faster than that, the events of the past day had now flashed past. Yes, she was really here in a coffee shop in New York in the midst of a major disaster.

Sally wished the injured fire fighter well and went to find the teenage girl and offer her help looking after the people who had sheltered there.

In the tower, the remainder of the group which had been split up from Mandy and Josh had made their way back to Gerald’s office.

‘I told you we should’ve stayed here.’ Jake’s quiet spell was over. ‘That Josh character didn’t know what he was talking about!’

‘Did it perhaps occur to you that if you hadn’t held us up we could’ve made it to the staircase?’ John raged, ‘and Mandy - and Josh would be ok now?’

‘Ah, *Mandy!* Is that what this is all about?’ demanded Jake.

‘What are you talking about? I said *you* delayed us!’

‘I think there’s more to it than that young man. You’re not concerned about any of us, only yourself and your precious Mandy! Next I suppose you’re

going to suggest we all go back and risk our lives to save her. You're just selfish!

'You're twisting what I said!'

'No.' Jake was calm. 'You mentioned her! I didn't.'

John was angry. 'You know what I'm saying!'

'No I don't know what you're saying, Perhaps you should explain yourself better.'

'Shut up will you!' Ann walked over to the window; a simple sheet of glass between them and freedom, so close, so far. Judy joined her and looked out.

'Oh my God!' Judy muttered as a figure jumped from the floor below.

Ann saw it too. She slammed her arms against the glass. 'This is it! We're not going to get out of here!'

'Are we?'

'ARE WE?'

Gerald went over to try and comfort Ann, but an arm was all he had to offer.

'Maybe if we open the windows and try to attract attention?' suggested Judy.

'So what's that gonna do? Who's gonna see you up here you stupid woman!' Jake's words cut like an assassin's knife.

Harold walked over to her. 'At least it's better than standing here doing nothing.' John gazed angrily at Jake as he too walked over.

They opened the windows and looked out, and for once today the essence of Jake's rather insensitive words had true meaning.

Now any hope they had of rescue was gone. They could not go down, or up. All they could do was wait for the fire to reach them.

And someone else jumped from the floor below.

Outside, the *Dancing Angel* circled the twin towers as the Fire Engineer contemplated his next move.

'Well, first of all it's logical to choose the tower that was hit first. The people there must be in greater jeopardy than those in the other tower.' Lisa's voice came cool and assuredly over the speaker.

But now an even more difficult decision lay ahead as the *Dancing Angel* carefully hovered upwards. Dozens of figures were leaning out of windows; pockets of people desperately clinging to life.

The Fire Engineer knew he could not rescue them all before the fire got to them, and he had to choose. It had always been easy before. Other missions had one group of people; no problem - just go, do the job, get them out. Here, there were so many. Did he have the right to choose? Why should he have the right to say who lived and who died this day?

'This is very difficult, Lisa.' He felt guilty about those he knew he could not save, and he damned those who had perpetrated this act for making him feel that way.

'I know, Steven, but I think you know the answer. It has to be the ones closest to the fire floors - rescue the ones most at risk. The others are likely to have more time.' Lisa knew this might not be totally true

as she was not aware of the internal damage to the building. The people on higher floors could be in more danger if the fire had spread through a shaft or structural damage in the building, but based upon the information available it was the best she could do.

'Steven, you're not Superman. You can only do what you can do. If you weren't there, none of those above the fire floor would escape. And remember you're not alone, we share this responsibility.'

'Good luck, Steven.'

And he realised, not for the first time, how much this woman's cool head meant to him, and how he would feel if she were one of those in this building that he could not save.

Inside the tower the air was charged as one of the numerous pockets of people were coming to terms with their fate. At such times, even a glimmer of hope is all consuming. 'What's that?' Judy could see a grey disk, which seemed to come from nowhere.

'Don't she ever give up? Fancy being married to that!' No one looked in Jake's direction except Ann who gave him an extra scowl for Judy.

The disk came closer - it was almost completely grey except for some red lines, and as it approached a cockpit could be seen with a single occupant. It slowly came to a stop, hovering just below the window.

The cockpit opened and the Fire Engineer climbed out and walked across the surface of the disk. 'May I come in?'

They were all speechless as he climbed in through the window. 'Right folks, I'm going to help you get out of here.'

'Who are you?' asked Gerald.

'A friend. I'm sorry but there are lots of people to get out of this building, I am going to have to hurry you. If we all get through this we can talk later.'

'Sir?' It was John.

'Yes, my friend?'

'There are two people who got separated from us back in the corridor, can you help them?'

'I'll try. Tell me precisely where...'

'Hey, you can come back for them later, get us out of here.' Jake was authoritative.

'That may be too late Sir. I... ' the Fire Engineer was cut short.

'You will get us out now!' Jake demanded.

'I am afraid I don't have time to argue. Please stay here.' The Fire Engineer turned back to John.

'If you don't get me out of here now, I'll sue you for putting my life in danger - leaving me in a burning building. I'll finish you.' Jake was not pulling any punches.

'Jake!' Gerald called.

'Hey, Gerald, you're with me on this one, right?' said Jake, attempting to commit Gerald before he began to speak.

Gerald had put up with Jake for long enough. It was financially convenient to put up with him, but the side of him he was showing today was something

he had only heard others speak of. 'Frankly, Jake, I think you should shut your mouth.'

'I don't believe this! You're putting our business relationship in jeopardy,' Jake threatened.

The Fire Engineer had now obtained the location of Mandy and Josh and walked out of the room. Gerald's office was, in fact, an inner room accessed from an open plan office, which then connected to a corridor. He closed the door to Gerald's office, and raised his right wrist, palm downward.

From the two small nozzles located just behind his knuckle shot a sticky substance, which he directed around the edges of the door. This would provide a temporary smoke resisting seal. He adjusted the nozzle for a wide spray pattern and put a coating over the door. The substance also provided a degree of fire resistance.

'Lisa, I expect you heard all of that?' he said into his headset microphone.

'Yeah, there always has to be one!' she replied.

He stood on a small table and knocked a tile out of the ceiling close to the partition. The partition had not been extended above the false ceiling, this would allow fire and smoke to enter the room from above the ceiling tiles. He started to spray a netting of the substance above the ceiling to effectively continue the line of the partitioning up to the structural ceiling. This would give the occupants of the room a temporary refuge.

'Lisa, how long will this spray give me in this building?'

'Ok. I furnace tested it to the latest British Standard, 476: Part 22: 1987 for fire resistance; and it lasted 33 minutes, but as we know, that test was based on a 1932 domestic house. Now if we are talking modern office materials it won't last that long, after all plastics and foam filled furniture didn't exist in 1932. So it won't last as long as the test suggests.

'The fire load in a modern US office; let me see, I'm just punching in figures here from the USA Society of Fire Protection Engineers Fire Engineering handbook and well, this is only an estimate, but we're talking ten minutes - say thirteen at the most, *real* time.'

'Damn!' he said.

'Ok Steven, I *am* working on that product!'

'Sorry Lisa, I didn't mean you; I've just noticed that the corridor partitions don't extend above the ceiling either, and smoke's started to come in here.'

**W**hilst the Fire Engineer was providing temporary fire protection for the group, along the corridor Mandy was having her own problems. The corridor had become smoke-logged. She could not go back due to the wreckage blocking the corridor. She decided to seek refuge in one of the rooms opening off the corridor.

Now she was in the room, smoke was descending in there as well. Smoke had penetrated from across the corridor, above the false ceiling, into the room. As the Fire Engineer had noticed further along the

corridor, the partitions did not form a barrier above the false ceiling. The smoke was becoming denser. She wondered whether she had only delayed the inevitable by entering the room.

Mandy tried her cellphone again; she had lost count of how many times the connection had failed, so this time when it connected she was unprepared. It was an answer phone. She almost switched it off, but then decided to leave a message.

'Dad, things aren't looking good. I'm stuck here, smoke's all around. I wanted to tell you that I love you, Dad, and you have to carry on, you must not give up. Don't worry about me, perhaps I will see Mum again. We will wait for you... we will wait for you there...'

She was having difficulty concentrating now. It was as though she wanted to go to sleep; as though sleep was the only thing she wanted to do. She saw a figure in the smoke, a woman's face, could it be? No, her mother was not like that at all. This woman was... different. In fact not like any nationality she had ever seen. She seemed to be talking to her, but not in words. Telling her not to be afraid, she seemed unaffected by the smoke, almost part of it. The shape of her face seemed to re-form every few seconds.

Mandy closed her eyes as smoke enveloped her, and she drifted off into oblivion.

**H**aving finished the temporary fire protection of the office containing the group, the Fire Engineer dropped down to the floor and quickly moved into the corridor. There was about 50% visibility through the smoke. He activated his protective hood. A plasma screen wrapped itself around his head, oxygen pumped into this hood. The heads-up display emerged and immediately gave a readout of the toxicity levels of the smoke. The sensor technology also had the ability to display a heat image from the small camera built into the base of the hood, it allowed an image to be seen in terms of heat. It was useful to locate people in smoke. But today it was of little use as the people the Fire Engineer was searching for were probably behind the partitions forming the corridor.

The Fire Engineer did not however need to rely upon technology. The accident which had ended his career as a professional fire fighter had also made him genetically adaptive to extreme environments. As he squinted his eyes he could see, or perhaps even feel a three dimensional image of the heat intensities around him - even through walls or partitions. He located three heat signatures. One was very big, too big for a person and was in the shape of an inverted cone - the shape of a developing fire. The fire had made its way up to this floor in earnest and it was close. The other two appeared to be on the other side of a twisted section of partitioning, ceiling and ductwork, they were humanoid in shape.

It was too risky to blast through the wreckage; it may cause injury to whoever was on the other side. He adjusted the controls of his wrist mounted jet again - granular mix setting to 40%. This setting

caused tiny particles of granular material to be mixed with the water stream, powerful enough to cut through a concrete wall. Stepping back he aimed at a section of partitioning to his side. The plasterboard cracked and shattered forming a large hole as the water and granular mix tore through the partition wall.

The debris from the hole had hardly settled when the building moved again for a third time. He fell to the floor. The building shook for about ten seconds.

Some of the group in Gerald's office saw what had happened. But now they all stood motionless at the sight that confronted them from the windows.

Where the other tower had stood was a giant cloud of concrete dust. Some of the debris had hurled across to the tower they were in. They had closed the windows quickly and had therefore been shielded from most of the dust. One of the windows was cracked. Something was flaming out of the window. It was the Fire Engineer's craft, the *Dancing Angel*; it was spitting flame from one of its wings and lurching violently.

'We've got to do something!' shouted Harold.

'What can we do?' said Ann.

They all watched their last hope go up in flames. Helpless.

**B**ack at the Fire Engineer's base of operations, Lisa stared at the news report displayed on the large monitor screen. When the building collapsed she lost contact with the Fire Engineer. All of her monitoring equipment had failed.

As the dust was slowly settling, the system control monitors of the *Dancing Angel* came back on-line and Lisa immediately saw a malfunction. It was the guidance system. She guessed the debris had hit the craft. She hit the on-board extinguishing device as a precautionary measure and flooded the area displaying the malfunction with fire extinguishing gas. Then she ran a full system diagnosis.

It did not look good. Some failures they could get around, the Fire Engineer could compensate manually; but one crucial component of the guidance system was damaged.

The dust cloud loomed ominously over Manhattan. From her vantage point some distance away from the location of the World Trade Centre, Sally stood with everyone else staring as the dust cloud consumed the sky. Her suit buzzed and she realised it was the communication device. She had been given a basic rundown on how to use it on the way to New York.

'Yes?' she answered carefully as though she was answering a phone in someone else's house.

'Sally, it's Lisa. We have a problem.'

'That's rather an understatement!'

'Listen Sally, I've lost contact with Steven, but he was in the remaining tower. The *Dancing Angel* is still hovering but it's not going to get him back without some replacement parts. There's an experimental "flight pack" in the main craft...'

'And you want me to use it to take the parts...'

'No, Sally, I don't. It's too dangerous for you. What I'd like you to do is get the flight pack out and attach the parts to it. I can fly it by remote control.'

'But if you can't contact him, how will he know what's wrong, and what you're doing?'

'We can attach a communication device. If I can attract his attention with the flight pack, I'm hoping he will get the idea.'

'And if he doesn't?'

'It's my best shot, Sally.'

'Look, if you're flying it, I can go along for the ride, and when I get there I can definitely tell him. I'll make sure he knows what you've sent him.'

'Sally, No! I can't put you at risk.'

'But it would be better...'

'Just do what I say... please?' said Lisa.

**T**he Fire Engineer got up, not knowing the cause of the movement of the building, just knowing he needed to move on.

He crawled through the opening and fired a few short jets of mist spray from his wrist mounted nozzles. The smoke fell back and cleared a path. He saw Mandy.

Taking a pill from his utility belt, he placed it in her mouth. A rush of oxygen pushed her lips apart as the pill exploded. The smoke started moving back and he fired the mist spray again, but this time clearing a wider area. He opened the door to the corridor and repeated the process. Then as the smoke folded back he saw Josh and administered an oxygen pill. Neither Josh nor Mandy responded. He quickly repeated the process.

Josh's pulse was dead.

He was too late.

Then Mandy responded, and moved her head. He took a small respirator device from his belt and placed it on her mouth. She opened her eyes. The smoke flowed back towards them. He picked her up and walked back through the newly-formed opening into the corridor, heading back the way he had come.

The smoke in the corridor was black now and hotter. His heads-up display revealed the temperature was 280°C. He shot bursts of mist upward which pushed the smoke back along the corridor, reducing the temperature. Water's value in fire fighting is its ability to cool. The water mist he used also had an additive which absorbed heat more efficiently than water. It could cool the smoke to a third of its original temperature within 30 seconds. But it was only effective in the immediate area it was sprayed.

Despite the cooling affect of the mist spray, the read-out in his helmet display was indicating the temperature was gradually rising the closer they came along the return journey to Gerald's office. This indicated they were approaching the fire source. It became apparent to the Fire Engineer that the fire source had broken into the room they had to pass through. The cooling effect of the mist spray was effective in the corridor, but he knew the heat reduction would not reach into the extent of the

smoke layer in the room.

Despite the cooling mist spray the heat was now rising to an uncomfortable 200°C as they approached the door to the room.

Without the cooling effect the temperature in the room would be two thirds hotter. He knew that flashover was imminent. Flashover: that critical temperature at around 600°C where the heat in the smoke layer radiates down causing the surface of all combustible materials in a room to begin conversion from a solid to a gas. Flashover: where that gas appearing as white vapour flowing from the surface of combustible materials spontaneously ignites. That conversion from solid material to gas is what Lisa called pyrolysis. The Fire Engineer called it *death*.

Mandy was becoming more alert, but he continued to carry her. They had reached the door to the room leading to Gerald's office.

No human could survive in a room containing a flashover. As the Fire Engineer entered the room the heads-up display read 600°C, and the word FLASHOVER appeared.

Sally had prepared the flight pack. It didn't look much like she had imagined. There were no rocket thrusters at all. It consisted of two small fins, which projected from a narrow plate, which fitted on the wearer's back.

She understood why Lisa did not want her to go with the flight pack, but she began to think of what had happened to her today. How the Fire Engineer had not treated her as a criminal or turned her over to the police. She owed him for helping her to see the light. He had stopped her going on a downward spiral from which she may never have recovered. Now she had the opportunity to help him.

The flight pack was lighter on her back than she had expected. The spare parts were secure.

'Is everything ready?' said Lisa from the communicator.

'Yeah, everything's ready!'

'Stand back.' On that point Sally did not comply.

Sally felt a slight turbulence around her. The next moment she was suspended in the air. A purple glow emitted from the rear of the flight pack.

'Eeeeeeeeeeeeya!' The velocity was expected but not quite so suddenly. Sally was hurtling through the air, arms outstretched and waving about in the air.

'What's going on?' asked Lisa.

'Liiiiiiiisa!' Sally was speeding toward the dust cloud.

'Sally, you're going to tell me something I don't want to hear, aren't you?' She adjusted the remote controls, which stabilised the flight.

'Oh, that's better. Look, Lisa, I know you couldn't say it was ok for me to make this trip, but in reality it will give the Fire Engineer a better chance. I feel I owe him, and I thought by the time you realised I'd hitched a ride it would be too late to take me back.

So it's not your responsibility any more.'

'You try telling that to Steven!' But Lisa thought Sally was right about one thing; she could not afford to land her. The building that was hit second had collapsed first. There was now a good chance the first building would collapse and no telling how much time was left.

'I've adjusted things to take account of your weight. Now let me give you a few flying lessons on the way, so if you do get into problems at least you have a chance.

'Now whatever you do, don't put one arm forward like Supergirl, you'll destabilise the centre of gravity. That might be ok in the comic books, but this is definitely not a comic book, ok?'

As soon as the Fire Engineer entered the room, he hit the shield button. He had preset the pattern to dome shape, which caused a dome to extend from the shield emitter on his left wrist around both Mandy and himself. The plasma shield shimmered as the flashover engulfed the room. All combustible materials were now burning, including the carpet. Where the shield met the floor the flames tried to reach under. The Fire Engineer drowned the floor with water from the device on his right wrist. A shallow layer of water now lay at the bottom of the shield's dome.

Mandy was kneeling on the floor, and had recovered enough to take in her surroundings, although she was still hazy. Thick black smoke filled the room from the ceiling to about halfway down the walls. It seemed like everything was burning, and even through the shield she could feel the heat. She could only imagine what the temperature would be in the room without the protection of the shield.

But that was not all. She felt a presence in the room; it felt like the heart of darkness. As her eyes panned into the fractal forms of the flame and smoke, she thought she could see a face, and the face was laughing.

It was still difficult to concentrate.

'We're going to have to move forwards to that office. We'll be safe once in that room. Keep low and move with me.

'Ready?' The Fire Engineer was calm but projected a sense of urgency. She nodded.

They moved. As the plasma dome slid across the floor the water inside the front edge boiled away. The Fire Engineer shot more water in the inside of the shield as the flame attempted to dive under the shield. The progress was agonisingly slow; his portable water supply was rapidly running low as the water continued to turn into steam at the front edges of the shield.

They were now four metres from the office. 'We're going to have to move quickly,' he announced. Mandy nodded.

'Go!' They raced the distance. He reduced the

The Fire Engineer knew that flashover was imminent. That conversion from solid material to gas is what Lisa called pyrolysis. The Fire Engineer called it death.

water spray halfway there, and the flames swept under the shield. Upon reaching the door he let the final burst of his stored water clear the front edge, and allowed the dome to wrap up around the door. Holding the shield in position he kicked the door open. 'Go, go!'

Mandy needed no encouragement; she was in the office. He unclipped the shield generator from his wrist and, using a spurt of fire sealant, stuck it to the door. Then once inside he closed the door. The shield would provide a temporary fire and smoke seal for the door.

Everyone in the room seemed to be ok. Judy and John were attending to Mandy. Then his eyes fell on the *Dancing Angel* outside the window. Its surface was peppered with debris, and smoke was pouring out of the hull.

'Satisfied, are you?' Jake walked in front of the Fire Engineer. 'So you've saved one office girl for a few minutes, and condemned us all!'

'Whilst you were doing your gallivanting around playing hero, the other tower collapsed, and you don't have to be a structural engineer to know that this tower is coming down any time soon. And *you* prevented us escaping when we had the chance!'

The Fire Engineer just stared at his ship.

'What are we going to do?' Ann spoke the collective thoughts of everyone.

'Let me see how bad the damage is.' The Fire Engineer stepped out of the window onto the *Dancing Angel*; it lurched. He crawled to the cockpit and climbed inside. It was not good. It could hover but that was about it. The words of the aggressive man kept tumbling through his mind. Lisa's words came back to him; what was it she had said? '*My equipment is not designed for situations like this.*' But it was not Lisa's equipment that had caused this problem, it was his judgement. He had failed them.

John came to the window. 'Mister!' The Fire Engineer came back. 'It's not your fault, I asked you to save Mandy. It's my fault,' John said.

'Whatever happens, the decision was mine; you should not blame yourself,' said the Fire Engineer. 'And remember, how does that saying you have over here go? *It's not over, 'til it's over!*'

'It sure ain't pardner!' They both turned. The source of the extremely phoney Texas accent hovered a metre away from the *Dancing Angel*.

'What the hell are you doing here?' The Fire Engineer's words were sharp.

'I'm trying to save your butt! Don't bother to thank me,' Sally scowled.

'I suppose this is Lisa's idea...'

'Don't blame her. If you want to talk to her, here's a spare headset.'

He put it on. 'What the hell are you playing at putting her at risk?' he said into the microphone.

'Steven, it's not quite what you think, but you can have a go at me later. Right now you need to get moving; Sally has spare parts. I'm guessing the tower is likely to collapse, and remember your tower



was hit first; you may have minutes, seconds, I don't know.'

'Ok, but I'm not happy about this,' he said.

'The replacement parts are "plug and play", so it shouldn't take too long,' said Lisa.

Inside the building the despair was lessening.

'Well, they seem to be doing something out there,' Harold observed from inside the building.

'They'd better hurry up!' Gerald pointed to the ceiling. The atmosphere was becoming hazy; smoke was now leaking into the room.

John rushed back to the window and shouted, 'We've got smoke coming in!'

The Fire Engineer turned to Sally. 'We're going to have to get these people onto the *Dancing Angel*. There's only room for two inside, the rest will have to lie down on the hull and hold onto the rails.' He pointed at two cylindrical rails; one surrounded the edge of the craft standing 100mm from the surface. The other wrapped around the cockpit. 'I'm done with the installations; Lisa is running a diagnostic; I need to be in the cockpit for a few minutes. Can you organise them?'

Sally nodded. At last he was asking her to help. She hovered over to the window. It was still strange but she was now able to move with some confidence on her own.

'Ok, people it's time to go,' announced Sally.

'Mandy, Judy and Ann, please go first.' Gerald organised from the inside, and Sally gave a helping hand as they stepped across from the window to the *Dancing Angel*.

'It's funny Gerald,' Jake observed. 'Despite your supposed business sense, you allow the least important employees to escape first.'

'All my employees are important to me, Jake.'

'So you value Mandy as much as Harold, your head trader?'

'Mandy may be of more value to this company in the future than my current head trader.' Gerald was defiant. 'But they are both of equal value, as human beings.'

Jake put two fingers in his mouth. 'Oh! don't you just want to be sick.'

Gerald motioned Harold, John and Mike to go next. Smoke was now quite visible in the room below the false ceiling tiles.

Gerald motioned Jake to go next. The heat of the smoke could now be felt. As Jake moved closer to the window Sally saw his face. It was him. Her former boss, the object of her aggression earlier today, the object of her failed arson attack. How could he be here? But of course he often flew to New York. She knew he had business partners here.

The ceiling of the room moved with the heat of the smoke. As Jake stepped onto the window ledge the ceiling fell. He lurched forward instinctively to avoid the falling debris; his foot hit the *Dancing Angel* and he slipped.

Sally had not yet recovered from the shock of seeing him here. And now he had slipped. The man she despised. The man who had caused her mental torture. She could save him.

She could.

Everything raced through her thoughts in that fateful moment. The pain, the anger, all the hurtful things he had said and done. She had been given another chance. Another chance to kill him.

Another chance!

She moved her hands and broke his fall. He stepped onto the craft, without looking at her, without thanking or recognising her. She had been given another chance this day, but that was earlier when the Fire Engineer had stopped her burning down that building. She was not going back.

The Fire Engineer had just replaced the water cylinder on his utility belt. A comparatively small cylinder considering the quantity of water that actually discharged from his wrist mounted nozzles. It was a concept Lisa's father was working on before he died. A compression routine that enabled the water to occupy a smaller amount of space. The process was then reversed when the water was discharged.

The Fire Engineer leapt through the window back into the room, flooding everything in sight with a fine mist of water. Gerald had moved back to one corner of the room. He was the last one to rescue. The water would delay the inevitable flashover inside the room. However the heat was building up too fast for the amount of water he could deliver from his utility belt.

At his position by the window the Fire Engineer paused. He was seeing shapes in the flames, the fractal forms of red and yellow seemed to merge and shift. There was an arm, a leg, a torso and finally a head. No, he thought, not now.

'Go!' He leapt across the room and pulled Gerald to the window. Sally guided him across the gap to the hovering *Dancing Angel*. Then he looked back into the flames and now there was a face.

'No!' he muttered silently. He closed his eyes and shook his head.

Before him he saw a man, at least the shape of a man, sculptured and shaped by the swirls of the flames. And yet the face was not of this world, of no

known race he had ever seen before, except in his mind. This time he knew it was the beginning of his madness.

'Steven!' His headset screamed; Steven, what are you doing? Get out of there!' Lisa called.

Her voice made it all the worse. Should he tell her?

'Lisa, I...' At that moment the figure shifted and now a larger shape emerged from the flame, a more powerful frame, a humanoid form rippling with eddies of smoke and fire, and a voice entered the Fire Engineer's mind.

'Know that we have returned!' intoned the voice, 'and know that this room is MINE!'

'Hit your shield!' the Fire Engineer shouted back to Sally from the room. The flashover erupted. The Fire Engineer could not get out.

Sally activated the plasma shield, which expanded from the emitter on her wrist. She silently thanked Lisa for going over the equipment during her flight here. Lisa had moved the *Dancing Angel* remotely, to a short distance away from the window from which the flames were flowing. He couldn't possibly survive.

'L...Lisa, he's still in there!'

'Sally, please, I need you to do something. There are small panels on the hull of the *Dancing Angel*, outlined in red; there should be one near where you are standing. Press the raised section and the panel will open.'

Sally followed Lisa's instructions; she located a tube with red and green buttons, and made sure it was pointed in the direction of the wall of the building. She pressed the red button. A dart shot from the hull and secured itself in the wall near the window. The chemical anchor took hold, adhesive spilling out of the hole around the dart. A cable trailing the dart became taut.

The flames were now flowing steadily from the window, the smoke thick and black in the room. The flames then shifted slightly as a figure moved through them. The Fire Engineer emerged from the window and swung onto the line, smoke particles flowing from the surface of his suit. Relieved, Sally looked back at the others who were lying flat on the hull of the *Dancing Angel*, desperately clinging onto the rails around the cockpit of the craft. He was now halfway along the line.

Lisa knew the Fire Engineer was not in any danger; he had a genetically modified ability to resist heat intensity. It was, after all, her father's work which had made this possible, although Steven had not exactly been a willing test subject. But that was another story. The Fire Engineer may be invulnerable to heat but his weaknesses were all the other possible dangers in the world.

Sally felt the craft fall under her feet. Below her the world fell away. Time was nowhere. Time was relative, she was told at school. A dream passes in seconds, yet feels like hours. When you're happy time flies, and when something unbelievable

happens, when something that just can't possibly be happening, happens, then it's slow, as though the brain re-calibrates to take it all in.

Lisa was screaming into Sally's headset. '... Green button!'

The building was collapsing and the cable she had just attached to it was pulling them down with it.

'...Green button!' Lisa screamed.

There was a small explosion and the craft lurched. Sally let go of the green button. The cable whipped back as it disengaged from the wall anchor. The Fire Engineer was now swinging freely on the cable. Lisa had remotely set the *Dancing Angel* to ascend slowly. Everyone clinging on the surface of the craft could feel the shockwave as the building collapsed below, the dust cloud rising upwards toward them.

Sally helped the Fire Engineer on to the deck. Pausing for a moment, he surveyed the shocked people lying on the surface of the craft. Gerald and Jake were at the rear facing forward, hands clasped on the rail which surrounded the cockpit. Their feet rested on the rail surrounding the perimeter of the craft. Both rails were raised just 100mm from the hull. Their actual purpose was to secure cables which may be needed in a fire fighting operation, but today they served as hand and foot holds.

As the Fire Engineer stood up, he could see Harold and Judy on the far left of the cockpit holding on to the cockpit rail. They both looked up towards him as he walked across the hull. He passed John and Mandy who were both close together facing each other. Mike was lying towards the front of the craft, just past Harold. Ann was inside occupying the only other seat, which was behind the pilot's position. Sally hovered close by; he noticed her confidence as she floated up and over the hull to make way for him to reach the pilot's position.

'Hold tight everyone,' he said, and entered the cockpit. He left the hatch in the open position.

There was another sudden tilt; he scanned the read-out from the control panel.

'We're too heavy,' he said into the mike to Lisa.

'Is Sally in flight?' Lisa questioned.

'I am touching the deck, but I'm in hover mode. Let me take all my weight off the deck.' she rose slightly, now suspended in the air.

Lying on the surface of the craft, the group was observing them as they clung onto the rails, waiting, hoping.

'What are they playing at?' Jake's impatience showed, or perhaps his hidden fear.

'I'm sure they're doing their best,' Gerald said, feeling that every time Jake said something it was in conflict with his own thoughts. He now realised the only thing which had kept their business relationship together was the 3600 mile distance between their offices.

Mandy lifted her head from the hull. 'They've saved us, haven't they? Up 'til now!'

'Oh yeah and if it wasn't for you we'd have been out long ago!' said Jake.

'That's not fair!' This time Judy's usually silent thoughts were made vocal; she too had had enough of this man.

'Since when has life been fair, lady?' Jake's remark then faded as everyone focused upon the conversation coming from the open cockpit.

'It's no good Lisa. Even without Sally's weight we're still too heavy.'

'Well, we can soon fix that!' shouted Jake. He gripped the handrail with both hands and swung both feet outward in a kicking motion, straight at Gerald. One of Gerald's hands came away from the rail. Jake struck again; Gerald's body rolled as the impact loosened his grip and he fell off the *Dancing Angel* to plummet the equivalent of two hundred stories below.

Sally immediately flew down. 'Lisa, I need you!!!'

The *Dancing Angel* lurched in reaction to Jake and Gerald's movement, and this caused Jake to swing off the edge of the deck, smashing into the side of the hull. A system failure alarm flashed in the cockpit. Judy lost her grip and slid down the now inclined hull. Harold let go with one hand whilst wedging his foot under the rail. He grabbed her arm and she managed to grab hold of the rail again. The Fire Engineer desperately tried to stabilise the craft, periodically having to fire manoeuvring jets just to stop the craft from upturning.

At the rear of the craft, Jake's own grip was failing; the only one who would have been close enough to help him had been Gerald. The craft made another sudden lurch and Jake fell as well.

Lisa's voice crackled into Sally's headset. 'Ok I've extended the gravity field around you. Just get below Gerald and hold your arms in a catching position. His weight will be reduced by 75%; but still be prepared for the impact.'

In order to ensure she was below Gerald, it was necessary for Sally to enter the dust cloud from the collapsed tower. 'I've activated the heat sensor on your visor, so look out for his heat signature if it's difficult to see him,' continued Lisa.

Everything happened so fast; too fast for somebody getting used to this equipment. Sally had to act intuitively; hoping she was in the right position, and realising at the last moment that she was not quite there. Not quite interpreting the heat signature correctly. It was a blob, no way of telling where his head and legs were, but she caught him. The impact caused her to fall and she thought the flight pack had malfunctioned. She plummeted down, only to stop, after a gradually slowing descent, three stories from the ground.

Her headset crackled. 'Oh, Sally, by the way, you may feel as though you're falling when you catch him, it's just the flight pack automatically dampening the impact.'

'Well thanks, Lisa, but - I know that feeling now.'

'Sorry, it only just occurred to me.'

'We're out of the dust. I can see the *Dancing Angel* now. I'll follow it down.'

'You need a bit of training to do a catch like that,

but you did it, Sally! The reduced gravity field from the flight pack will allow you to carry him easily. Just don't drop him now.'

The *Dancing Angel* wavered across the sky, finally hovering over the location of the *Carrier*, the base craft on the ground some distance from the collapsed towers. The circular disk located at the front of the *Carrier* served as the landing pad for the wounded *Dancing Angel*. One of the hovering thrusters had remained firing on the journey from the towers to correct the stabilising problem. Now the remaining thrusters fired, allowing the craft to descend onto its docking port with the main base craft.

As the occupants slowly climbed down from the craft, Sally landed, and placed Gerald on the ground, both covered in fine dust. They brushed themselves down as best they could. The Fire Engineer distributed cups of water from the *Carrier* to help clear their throats of the dust from the collapsed building.

Ann, Judy, Mandy, John, Harold, Mike and Gerald stood there looking back at the immense dust cloud hovering over New York. The only remains of the building they had occupied just minutes ago, the only remains of the towers of the World Trade Centre.

Mandy immediately called dad on her cellphone. Everyone else just stood there, taking stock of the day's events.

'You know, he must have been really strong,' Ann looked up at the dust-smearred sky, her flaming red hair now extinguished by a fine coating of dust, 'to say those words.'

Harold looked at her somewhat quizzically.

She clarified, '*Forgive them, for they know not what they have done.* That's what he was supposed to have said, wasn't it? He must have been strong, because I can't forgive. I won't ever forgive them for this.'

Tears flowed now, and Sally put an arm around her and looked up into the sky herself. She didn't say anything to Ann; she would never be able to convince her. This morning Sally would not have understood what that quote meant either. Now she understood it very clearly. This morning, with petrol can in hand, she was sure of her aim. The experience of today made her realise what a futile and terrible act it would have been. She felt ashamed that she had felt it was the answer, and humbled that she had been given another chance. A chance to see.

Harold looked at Gerald. 'Come on Harold, I know you're too polite to say it,' said Gerald, 'so I'll say it for you...you were right all along about Jake. And I almost paid the ultimate price for misjudging his character.'

'I just don't understand people like him.' Harold raised his arms in a gesture of despair. 'And I just don't understand all of this!'

'Well, Harold, if they want to kill us, leave us alone because we will do that by ourselves.' Gerald wiped his face with his dress handkerchief.

'If they want to make us stronger, then attack us

and we will unite.' He put a hand on the Fire Engineer's shoulder. 'And our friends across the water will come to our aid and stand by us in our hour of need. This is the ultimate failure of terrorism against the United States and the ultimate price we pay to be free. The very moment the first plane was hijacked, democracy won.'

'I would just like to thank you,' Judy approached the Fire Engineer. 'You're a real hero.'

'I just did what I could, but I fear that I was not able to do enough.' He turned to the area covered by the dust cloud.

'We have seen two kinds of people today willing to give up their lives for what they believe in. The first kind gave up their lives to destroy the lives of others. The second kind gave up their lives to save the lives of others. That simple difference marks the lesson of this day, and in the end whoever's description of God is most accurate does not matter. It's what we do or fail to do to others that truly marks us.'

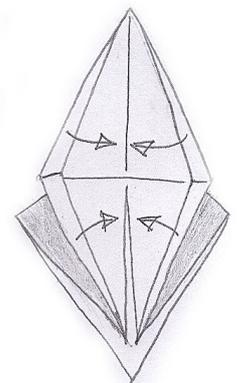
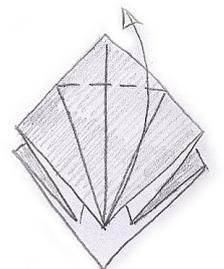
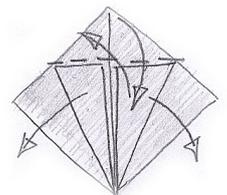
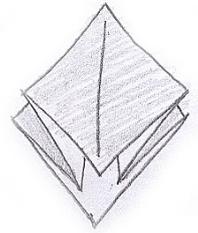
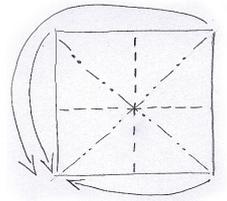
'The true heroes this day are the men and women of the rescue services who lie in the rubble of the twin towers.'

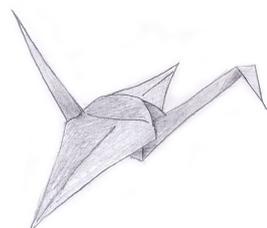
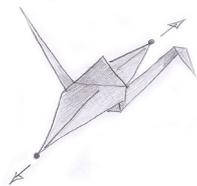
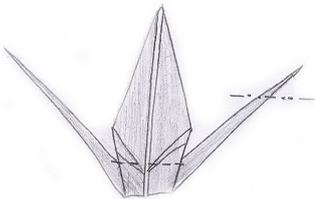
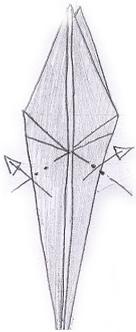
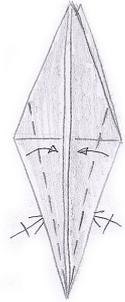
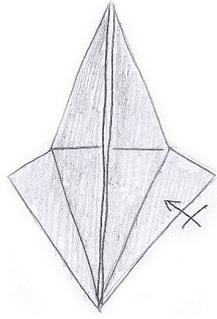
## Epilogue One

### Two weeks later at the Fire Engineer's base of operations

Sally finished packing her belongings. Just last minute things; most of it had been done last night. She zipped up her bag and paused for a moment looking around the room. So much had happened in these last two weeks. Her life had changed and, more importantly, the world had changed. It didn't seem such a nice place any more, and yet paradoxically, she had also experienced more caring thoughts and actions than she could ever remember before. Sometimes it takes the worst of times to bring out the best.

For these past two weeks Lisa and Steven had given her a home, a room of her own in their base of





**The crane - the origami symbol of peace**

operations. This world of theirs was so different to the one she had been accustomed to at work. And she remembered Jake, how much he had upset her, how much he had angered her. But now he was in that place she had wished him to be so many times, it didn't feel satisfying at all. In fact she had begun to feel sorry for him, sorry that he had been like that.

To think that his main contribution to life had been the misery he had brought to others.

Now she had the chance to move on, to start afresh, what would she do with her new-found enlightenment?

Leaving her bag, she went out of her room for breakfast. Lisa and Steven were already there. Lisa was intently folding a piece of paper in between bites of toast. Steven waved his hand at Sally and smiled with a mouthful of cornflakes. Sally sat down and poured herself a bowlful.

'What's that, Lisa?' Sally motioned to the paper she was folding.

'It's a crane.'

'It's Lisa's morning pick-me-up!' joked Steven.

'Very funny, Steven. It's actually a bird folded from a square of paper, a Japanese crane.'

'Yeah you're into origami. I saw that dragon in the control room on your console,' observed Sally.

'There is a story behind the crane. A Japanese legend proclaims that a wish is granted when a thousand cranes are folded.'

'And you believe this?'

'Well, Sally, legends are so named for a reason. But I believe we have a potential for positive thought. It's not beyond our understanding of the human brain to realise there is much we still don't understand of its full potential. What I do believe is that if we project positive thoughts, we will influence others. Unfortunately the opposite is also true.'

'So what's your wish?'

'Peace. Imagine, Sally, a thousand thoughts of peace. People the world over are doing this every day in their own way. Wishes of hopes and dreams are asked for by people the world over. Some call



it prayer. Their focus may be Allah, God, Mother Earth, a collective intelligence, or a group of Gods. It's all the same.

'The focus does not matter. The world has become too hung up on the differences between whose explanation is right, when the most important point has been missed. In a world full of such wonderful diversity would any supreme intelligence accept only one philosophy, when all are saying it exists?'

'You see Lisa's not just a pretty good technology nut.' Steven interrupted, 'she has her mystical side as well.' He winked at Lisa.

'Are you ready to go then?' he said to Sally.

'Well my bag's packed. Before I go though, I'd like to thank you both for what you've done for me.'

'What will you do?' Lisa asked.

'I don't know. I suppose there's nothing stopping me going back to what I was doing, but I was thinking of maybe doing something different. You guys have really opened my eyes. I don't know.'

'You mentioned you had some experience in recruitment in your last job,' Lisa recollected.

'Yeah, I know a bit about it. I was just assisting, really.'

'We wondered whether you may be able to help us in some recruitment of our own.' Steven looked at Lisa.

'Well as I say, I'm no expert, but sure, I'll help if I can. What type of person are you looking for?'

'We're not looking for anyone.' Steven held her gaze. 'We think we've found her.'

Lisa smiled at her. 'Sally, we would like you to join us.'

'What me? After what I did!'

'What you didn't do.' Steven reminded her.

'Of course there was the incident where you didn't

follow my instructions. Despite that you have shown true potential. And if you would like to work with us, we would be happy to give you a trial,' said Lisa.

'I really don't know what to say - it's excellent!'

'It won't be easy; there will be a lot of academic study. Lisa will show you project Firefly tomorrow and if you're happy we will give it a try,' said Steven.

'Yes...yes please.'

Lisa handed Sally a completed crane. Sally said, 'Would you teach me how to make one of these?'

Lisa passed her a piece of paper.

Just like the paper she was folding Sally's world had been reshaped. Two weeks ago she felt she had failed, that there was nothing left for her. As the crane began to take shape she made a wish; to whom that wish was made she did not know, but she did know that she had the power to do it, and that sometimes wishes do come true. Today was a new beginning.

She wished for peace.

## Epilogue Two

### Late evening on the same day

The events which had happened just two week ago had altered many people's perceptions.

Already plans were being made to help prevent possible future events like the World Trade Centre disaster. Airport security was tightened; building design was being reconsidered; the emergency services the world over were having to face up to the possibility of coping with a similar event in the future.

Lying on his bed, Steven contemplated his own place in all of this. The rain tapped a pattern on the glass roof, running in spidery streaks as if seeking a weakness in the enclosure, the smallest gap which would allow it to enter the room. Thunder rolled gently in the distance reminding humanity of nature's power. We may seek to tame the elements but we can only hold them at bay.

His thoughts flickered between the helplessness he felt when faced with the scale of the World Trade Centre disaster, and the fact he had been able to do something. At least his team had saved a few lives. This was the only comfort he could gain from the situation. But there was one thing that worried him more than the enormity and despair of the situation, and it had haunted his dreams for days.

He kept reliving the last few minutes in the tower, and what he had seen.

During those last few moments, a portion of the flame and smoke had changed from fractal forms of mass and enthalpy into something resembling human form, at least that's what he had perceived. This could not be, and yet he saw it, and he believed it. He knew he should tell Lisa, but knew what she would say.

Now that they had a new member of the team, it

was not just his own safety he would be risking by keeping this to himself. If he was hallucinating, he could be putting others in danger. But if he did tell Lisa, he knew it might possibly be the end of it all. She would want to stop all operations and look into the matter; analyse, risk assess.

The echo of that voice in his head resounded once again.

*'Know that we have returned!'*

Returned?

For a moment he considered the possibility that what he had seen was real. Could life forms exist in a gaseous state? Could flame be sentient? Was it really beyond all possibility? Life has been discovered in many forms on this planet; creatures of the sea; of the air; single cell life forms. Was a virus not a life form struggling to survive; battling against a hostile world? Flame exists for such a short period of time, but time is relative Einstein tells us, and time is relative to all these beings; some insects last only a few hours.

Everything was always calm after the rain, the cooling rain that washes the world. But no matter how hard it tries, the sins of man cannot be washed away.

Perhaps evolution had stepped into uncharted territory. Perhaps solid life forms were not the future of our world. In recent years we have been faced with viral infections of near epidemic proportions; a broom to sweep a path for the new order. Had mankind had its day?

Or were all these thoughts a way of evading the facts; a way of evading the pure and simple truth that he was going insane?



## Lisa's Origami



**M**y passion for origami stems from my Japanese roots. In Japan we are taught the traditional origami models from a young age. Since I became an adult I have found it to be both a pleasant contrast and inspiration for my day job.

### Rome was not built in a day

Do not expect your first version of a model to be good. Try making the model again. You will then be aware of the folding sequence and be able to make a better model next time around.

### Paper

Don't use paper which is too thick. Some models need thin paper, especially where multiple levels of papers are folded.

### Surface

Use a surface to fold on which has a contrasting colour to the paper, otherwise it will be difficult to see the edges of the paper and this will lead to inaccurate folding.

### Use sharp creases

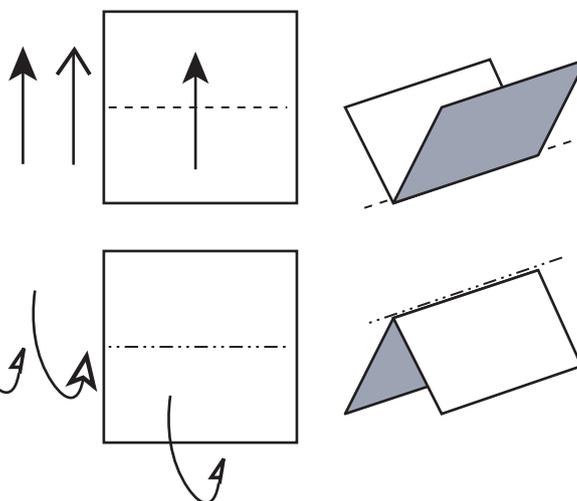
Sharp creases are the key to accurate models. Use your thumbnail, or some other thin hard object to create sharp creases such as an old credit card. A chopstick or the tools sculptors' use for modelling clay.

### Accuracy at corners

When folding to create a point in the corner of the paper, such as in the bird base, it is important to be accurate and fold exactly to the corner, otherwise the model will suffer later on.

### Symbols

Origami diagrams describe the folds by using standard symbols. The following provide an explanation of each of the common symbols.



Origami focuses the ability to conserve any form to its basic shape, avoiding the distraction of details. When designing new models you are forced to concentrate on the fundamental aspects of a design, bringing in the details only when necessary. An interesting philosophy for life in general, although I cannot say that I am always able to comply with this idea.

We decided to include origami in this Journal for a number of reasons. Firstly because I have found much enjoyment for origami and wished to introduce the art to others who may not be aware of its existence. Secondly it allows us to share the world of the fire engineer with readers in the form of three-dimensional models.

Origami needs to be practiced to perfect the technique of creating a model from folding paper. I have included in this issue a number of models; some simple and ultimately one which is of an intermediate level, requiring some practice to produce a pleasing design. The following guidance is intended to help anyone create these models - whatever your ability.

### Start with simple models

If you have never folded an origami model before, start with the simpler models, even if you are more interested in the more complex design at the end of the book. Only by learning from the simpler designs will you perfect your technique.

## The Folds

### Mountains and Valleys

When the same is different. These are the two basic folds in origami. They are the essence of all models and are acceptable folds in the sub category of limited origami design known as 'Pureland'. Effectively they are the same fold reversed. Although origami symbols are now standardised there are still some variations.

### Arrows -

There are two commonly used arrowhead styles currently in use. For valley folds, the solid arrowhead shown on the left of the illustration is mostly favoured. Mountain arrows also have two different styles commonly in use. The half white arrowhead illustrated on the left of the illustration is most commonly used today, although the complete white arrow is also used.

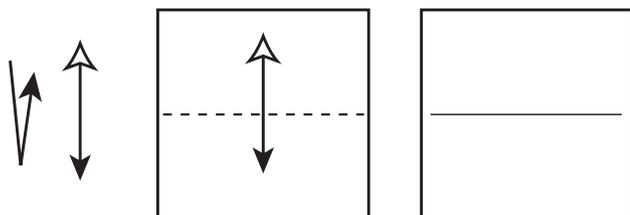
### Line Styles -

The dashed valley line is now almost universally used today. The mountain style of two dots and a dash is the most common style used, although a single dot and dash is sometimes seen, but not favoured universally as it can be confused with a valley fold, particularly if the diagrams are hand drawn.

### Fold and Unfold

This is precisely what it says. The paper is folded along the line as for a valley or mountain fold as indicated, and then unfolded.

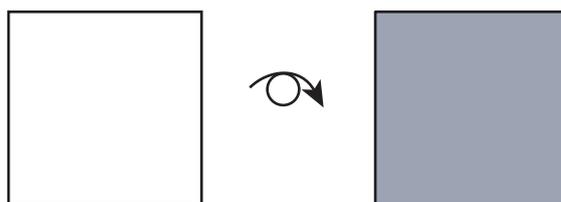
Two arrow styles are commonly in use as indicated.



### Turn Over

This symbol means turn the paper over from left to right. Be careful not to rotate the paper - just turn left

to right.



### Repeat

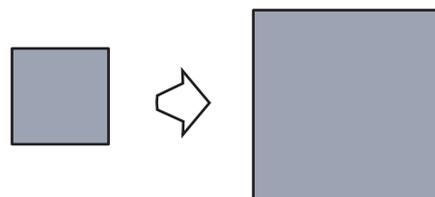
This symbol means repeat the folds where the arrow is pointing. the numbers above the arrow indicate the steps to be repeated.

12-14



### Next view enlarged

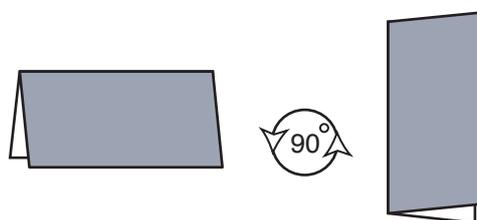
It is sometimes necessary to look at the model in a larger view, so that the folds can be seen more clearly



### Rotate

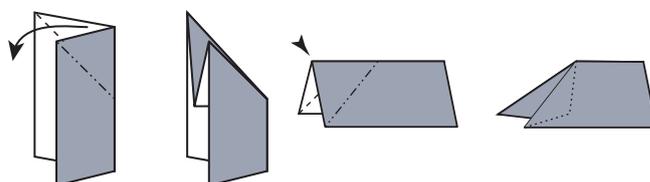
This symbol directs you to rotate the model to the angle shown.

90 degrees is a quarter turn. 180 degrees is a half turn, etc.



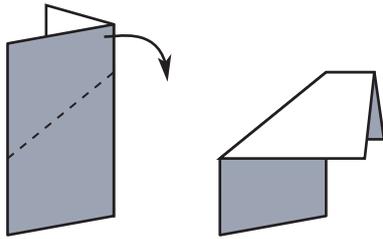
### Inside reverse fold

This directs you to push the folded part inside the model.



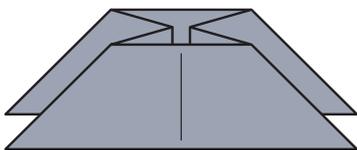
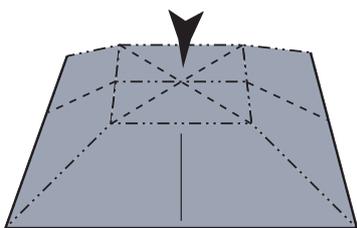
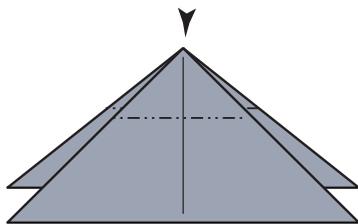
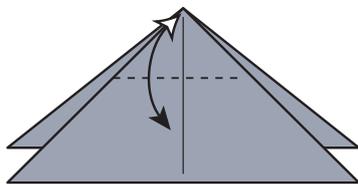
## Outside reverse fold

This directs you to pull the paper around the outside of the model as shown.



## Squash fold

This is one of the most difficult folds to master and requires some practice. It is featured in the main model in this issue, so persevere.

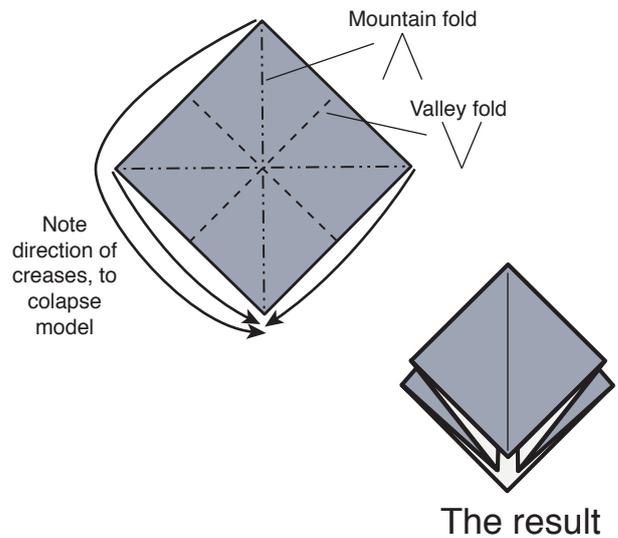


## Main bases - The preliminary and bird base

Most origami models begin by working from what is known as a base. Probably the most well known base is the bird base - so named because it is ideal for depicting birds. However its usefulness is somewhat masked by its name. This base can in fact be used to create all kinds of models, which are far removed

from birds.

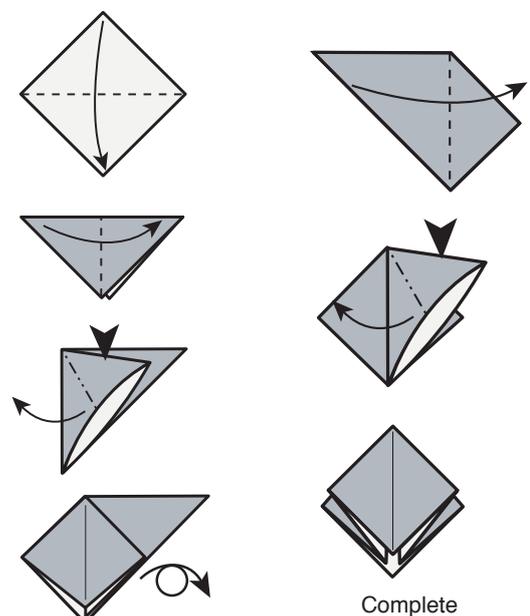
Our main model this issue uses this base. It is also used in the crane model contained in the story text.



The bird base itself is also derived from another base known as a preliminary base. The diagrams for the preliminary base can be shown in one diagram as shown in the next illustration and also used in our Dancing Angel diagrams. This is a short cut showing many folds at once. However this is not easy for the beginner to understand.

Therefore I have indicated the steps to create a preliminary base in full below.

Therefore when creating the Dancing Angel model at step 5 the following sequence shows the full sequence of folds.



## Models for this issue

We begin the models in this issue with a simple house. This is intended to help you understand the folding sequence you will be encountering with later models.

The house is known as a traditional model. This means that the folding sequence has been handed down through time and the name of the person who first created the design has been long forgotten.

It is a good model to learn some of the basic techniques.

We will then go on to create some new models depicting a fire and something to put the fire out. Both these designs are relatively simple but will add to your abilities to understand how origami models are created from diagrams.

Then we have a flying peace dove reflecting the message of our story in this issue. This model really flies. Make a few and fly them to your friends with messages of peace.

Our main models this issue is of the Dancing Angel and is the most difficult.

This model begins by folding all four corners to the

centre of the square. This is known a 'blintzing'. In this case it is done merely to thicken the model, to give more structure to the Dancing Angel's shape. Then follows the creation of a preliminary base and a short cut single diagram (step 5) is shown to depict this. However as discussed previously the full folding sequence of the preliminary base is shown on the previous page.

Then a bird base is created. Following this a squash fold is performed in step 14. This is difficult if you are new to origami, but once again the short cut folding steps in the diagrams for the Dancing Angel have been expanded to better show how to fold a squash fold (see explanation on previous page).

The remainder of the model should present no major difficulties. Remember:-

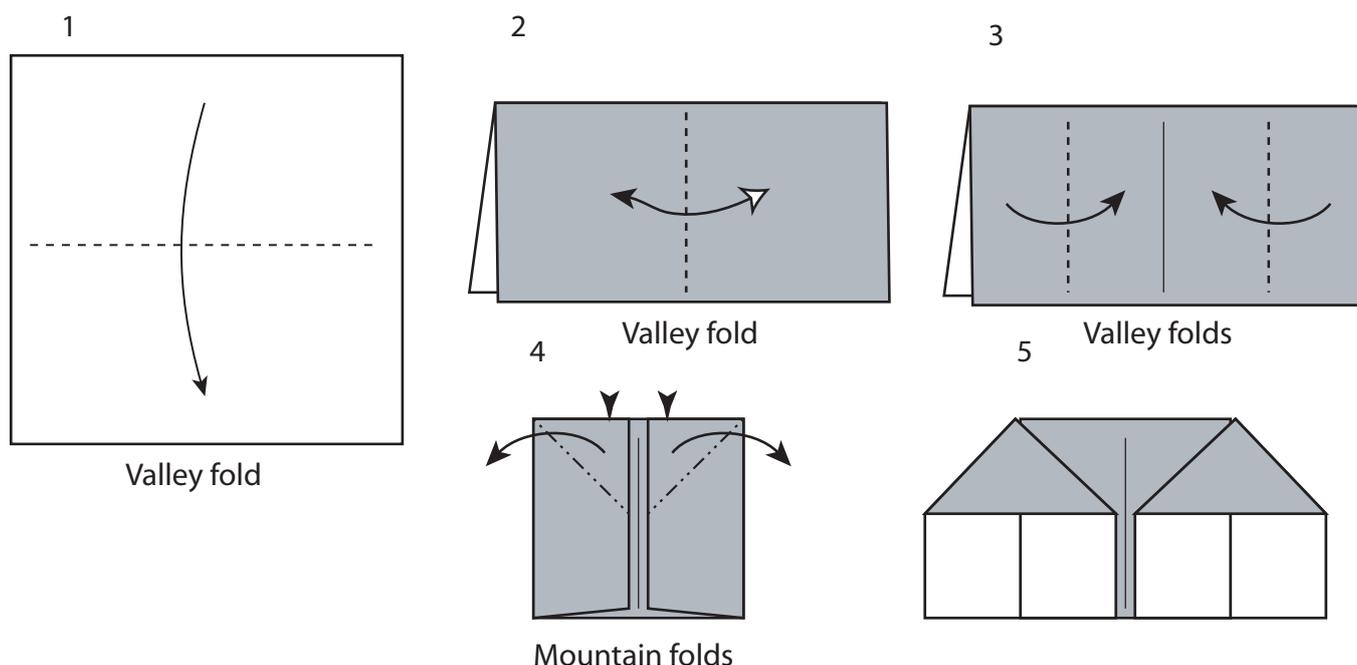
Look one step ahead to see what the fold looks like when completed.

Do not expect the model to be perfect the first time you fold it.

Practice makes perfect.

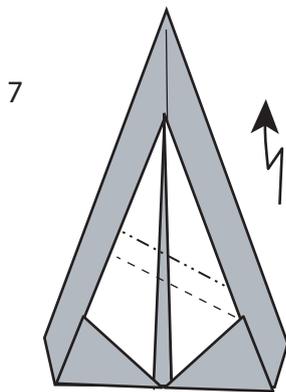
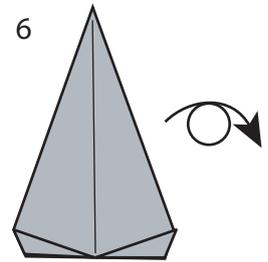
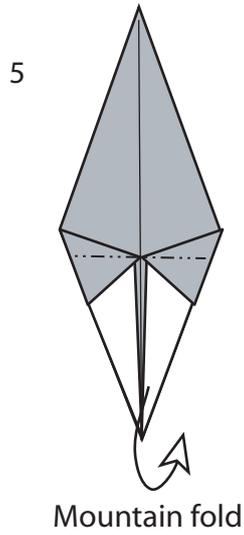
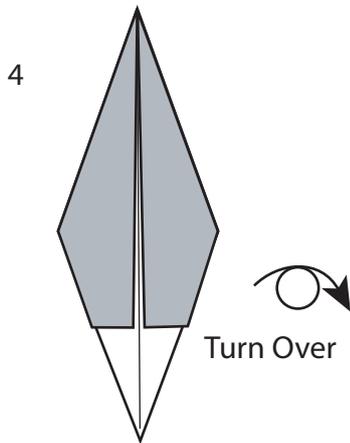
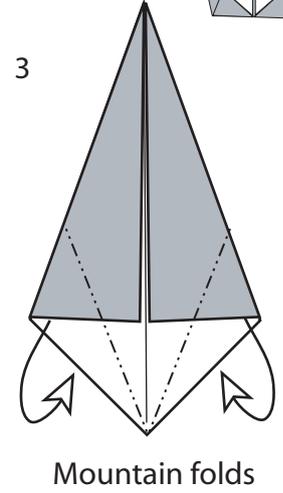
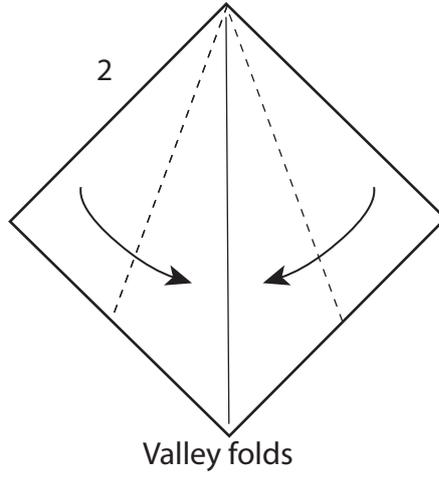
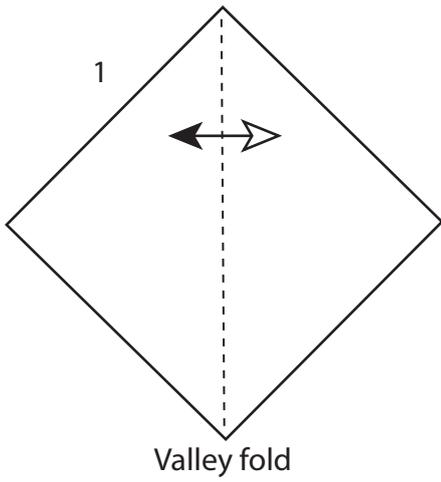
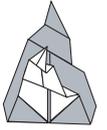
We would be interested to see your completed models - send a photo to [info@thefireengineer.com](mailto:info@thefireengineer.com)

## Traditional model - House

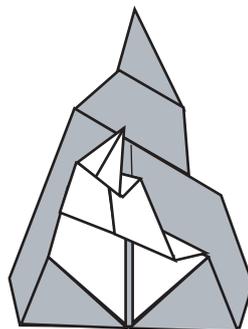
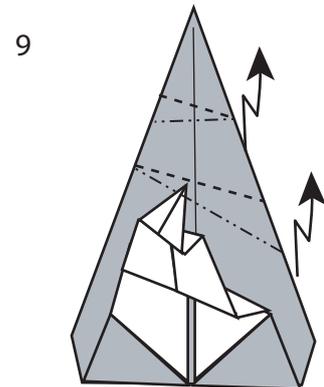
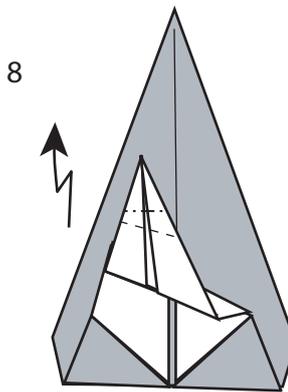


# The Flame

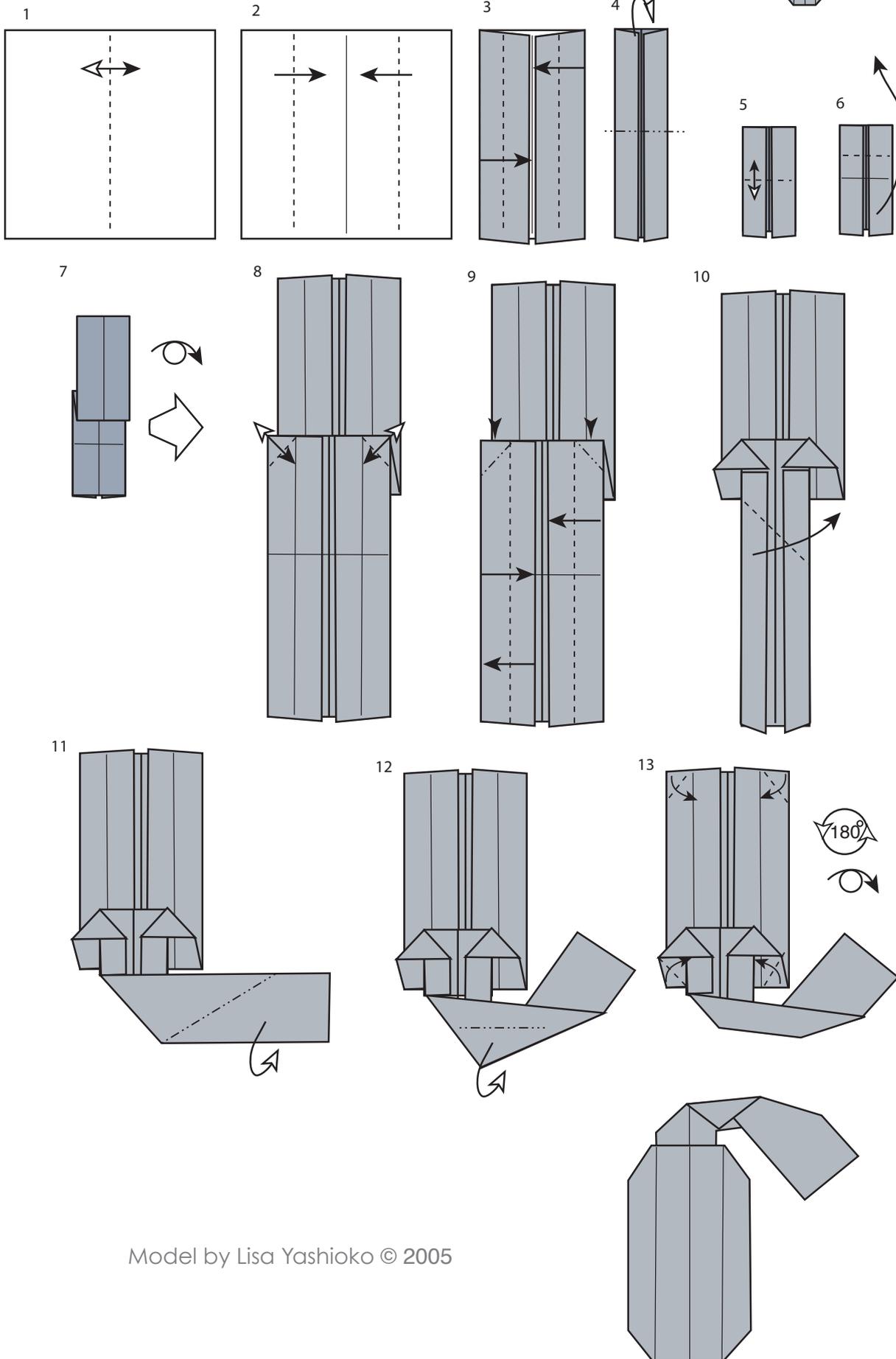
Model by Lisa Yashioko © 2005



Mountain and Valley folds



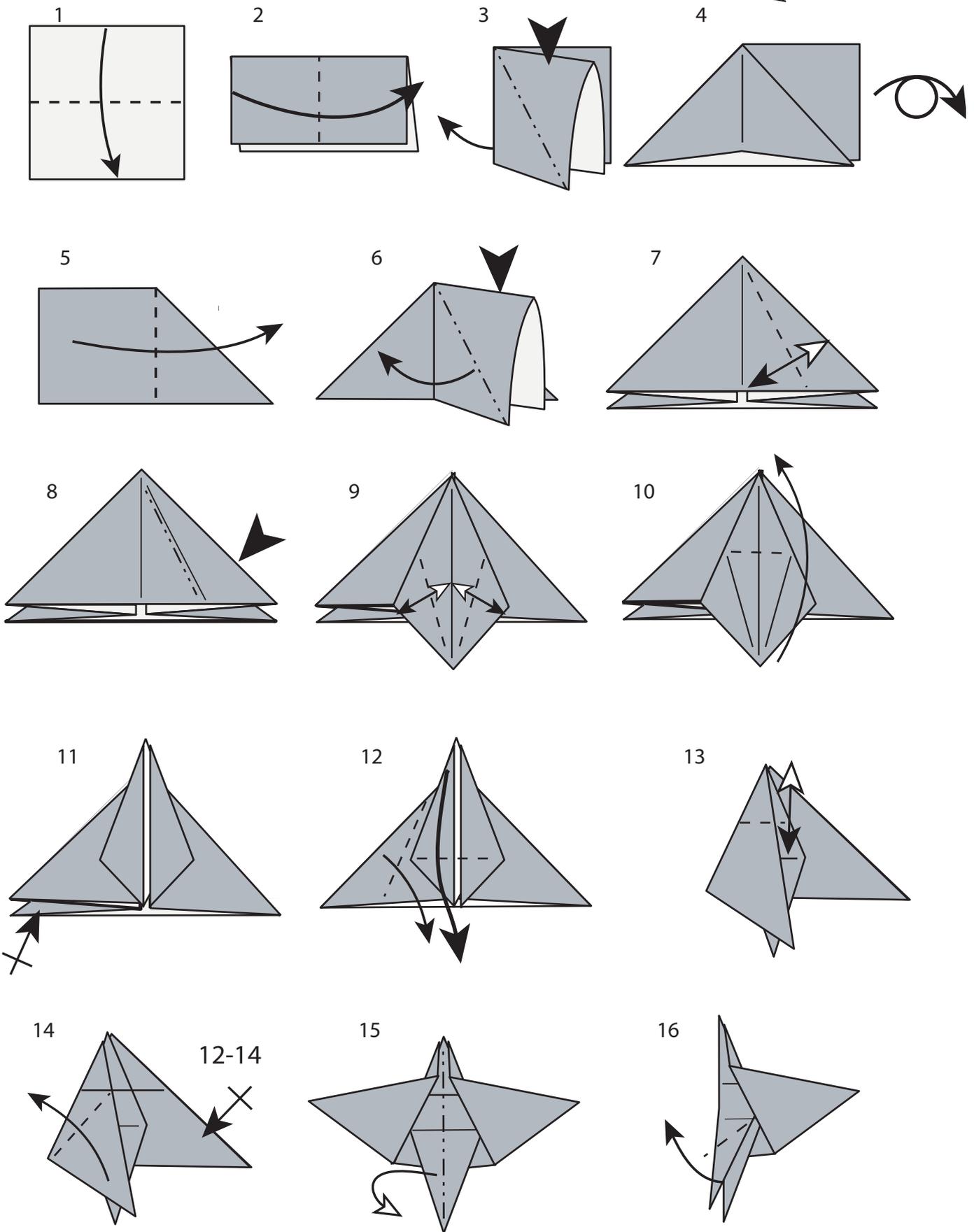
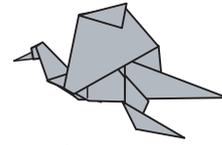
# Simple fire extinguisher



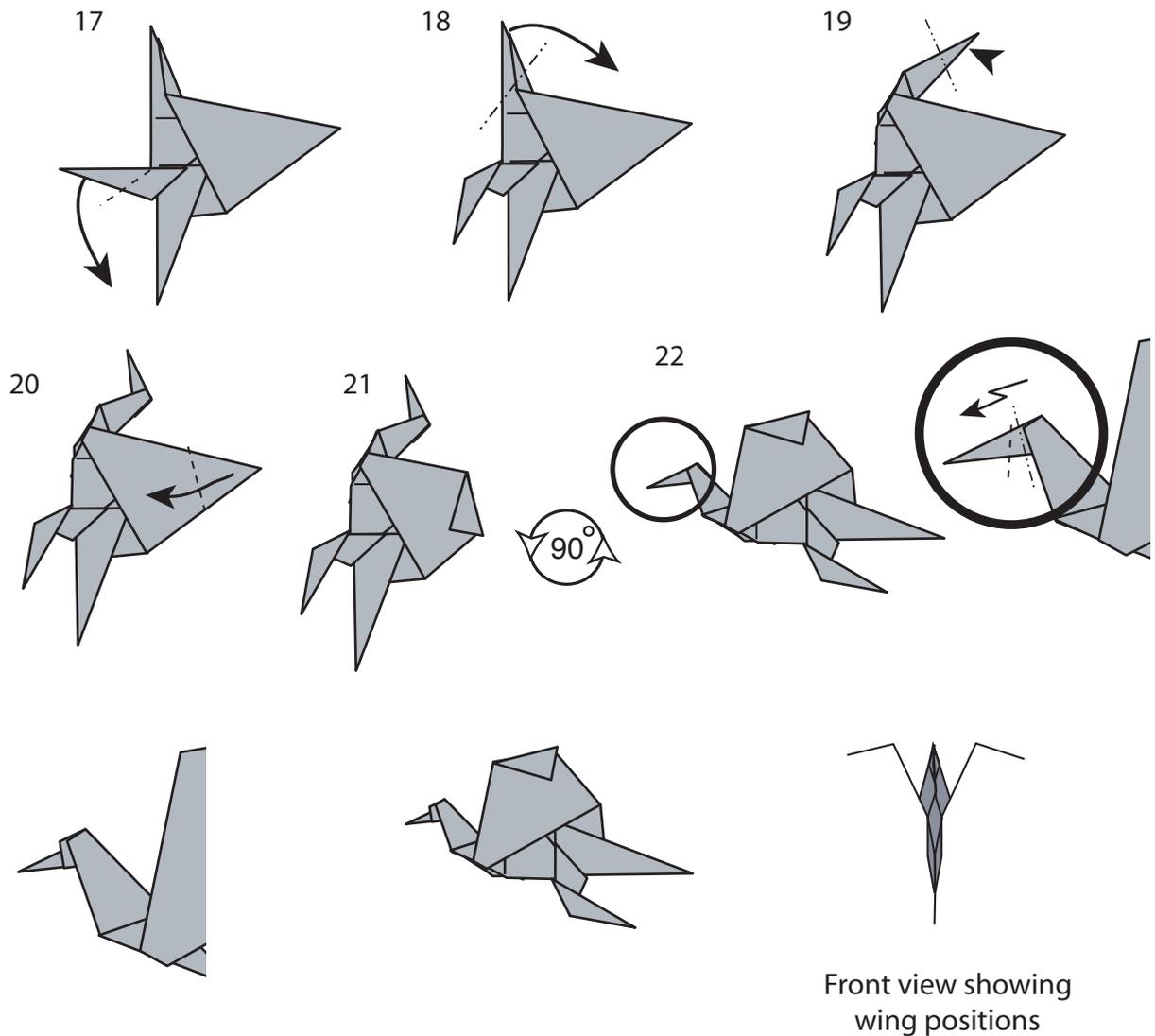
Model by Lisa Yashioko © 2005

# Flying Dove of Peace

Model actually flies



Model by Lisa Yashioko © 2005



## DOVE OF PEACE

One of the most recognised symbols of peace is the dove. Its origins are from the story of Noah and the ark. When the rains that flooded the earth stopped pouring down, Noah sent out various birds to see if they would bring back any sign of land to his boat. He was anxious to begin life again on dry pasturage. One dove eventually returned carrying an olive branch. After world war II the artist Pablo Picasso, was responsible for the decisive use of the dove of peace. His lithograph designed for the international peace congress in Paris, 1949, features the white dove.

## THE PEACE CRANE

Within Asia the white crane is the bird of peace. Originally it was the sort of peace that comes with prosperity and friendship, such that war is not even considered. The crane took on even greater significance as a peace symbol within Japan right after the bombings of Hiroshima and Nagasaki. In 1955 an eleven year old Japanese girl named Sadako Sasaki was diagnosed with leukemia from exposure to nuclear radiation. She heard that if she folded a thousand paper cranes, she would be granted a wish. So she began folding one crane after another, wishing for a well body within a world of peace. Sadly, she died within the year, but her story went out to the people of the world. An organisation has been founded in memory of Sadako whose purpose is to unite children in the effort for peace - 'the world peace project for children'. Diagrams for the peace crane are in the text of the story in this issue.

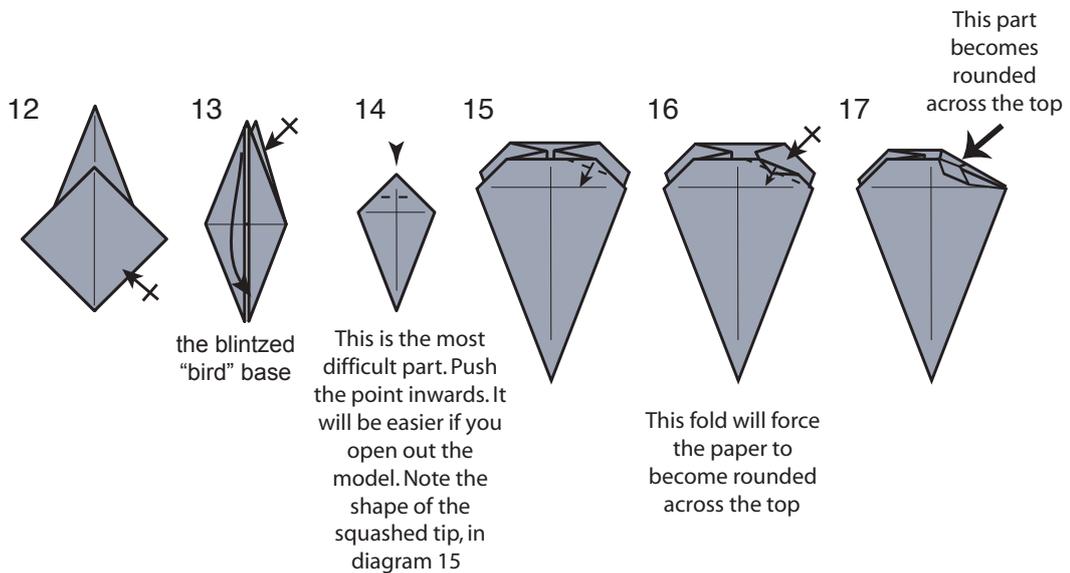
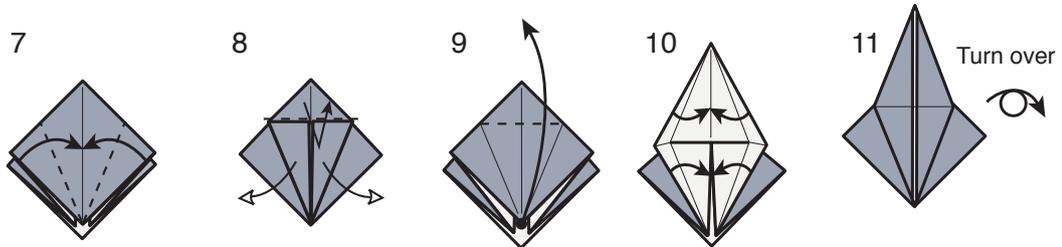
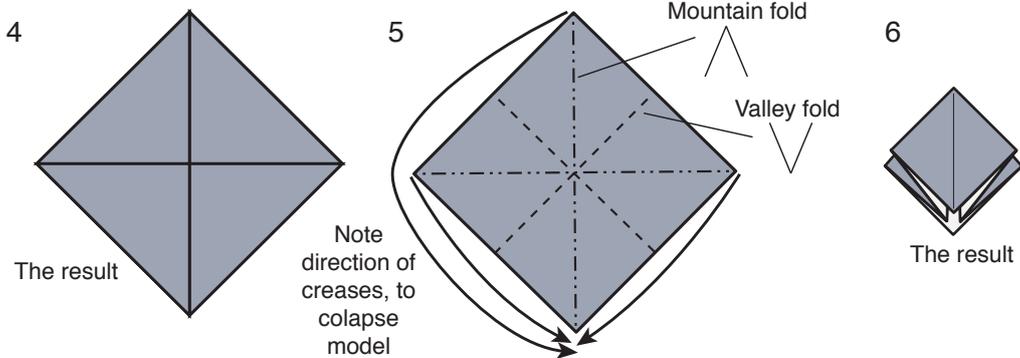
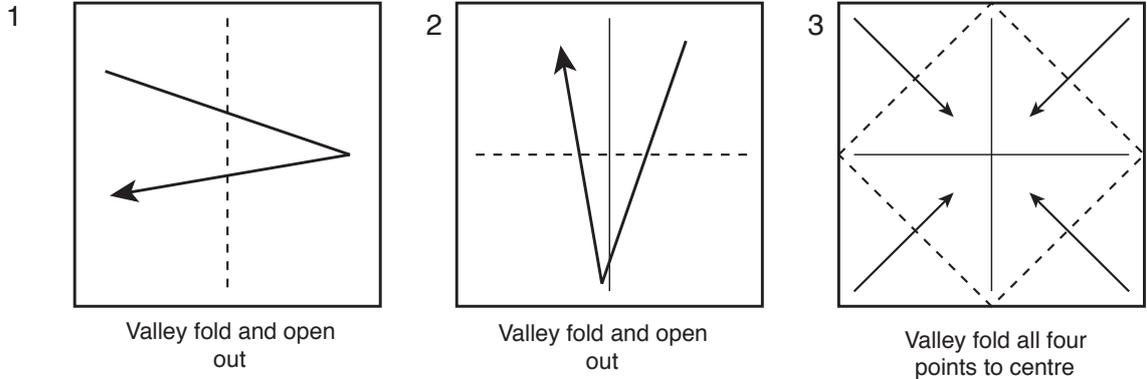
# Dancing Angel

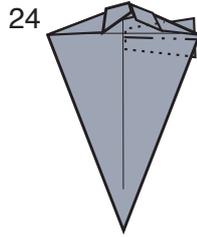
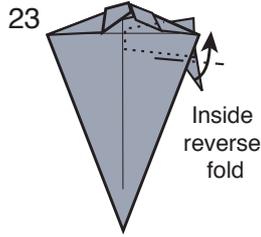
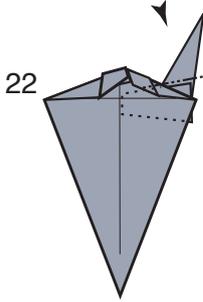
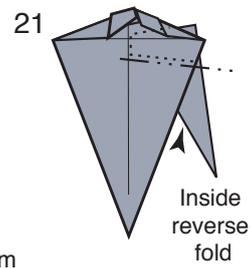
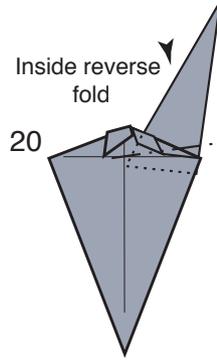
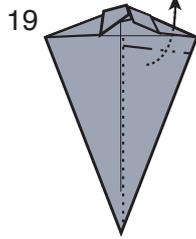
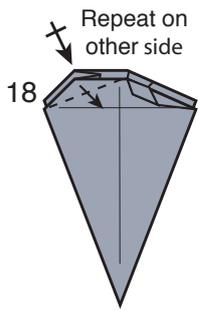
## The Fire Engineer's flying fire fighting craft

Model by Lisa Yashioko © 2004

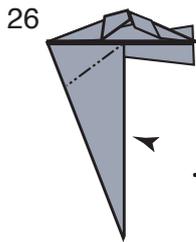
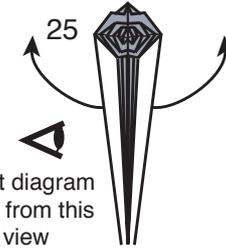


Lisa uses origami to conceptualise designs for the Fire Engineer's craft. The nature of folding from a square forces a conservative design.

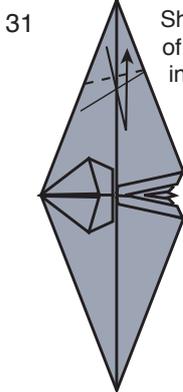
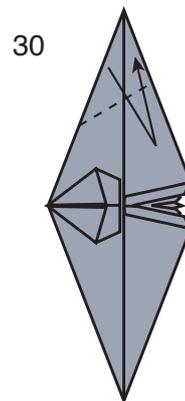
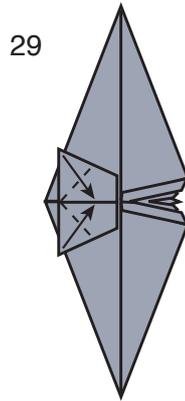
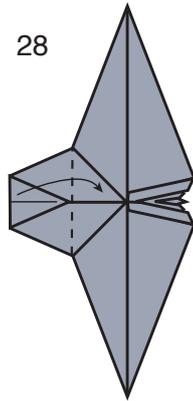
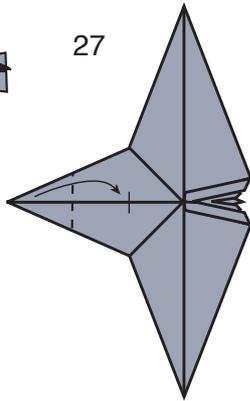




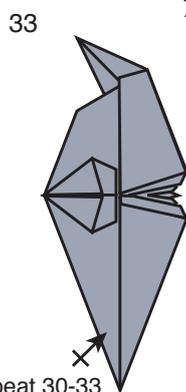
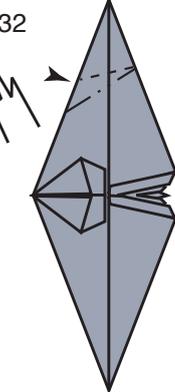
Next diagram (25) from this view



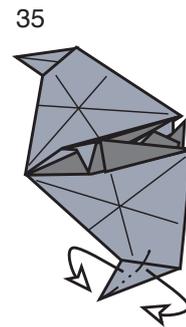
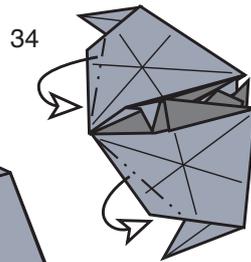
Next diagram (27) from this view (underside of model)



Shape of fold in 32



Repeat 30-33 on this side



Completed

# Guide to Fire Engineering

## The properties of fire - 1 - Flashover

What is the difference between a fire outdoors and one inside a building? Why do fires spread more quickly inside a building?

Most of us have seen a fire in the open, whether it is on November 5th (Bonfire night) or other similar events. The flames and smoke rise upward and provided you do not get too close, fire does not appear dangerous to the observer. Fires out in the open mainly spread due to wind blowing flaming brands from the source of the fire. Spread of fire can be rapid in the open, particularly in forests. Indoors there is no wind so surely fire spread must be slower?

In fact the opposite is true. In buildings it is smoke which causes rapid fire spread. Outdoors smoke merely rises upward and mixes with air flowing upward and away into the atmosphere. Inside this is not possible. In a room smoke rises upward from the fire and hits the ceiling. Because smoke is less dense than air, it is effectively lighter than air and therefore remains at ceiling level. The smoke continually being produced from the fire then flows along the ceiling until it reaches the walls, at which point it stops. If the room is large, smoke may lose its buoyancy and begin to drop downward close to the walls.

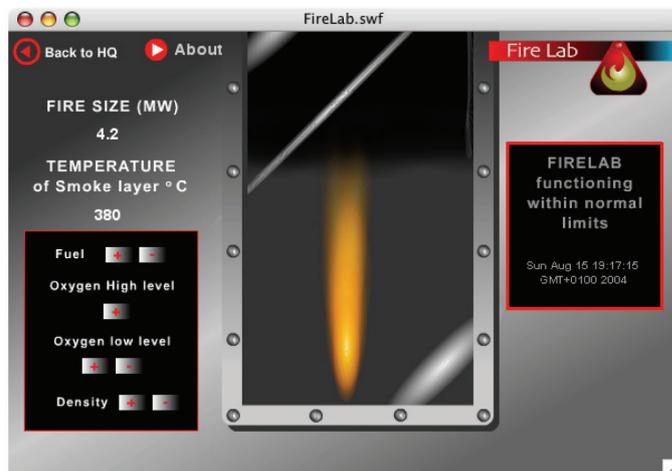
As smoke continues to be produced by the fire the layer of smoke on the ceiling deepens. At this point fire spread is only occurring due to the fire burning more fuel close to it. As the fire grows in this way it becomes hotter and most of the heat is travelling upwards, heating the smoke layer.

As the smoke layer reaches a temperature of about 600 degrees centigrade the heat radiating down heats all the combustible materials in the room.

**Below - Flashover - the manifestation which has appeared to the Fire Engineer, but is it just his imagination?**



To imagine how hot this temperature is, compare this to boiling water and multiply this temperature six times. The heat on the combustible materials such as a wooden table, arm chairs, television, etc. causes these materials to turn from a solid into a gas.



White smoke can be seen coming from these materials, this is the process of the surface of, for example, your wooden table turning into a gas. At 600 degrees centigrade this white gas ignites, and every combustible item in the room, your table, television, arm chairs, hi-fi unit, burst into flames, all at the same time! This is known as Flashover.

It is the heat in the smoke layer which causes this rapid fire spread. A situation which cannot exist in the open air because smoke does not form a layer.

Fire is too dangerous to experiment with, however, we have set up the fire lab on our web site - [www.thefireengineer.com](http://www.thefireengineer.com), in the HQ section, where we can interactively control a fire to see how it develops.

The controls allow you to alter the amount of fuel added to the fire, the amount of oxygen and density of the products of combustion. Play around with the controls as you like. But be warned, even in a laboratory environment, fire is still dangerous so please take notice of any warning messages which appear.

Remember oxygen may be the most common element on our planet, but fire is the most destructive natural force known to man.



# Sketchbook

## Creating the look of the Fire Engineer

The first step in designing the character of the Fire Engineer was to establish the intended audience. In the early days a very young audience were considered and therefore the early designs reflected this. However, as the ideas about the possibilities of the whole series began to flow it became apparent that many of these possibilities would not be appreciated by a very young audience.

The subject of fire has only been touched upon as far as any adventure series is concerned. There is a television program in the UK which bases its characters around a fire station, but it's a soap opera not an adventure series. There have been various films such as the *Towering Inferno*, and the puppet TV series *Thunderbirds* occasionally featured fire as the disaster from which people need rescuing, but nothing featuring a superhero character. We felt this was an area largely unexplored.

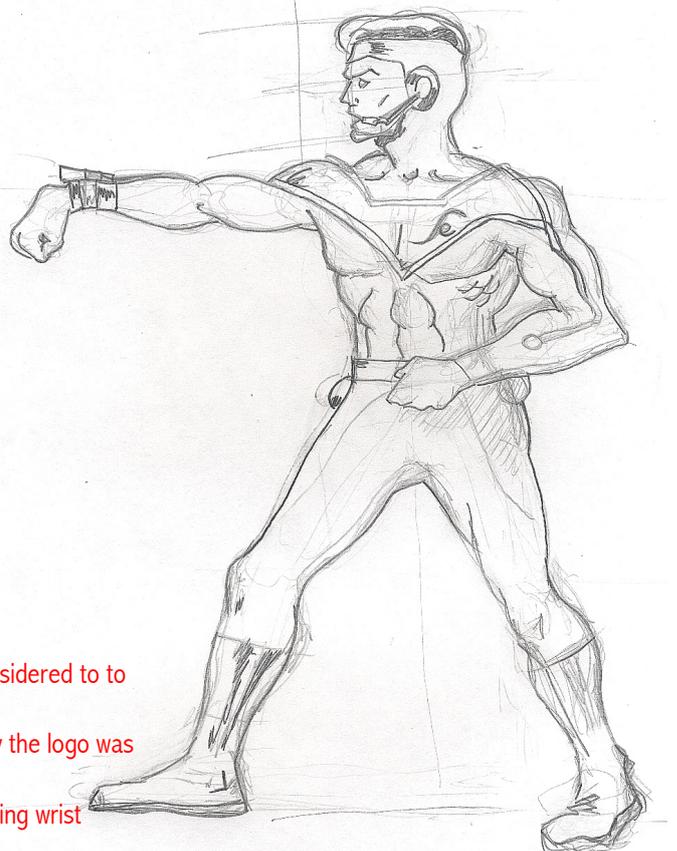
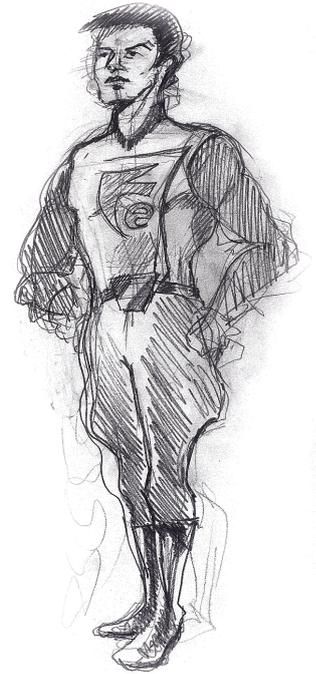
The second use of the series is to provide a subtle message about fire safety, although we did not want to preach. There are a few fire safety web sites featuring a character encouraging fire safety for a very

young audience, but nothing for an older audience and no superheroes.

The first design for the Fire Engineer had a militaristic feel to it, and deliberately avoided the traditional skin tight superhero look. This

idea was not considered suitable as it did not portray a unique look to the character. It also had a 1930s styling not in keeping with the 21st century.

The second design moved away from the military style and included the logo which continued to the final design. It was around this time that thoughts about the equipment he would be using emerged and the final design integrated the standard equipment. The microphone was a necessity for the contact with the Lisa character who monitors and gives him advice during his operations. Although a mike could have been concealed in his head covering, a visible presence was



Top right: The first design - considered to to 1930's influenced.

Below left: Second design - only the logo was used in the final design

Below roight: Final design showing wrist mounted extinguishing device

felt to be more dynamic and a symbol of his partial reliance on his team mate back at base. The design is a traditional one influenced by the head piece micro-phones used by pop stars, and the British army.

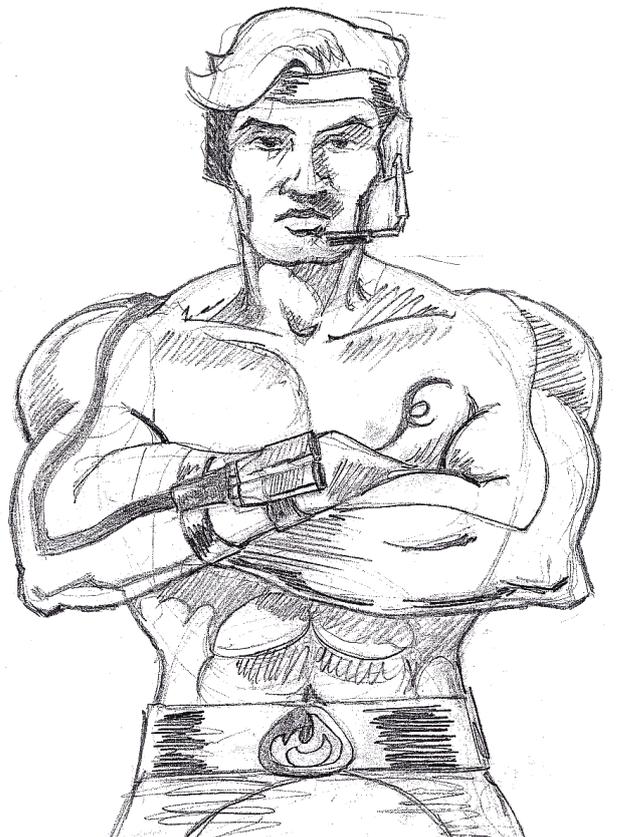
Superheroes usually have a need to hide their features in some way, so that their personal lives are not affected by their crime fighting activities. This did not appear necessary in this case as the Fire Engineer is not a crime fighter. The head piece to the costume therefore has an open face.

The Fire Engineer has the ability to resist the action of fire. Therefore his suit need not be a bulky affair for this purpose. However he is still exposed to the toxic and irritant affects of smoke and therefore needed a helmet of some kind for protection. This was solved by the use of a force screen style protective helmet, which is not a physical object, and can therefore be activated when needed, this allowed his presence to be in keeping with a sleek design.



Above: The first sketch which finalised the Fire Engineers design.

Below: Initial sketch of the cover for Issue 1 of the Fire Engineers Journal. A reflection of the World Trade center appears on the left side of the helmet (the Fire Engineers right side).



Below: Flat colour render showing the plasma shield in use.

